

**BASIC ASSESSMENT REPORT  
IN TERMS OF THE NATIONAL ENVIRONMENTAL MANAGEMENT ACT, 1998 (ACT NO. 107  
OF 1998) AND ENVIRONMENTAL IMPACT ASSESSMENT REGULATIONS, 2014 (AS  
AMENDED)**

**October 2017**

**PROJECT TITLE**

**AGTERFONTEIN BOERDERY (PTY.) LTD: PROPOSED  
ENLARGEMENT OF DRIEFONTEIN DAM**  
*On (Portion 33 of Farm Rietvalley No. 364, Ceres)*

**[SEPTEMBER 2018]**

<b>REPORT TYPE CATEGORY</b>	<b>REPORT REFERENCE NUMBER</b>	<b>DATE OF REPORT</b>
Pre-Application Basic Assessment Report (if applicable) <sup>1</sup>	16/3/3/6/7/1/B5/2/1358/17 (NOI)	MARCH 2018
Draft Basic Assessment Report <sup>2</sup>		
Final Basic Assessment Report <sup>3</sup> or, if applicable Revised Basic Assessment Report <sup>4</sup> (strikethrough what is not applicable)		

**Notes:**

1. In terms of Regulation 40(3) potential or registered interested and affected parties, including the Competent Authority, may be provided with an opportunity to comment on the Basic Assessment Report prior to submission of the application but must again be provided an opportunity to comment on such reports once an application has been submitted to the Competent Authority. The Basic Assessment Report released for comment prior to submission of the application is referred to as the "Pre-Application Basic Assessment Report". The Basic Assessment Report made available for comment after submission of the application is referred to as the "Draft Basic Assessment Report". The Basic Assessment Report together with all the comments received on the report which is submitted to the Competent Authority for decision-making is referred to as the "Final Basic Assessment Report".
2. In terms of Regulation 19(1)(b) if significant changes have been made or significant new information has been added to the Draft Basic Assessment Report, which changes or information was not contained in the Draft Basic Assessment Report consulted on during the initial public participation process, then a Final Basic Assessment Report will not be submitted, but rather a "Revised Basic Assessment Report", which must be subjected to another public participation process of at least 30 days, must be submitted to the Competent Authority together with all the comments received.

**DEPARTMENTAL REFERENCE NUMBER(S)**

Pre-application reference number:	16/3/3/6/7/1/B5/2/1358/17 (NOI)
File reference number (EIA):	
NEAS reference number (EIA):	
File reference number (Waste):	
NEAS reference number (Waste):	
File reference number (Air Quality):	
NEAS reference number (Air Quality):	
File reference number (Other):	
NEAS reference number (Other):	

## CONTENT AND GENERAL REQUIREMENTS

### Note that:

1. The content of the Department's Circular EADP 0028/2014 (dated 9 December 2014) on the "One Environmental Management System" and the Environmental Impact Assessment ("EIA") Regulations, 2014 (as amended), any subsequent Circulars, and guidelines must be taken into account when completing this Basic Assessment Report Form.
2. This Basic Assessment Report is the standard report format which, in terms of Regulation 16(3) of the EIA Regulations, 2014 (as amended) must be used in all instances when preparing a Basic Assessment Report for Basic Assessment applications for an environmental authorisation in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998) ("NEMA") and the EIA Regulations, 2014 (as amended) and/or a waste management licence in terms of the National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008) ("NEM:WA"), and/or an atmospheric emission licence in terms of the National Environmental Management: Air Quality Act, 2004 (Act No. 39 of 2004) ("NEM:AQA") when the Western Cape Government: Environmental Affairs and Development Planning ("DEA&DP") is the Competent Authority/Licensing Authority.
3. This report form is current as of October 2017. It is the responsibility of the Applicant/ Environmental Assessment Practitioner ("EAP") to ascertain whether subsequent versions of the report form have been released by the Department. Visit the Department's website at <http://www.westerncape.gov.za/eadp> to check for the latest version of this checklist.
4. The required information 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 tables may be expanded where necessary.
5. The use of "not applicable" in the report must be done with circumspection. All applicable sections of this report form must be completed. Where "not applicable" is used, this may result in the refusal of the application.
6. While the different sections of the report form only provide space for provision of information related to one alternative, if more than one feasible and reasonable alternative is considered, the relevant section must be copied and completed for each alternative.
7. Unless protected by law, all information contained in, and attached to this report, will become public information on receipt by the competent authority. If information is not submitted with this report due to such information being protected by law, the applicant and/or EAP must declare such non-disclosure and provide the reasons for believing that the information is protected.
8. Unless otherwise indicated by the Department, one hard copy and one electronic copy of this report must be submitted to the Department at the postal address given below or by delivery thereof to the Registry Office of the Department. Reasonable access to copies of this report must be provided to the relevant Organs of State for consultation purposes, which may, if so indicated by the Department, include providing a printed copy to a specific Organ of State.
9. This Report must be submitted to the Department and the contact details for doing so are provided below.
10. Where this Department is also identified as the Licensing Authority to decide applications under NEM:WA or NEM:AQA, the submission of the Report must also be made as follows, for-
  - Waste management licence applications, this report must also (i.e., another hard copy and electronic copy) be submitted for the attention of the Department's Waste Management Directorate (tel: 021-483-2756 and fax: 021-483-4425) at the same postal address as the Cape Town Office.
  - Atmospheric emissions licence applications, this report must also be (i.e., another hard copy and electronic copy) submitted for the attention of the Licensing Authority or this Department's Air Quality Management Directorate (tel: 021 483 2798 and fax: 021 483 3254) at the same postal address as the Cape Town Office.

## DEPARTMENTAL DETAILS

CAPE TOWN OFFICE		GEORGE REGIONAL OFFICE
REGION 1 (City of Cape Town & West Coast District)	REGION 2 (Cape Winelands District & Overberg District)	REGION 3 (Central Karoo District & Eden District)
<p>Department of Environmental Affairs and Development Planning Attention: Directorate: Development Management (Region 1) Private Bag X 9086 Cape Town, 8000</p> <p>Registry Office 1<sup>st</sup> Floor Utilitas Building 1 Dorp Street, Cape Town</p> <p>Queries should be directed to the Directorate: Development Management (Region 1) at: Tel.: (021) 483-5829 Fax: (021) 483-4372</p>	<p>Department of Environmental Affairs and Development Planning Attention: Directorate: Development Management (Region 2) Private Bag X 9086 Cape Town, 8000</p> <p>Registry Office 1<sup>st</sup> Floor Utilitas Building 1 Dorp Street, Cape Town</p> <p>Queries should be directed to the Directorate: Development Management (Region 2) at: Tel.: (021) 483-5842 Fax: (021) 483-3633</p>	<p>Department of Environmental Affairs and Development Planning Attention: Directorate: Development Management (Region 3) Private Bag X 6509 George, 6530</p> <p>Registry Office 4<sup>th</sup> Floor, York Park Building 93 York Street George</p> <p>Queries should be directed to the Directorate: Development Management (Region 3) at: Tel.: (044) 805-8600 Fax: (044) 805 8650</p>

## TABLE OF CONTENTS:

Section	Page(s)
Section A: Project Information	9
Section B: Description of the Receiving Environment	19
Section C: Public Participation	38
Section D: Need and Desirability	41
Section E: Details of all the Alternatives considered	46
Section F: Environmental Aspects Associated with the Alternatives	50
Section G: Impact Assessment, Impact Avoidance, Management, Mitigation and Monitoring Measures	57
Section H: Recommendations of the EAP	68
Section I: Appendices	70
Section J: Declarations Originals (to be added with the Final BAR)	71

## ACRONYMS USED IN THIS BASIC ASSESSMENT REPORT AND APPENDICES:

BAR	Basic Assessment Report
CBA	Critical Biodiversity Area
DEA	National Department of Environmental Affairs
DEA&DP	Western Cape Government: Environmental Affairs and Development Planning
DWS	National Department of Water and Sanitation
EIA	Environmental Impact Assessment
EMPr	Environmental Management Programme
ESA	Ecological Support Area
HWC	Heritage Western Cape
I&APs	Interested and Affected Parties
NEMA	National Environmental Management Act, 1998 (Act No. 107 of 1998)
NEM:AQA	National Environmental Management: Air Quality Act, 2004 (Act No. 39 of 2004)
NEM:ICMA	National Environmental Management: Integrated Coastal Management Act, 2008 (Act No. 24 of 2008)
NEM:WA	National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008)
NHRA	National Heritage Resources Act, 1999 (Act No. 25 of 1999)
PPP	Public Participation Process

## DETAILS OF THE APPLICANT

Applicant / Organisation / Organ of State:	Agterfontein Boerdery Pty (Ltd)		
Contact person:	Mr D G Malherbe		
AppPostal address:	P.O. Box 77 Ceres		
Telephone:	( 023 ) 312 1244	Postal Code:	6835
Cellular:	082 447 9002	Fax:	( 023 )616 2675
E-mail:	admin@agterfontein.co.za		

## DETAILS OF THE ENVIRONMENTAL ASSESSMENT PRACTITIONER ("EAP")

Name of the EAP organisation:	EnviroAfrica		
Person who compiled this Report:	Inge Erasmus under supervision of Bernard De Witt		
EAP Reg. No.:			
Contact Person (if not author):			
Postal address:	P.O. Box 5367 Helderberg		
Telephone:	( 021 ) 851 1616	Postal Code:	7135
Cellular:	0834170800	Fax:	( 086 )512 0154
E-mail:	<a href="mailto:admin@enviroafrica.co.za">admin@enviroafrica.co.za</a> / <a href="mailto:inge@enviroafrica.co.za">inge@enviroafrica.co.za</a>		
EAP Qualifications:	Inge – BA Hons Geography and Environmental Studies Bernard - B. Sc. in Forestry and a B. A. (Hons) in Public Administration		

Please provide details of the lead EAP, including details on the expertise of the lead EAP responsible for the Basic Assessment process. Also attach his/her Curriculum Vitae to this BAR.

Inge completed her BA Honours Degree in Geography and Environmental Studies at Stellenbosch University in 2016. 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 EnviroAfrica in February 2017, generally performing duties as an environmental assessment practitioner with regards to NEMA EIA applications. Inge is currently busy with a variety of projects of which include Basic Assessments and Waste License Applications for mining and development related projects in the Northern Cape. She is also in the process of conducting a variety of Scoping and Environmental Impact Assessments for projects in the Western Cape, obtaining Environmental Authorisation for new storage dams as well as new agricultural developments.

Bernard: After qualifying with a B. Sc. in Forestry and a B. A. (Hons) in Public Administration at the University of Stellenbosch Bernard joined the Department of Forestry as an Indigenous Forest Planner in 1983, going on to become Manager of the Table Mountain Reserve with the Cape Town Council. He then joined Cape Nature Conservation (CNC) and headed its Conservation Planning Section before taking up the position of District Manager of the Boland area (inc. the Hottentots Holland and Kogelberg). As a Regional Ecologist, he co-ordinated managerial and scientific inputs into Provincial Nature Reserves in the Boland, Overberg and West Coast regions. For the last four years of his employment he assessed and evaluated development applications, from an environmental perspective, on behalf of CNC (now DEA&DP). Since he left DEA&DP 10 years ago he has been involved in environmental consulting in the private sector as a member of **EnviroAfrica**.

### CVs of the EAP Appendix L

## EXECUTIVE SUMMARY OF THE BASIC ASSESSMENT REPORT:

### Proposed Project:

Agterfontein Trust proposed the enlargement of the existing Driefontein dam on Portion 33 of the Farm Rietvalley No. 364, Ceres of which an existing water use license exists. The existing dam did not provide enough storage capacity on the farm for scheduled winter water from the Warmbokkeveld Scheme and a substantial portion of the water has been sacrificed and lost to the benefit of downstream water users for many year. There is thus no need to apply for a new water use license for the *taking of water*. The dam is however, classified as an instream dam and therefore other activities in term of section 21 of the National Water Act (Act 36 of 1998) will be triggered.

Sarel Bester Ingenieurs submitted the EWULA **WULA REF: WU7859** (File no: 27/2/1/H310/4/1) for other activities that trigger section 21 of the National Water Act. These are the following:

- S21 (b) *Storing of water*
- S21 (c ) *Impeding or diverting the flow of the water course*
- S21 (i) *Altering the bed, bank, course or characteristic of a watercourse*

It is proposed that the enlargement of Driefontein dam will take place in two phases; Phases 1 and Phase 2. Please refer to **Appendix K for Sarel Bester Ingenieurs BK Preliminary Design Reports: 1731DOV-S2** (for Phase 1) **and 1731DOV-S2(Rev1)** (for Phase 2).

Phase 1 proposes the enlargement of Driefontein dam with a storage capacity of approximately 320 000m<sup>3</sup>. Thereby increasing the dam's capacity by ±80 000m<sup>3</sup> for the storing of wasted water and make it possible for the applicant to expand his current production with about 10ha of deciduous fruits.

The situation was reconsidered, and a second phase enlargement is proposed.

Phase 2 proposes a second enlargement, increasing the storage capacity of Driefontein dam to approximately 420 000m<sup>3</sup>. Thereby increasing the dam's total capacity by ±180 000m<sup>3</sup> for the storing of wasted water and make it possible for the applicant to expand his current production with about 22ha if deciduous fruit.

The expansion of the total 22ha of deciduous fruit orchards will be on previously cultivated land which will not trigger any Listed Activities in term of NEMA. Water will be pumped from the dam to the new orchards for irrigation. Irrigation pipes will connect with existing irrigation infrastructure and should not trigger any Listed Activities in terms of NEMA (Layout plan still to be provided).

According to the **Preliminary Design Reports Appendix K** The proposed Phase 1 and Phase 2 enlargement of Driefontein Dam (Portion 33 of Farm Rietvalley 364) will have following measurements:

Description	Existing	Phase 1 Enlargement	Phase 2 Enlargement
Wall length	300 m	390 m	431 m
Wall height	7,4 m	8,95 m	9,55 m
Net storage capacity	239 000 m <sup>3</sup>	±321 000 m <sup>3</sup>	±420 000m <sup>3</sup>
Total Footprint	10.51ha	14,20ha	16,90ha
Total earthworks		17 800 m <sup>3</sup>	25 000 m <sup>3</sup>

The existing spillway will be demolished (**Appendix C for site photographs**), and a new spillway will be constructed. The footprint will remain the same. The spillway will be heightened with the same measurements of the dam wall: During phase 1 the spillway will be increased with 1,55m and then a further 0,6m during phase 2. The spillway footprint will remain the same but with a total increase in height of 2,15m.

### **Site Description:**

The dam is located on Portion 33 of Rietvalley, No. 364, Ceres.  
The SG Digit code is: C019 0000 00000364 00033 and  
The proposed dam centre coordinates are: 33° 21' 10.4"S; 19° 24' 14"E

According to Cape Farm Mapper, historically the dam would be located within Ceres Shale Renosterveld which is classified vulnerable. The site has already been transformed due to past and ongoing agricultural activities of wheat farming with no natural vegetation remaining.

### **Services**

No new water will be abstracted so a WULA will not have to be conducted for the taking of water but for the storing but for other activities that trigger section 21 (b); (c) & (i) of the National Water Act.

Water will be pumped from the dam to the new orchards for irrigation. Electricity would be provided by Witzenberg Local Municipality and come from Eskom's exiting connections. Irrigation pipes will connect with existing irrigation infrastructure and should not trigger any Listed Activities in terms of NEMA (Layout plan still to be provided).

Existing access roads will be used.

### **Environmental Legal Requirements**

The National Environmental Management Act (NEMA, Act 107 of 1998), as amended, makes provision for the identification and assessment of activities that are potentially detrimental to the environment and which require authorisation from the competent authority based on the findings of an Environmental Assessment. NEMA is a national act, which is enforced by the Department of Environmental Affairs (DEA). In the Western Cape, these powers are delegated to the Department of Environmental Affairs & Development Planning (DEA&DP). Section A(d) of this document, lists all the activities that were identified as "triggered" by the proposed activity. It also discusses activities that "might" be triggered, in terms of the 2014 EIA (Environmental Impact Assessment) Regulations as amended.

### **Significant Environmental Aspects:**

#### **Biodiversity:**

According to the Vegetation Map (**Appendix D**) and the Botanical Statement report (**Appendix G**) the site is located in an area that historically would have been covered by a vegetation type known as Ceres Shale Renosterveld, classified as vulnerable in terms of NEMBA. Site visits conducted by the Biodiversity specialist (Report **Appendix G1**) confirm that no natural vegetation was encountered on the site or its immediate surroundings, apart from a few hardy (and mostly weedy) species on or just below the dam wall or within the uncultivated areas near the seasonal drainage lines.

From the Biodiversity Overlay Maps from Cape Farm Mapper (**Appendix D**) and the Botanical Statement conducted by the Biodiversity Specialist (**Appendix G1**) the site falls within an Ecological Support Area Class 2 (ESA2) not a CBA. The biodiversity specialist is of the opinion that in this case the ESA2s are delineations along the seasonal streams. Ideally, these areas should be restored to its natural state. However, in this case, restoration will require intervention as there are no more natural vegetation left, not even riparian vegetation due to agricultural activities. Ideally ecological support areas should be established along the small streams. As a potential off-set the re-establishment and protection (fencing them off) of a more natural riparian vegetation along these streams should be considered. But this will be difficult as the area has been subject to intensive agriculture over a long period of time.

The biodiversity specialist is of the opinion that it is unlikely that the proposed development will lead to any significant impacts on biodiversity as a result of its placement. The site and its immediate surrounding are considered transformed with no natural veld remaining. Only a few hardy indigenous species remains.

#### **Freshwater:**

It is important to note that the volume of water that is proposed to be stored in the Driefontein dam, after the completion of phase 1 and phase 2 expansion, does not represent any more water that is going to be taken out of a river system. This is water already allocated for irrigation for the farm. This water is delivered to the farm

via canal system. The raising of the dam wall would merely store water that is currently flowing through to downstream farming operations. None of this water is currently flowing back to any river and therefore not making any contribution to river health and aquatic ecology.

An important recommendation made by the freshwater specialist included that the spillway should not be increased higher than the increase of the dam wall to ensure overflow. The stream downstream and adjacent to Driefontein Dam (figure 6) only flows during period of exceptionally high rainfall, when the Warm Bokkeveld Irrigation Scheme is filled up the Driefontein Dam and when there is runoff from the dam's catchment. This only occurs once in a couple of years, and flow only lasts for a couple of days, then it returns to its usual dry state

The dam and the spillway should be not any higher than the dam's full capacity, after the 182 000m<sup>3</sup> has been added to the capacity of the dam. This would ensure that if the dam is at its design capacity, it would overflow during exceptional very high rainfall events. This water would hardly benefit the highly impacted stream adjacent and below the Driefontein Dam. It would possibly be of benefit further downstream where there may still be ecological functioning left.

**Heritage resources:**

Shelly fossil remains here are very sparse, with only two invertebrate specimens recorded during the site visit - viz. a poorly-preserved *orthocone nautiloid* and a juvenile *homalonotid trilobite*. The heritage remains have been rated as having low significance.

According to Almond, 'the bedrocks within the study area are generally of low paleontological sensitivity and the proposed Driefontein Dam project therefore does not pose a significant threat to local paleontological heritage resources'.

Please refer to **Appendix G** for the Specialist reports.

Considering all the information, it is not envisaged that the proposed dam expansion pose any significant negative impact on the environment, while it is likely to result in a positive socio-economical outcome.

It is therefore recommended that this application be authorised with the necessary conditions of approval as described throughout this BAR.

## SECTION A: PROJECT INFORMATION

### 1. ACTIVITY LOCATION

Location of all proposed sites:	Rietvalley Farm, just off the R46, from Ceres towards Touwsriver
Farm / Erf name(s) and number(s) (including Portions thereof) for each proposed site:	Portion 33 of Farm Rietvalley No. 364, Ceres
Property size(s) in m <sup>2</sup> for each proposed site:	521,4910 Ha
Development footprint size(s) in m <sup>2</sup> :	Phase 1: ± 14,20 Phase 2: ± 16,90
Surveyor General (SG) 21 digit code for each proposed site:	C019 0000 00000364 00033

### 2. PROJECT DESCRIPTION

(a) Is the project a new development? If "NO", explain:

YES

NO

The project is for the proposed enlargement of the existing Driefontein dam on Portion 33 of the Farm Rietvalley No. 364, Ceres of which an existing water use license exists.

(b) Provide a detailed description of the scope of the proposed development (project).

Agterfontein Trust proposed the enlargement of the existing Driefontein dam on Portion 33 of the Farm Rietvalley No. 364, Ceres of which an existing water use license exists. The existing dam did not provide enough storage capacity on the farm for scheduled winter water from the Warmbokkeveld Scheme and a substantial portion of the water has been sacrificed and lost to the benefit of downstream water users for many year.

There is thus no need to apply for a new water use license for the *taking of water*. Please refer **Appendix E2 for The verification of Existing Lawful Water Use for the property from BGCMA & The Schedule of Rateable Areas**. The dam is however, classified as an instream dam and therefore other activities in term of section 21 of the National Water Act (Act 36 of 1998) will be triggered.

Sarel Bester Ingenieurs submitted the EWULA **WULA REF: WU7859** (File no: 27/2/1/H310/4/1) for other activities that trigger section 21 of the National Water Act. These are the following:

- S21 (b) Storing of water
- S21 (c ) Impeding or diverting the flow of the water course
- S21 (i) Altering the bed, bank, course or characteristic of a watercourse

The proposed enlargement of the Driefontein Dam would allow for the storage of summer irrigation water. Providing a more efficient use of an already existing water use.

It is proposed that the enlargement of Driefontein dam will take place in two phases; Phases 1 and Phase 2. Please refer to **Appendix K for Sarel Bester Ingenieurs BK Preliminary Design Reports: 1731DOV-S2 (for Phase 1) and 1731DOV-S2(Rev1) (for Phase 2).**

Phase 1 (**Appendix K - 1731DOV-S2**) proposes the enlargement of Driefontein dam with a storage capacity of approximately 320 000m<sup>3</sup>. Thereby increasing the dam's capacity by ±80 000m<sup>3</sup> for the storing of wasted water and make it possible for the applicant to expand his current production with about 10ha of deciduous fruits. The situation was reconsidered, and a second phase enlargement is proposed.

Phase 2 (**Appendix K - 1731DOV-S2(Rev1)**) proposes a second enlargement, increasing the storage capacity of Driefontein dam to approximately 420 000m<sup>3</sup>. Thereby increasing the dam's total capacity by ±180 000m<sup>3</sup> for the storing of wasted water and make it possible for the applicant to expand his current production with about 22ha if deciduous fruit.

The expansion of the total 22ha of deciduous fruit orchards will be on previously cultivated land which will not trigger any Listed Activities in term of NEMA. Water will be pumped from the dam to the new orchards for irrigation. Irrigation pipes will connect with existing irrigation infrastructure and should not trigger any Listed Activities in terms of NEMA (Layout plan still to be provided).

According to the **Preliminary Design Reports Appendix K** The proposed Phase 1 and Phase 2 enlargement of Driefontein Dam (Portion 33 of Farm Rietvalley 364) will have the following measurements:

Description	Existing	Phase 1 Enlargement	Phase 2 Enlargement
Wall length	300 m	390 m	431 m
Wall height	7,4 m	8,95 m	9,55 m
Net storage capacity	239 000 m <sup>3</sup>	±321 000 m <sup>3</sup>	±420 000m <sup>3</sup>
Total Footprint	10.51ha	14,20ha	16,90ha
Total earthworks		17 800 m <sup>3</sup>	25 000 m <sup>3</sup>

In terms of the Listed Activities in terms of NEMA listed and specified activities in paragraph (d) below:

*Listing Notice 1 Activity 19: The moving of more than 10m<sup>3</sup> of material within a watercourse.* The proposed dam is classified as an "in stream dam" and intersect an Ecological Support Area (Class 2). The proposed earthmoving activities during Phase 1 and Phase 2 will exceed 10m<sup>3</sup>.

*Listing Notice 1 Activity (iv) (a) The expansion of (vi) dams, where the dam, including infrastructure and water surface area, is expanded by 100 square metres or more in size; (a) within a watercourse.* The proposed dam is classified as an "in stream dam" and intersect an Ecological Support Area (Class 2). The proposed earthmoving activities during Phase 1 and Phase 2 will exceed 100m<sup>2</sup>.

The existing spillway will be demolished (**Appendix C for site photographs**), and a new spillway will be constructed. The footprint will remain the same. The spillway will be heightened with the same measurements of the dam wall: During phase 1 the spillway will be increased with 1,55m and then a further 0,6m during phase 2. The spillway footprint will remain the same but with a total increase in height of 2,15m.

**Please note:** This description must relate to the listed and specified activities in paragraph (d) below.

(c) Please indicate the following periods that are recommended for inclusion in the environmental authorisation:

(i) the period within which commencement must occur,	Upon granting of the EA and WUL commencement of Phase 1 must occur within 2 years.
--	--

		To be confirmed.
(ii)	the period for which the environmental authorisation should be granted and the date by which the activity must have been concluded, where the environmental authorisation does not include operational aspects;	<p>Construction of phase 1 is expected to take a period of 3 – 4 months.</p> <p>The EA should be granted for the maximum of 5 years.</p> <p>The applicant might have to ask for an amendment of the EA for construction of phase 2.</p> <p>To be confirmed.</p>
(iii)	the period that should be granted for the non-operational aspects of the environmental authorisation; and	N/A
(iv)	the period that should be granted for the operational aspects of the environmental authorisation.	N/A

**Please note:** The Department must specify the abovementioned periods, where applicable, in an environmental authorisation. In terms of the period within which commencement must occur, the period must not exceed 10 years and must not be extended beyond such 10 year period, unless the process to amend the environmental authorisation contemplated in regulation 32 is followed.

- (d) List all the listed activities triggered and being applied for.

**Please note:** The onus is on the applicant to ensure that all the applicable listed activities are applied for and assessed as part of the EIA process. Please refer to paragraph (b) above.

**EIA Regulations Listing Notices 1 and 3 of 2014 (as amended):**

Listed Activity No(s):	Describe the relevant Basic Assessment Activity(ies) in writing as per Listing Notice 1 (GN No. R. 983)	Describe the portion of the development that relates to the applicable listed activity as per the project description.	Identify if the activity is development / development and operational / decommissioning / expansion / expansion and operational.
19	The moving of more than 10 m <sup>3</sup> of material within a watercourse.	The proposed dam is classified as an “in stream dam” and intersect an Ecological Support Area (Class 2). The proposed earthmoving activities during Phase 1 and Phase 2 will exceed 10m <sup>3</sup> .	Expansion
48	48 (iv) (a)	The expansion of (vi) dams, where the dam, including infrastructure and water surface area, is expanded by 100 square metres or more in size; (a) within a watercourse.	Expansion
Listed Activity No(s):	Describe the relevant Basic Assessment Activity(ies) in writing as per Listing Notice 3 (GN No. R. 985)	Describe the portion of the development that relates to the applicable listed activity as per the project description.	Identify if the activity is development / development and operational / decommissioning / expansion / expansion and operational.

**Waste management activities** in terms of the NEM: WA (GN No. 921):

Category A Listed Activity No(s):	Describe the relevant <u>Category A</u> waste management activity in writing as per GN No. 921	Describe the portion of the development that relates to the applicable listed activity as per the project description
	N/A	


**Note:** If any waste management activities are applicable, the **Listed Waste Management Activities Additional Information Annexure** must be completed and attached to this Basic Assessment Report as **Appendix I**.

**Atmospheric emission activities** in terms of the NEM: AQA (GN No. 893):

Listed Activity No(s):	Describe the relevant atmospheric emission activity in writing as per GN No. 893	Describe the portion of the development that relates to the applicable listed activity as per the project description.
	N/A	

- (e) Provide details of all components (including associated structures and infrastructure) of the proposed development and attach diagrams (e.g., architectural drawings or perspectives, engineering drawings, process flowcharts, etc.).

Buildings Provide brief description below:	YES	NO
No buildings required.		
Infrastructure (e.g., roads, power and water supply/ storage) Provide brief description below:	YES	NO
<p>Agterfontein Trust proposed the enlargement of the existing Driefontein dam on Portion 33 of the Farm Rietvalley No. 364, Ceres of which an existing water use license exists. The existing dam did not provide enough storage capacity on the farm for scheduled winter water from the Warmbokkeveld Scheme and a substantial portion of the water has been sacrificed and lost to the benefit of downstream water users for many years.</p> <p>There is thus no need to apply for a new water use license for the <i>taking of water</i>. Please refer <b>Appendix E2</b> for <b>The verification of Existing Lawful Water Use for the property from BGCMA &amp; The Schedule of Rateable Areas</b>. The dam is however, classified as an instream dam and therefore other activities in term of section 21 of the National Water Act (Act 36 of 1998) will be triggered.</p> <p>Sarel Bester Ingenieurs submitted the EWULA <b>WULA REF: WU7859</b> (File no: 27/2/1/H310/4/1) for other activities that trigger section 21 of the National Water Act. These are the following:</p> <ul style="list-style-type: none"> <li>• S21 (b) Storing of water</li> <li>• S21 (c ) Impeding or diverting the flow of the water course</li> <li>• S21 (i) Altering the bed, bank, course or characteristic of a watercourse</li> </ul> <p>The expansion of the total 22ha of deciduous fruit orchards (which would be made possible with the storage of more water) will be on previously cultivated land which will not trigger any Listed Activities in term of NEMA. Water will be pumped from the dam to the new orchards for irrigation. Irrigation pipes will connect with existing irrigation infrastructure and should not trigger any Listed Activities in terms of NEMA (Layout plan still to be provided).</p> <p>Should electricity be required it, would come from Eskom's exiting connections.</p> <p>Existing access roads will be used.</p>		
Processing activities (e.g., manufacturing, storage, distribution) Provide brief description below:	YES	NO
N/A		
Storage facilities for raw materials and products (e.g., volume and substances to be stored) Provide brief description below:	YES	NO
N/A		
Storage and treatment facilities for effluent, wastewater or sewage: Provide brief description below:	YES	NO
No treatment of effluent, waste water or sewage. No permanent toilets on site.		

Once construction starts, a portable chemical toilet should be made available on site. The toilet should not be placed within 32m of a watercourse/ river and should be serviced in a legal manner and removed after construction is completed.		
Storage and treatment of solid waste Provide brief description below:	YES	NO
No storage or treatment of solid waste. Solid waste produced during construction should be disposed of in a legal manner.		
Facilities associated with the release of emissions or pollution. Provide brief description below:	YES	NO
The activity is not expected to produce emissions or cause pollution.		
Other activities (e.g., water abstraction activities, crop planting activities) – Provide brief description below:	YES	NO
<p>Agterfontein Trust proposed the enlargement of the existing Driefontein dam on Portion 33 of the Farm Rietvalley No. 364, Ceres of which an existing water use license exists. The existing dam did not provide enough storage capacity on the farm for scheduled winter water from the Warmbokkeveld Scheme and a substantial portion of the water has been sacrificed and lost to the benefit of downstream water users for many years.</p> <p>There is thus no need to apply for a new water use license for the <i>taking of water</i>. Please refer <b>Appendix E2</b> for <b>The verification of Existing Lawful Water Use for the property from BGCMA &amp; The Schedule of Rateable Areas</b>. The dam is however, classified as an instream dam and therefore other activities in terms of section 21 of the National Water Act (Act 36 of 1998) will be triggered.</p> <p>Sarel Bester Ingenieurs submitted the EWULA <b>WULA REF: WU7859</b> (File no: 27/2/1/H310/4/1) for other activities that trigger section 21 of the National Water Act. These are the following:</p> <ul style="list-style-type: none"> <li>• S21 (b) Storing of water</li> <li>• S21 (c) Impeding or diverting the flow of the water course</li> <li>• S21 (i) Altering the bed, bank, course or characteristic of a watercourse</li> </ul> <p>The expansion of the total 22ha of deciduous fruit orchards (which would be made possible with the storage of more water) will be on previously cultivated land which will not trigger any Listed Activities in terms of NEMA. Please refer to Appendix A2 which indicates (with green marker) the location of 22ha deciduous fruit orchards on <u>ploughed land</u>. The map also indicates the <u>existing pipeline infrastructure</u> (red line). Water will be pumped from Driefontein Dam to Brand se Dam and another small dam west of Brand se dam from where it will be used for the irrigation of crops. No new pipeline infrastructure to be constructed, no natural vegetation will be lost.</p>		

### 3. PHYSICAL SIZE OF THE PROPOSED DEVELOPMENT

	Phase 1	Phase 2	
(a) Property size(s): Indicate the size of all the properties (cadastral units) on which the development proposal is to be undertaken	(521, 4910 ha) 52149100000		m <sup>2</sup>
(b) Size of the facility: Indicate the size of the facility where the development proposal is to be undertaken	N/A	N/A	m <sup>2</sup>
(c) Development footprint: Indicate the area that will be physically altered as a result of undertaking any development proposal (i.e., the physical size of the development together with all its associated structures and infrastructure)	14.20	16.90	ha
(d) Size of the activity: Indicate the physical size (footprint) of the development proposal	14.20	16.0	ha

(e) For linear development proposals: Indicate the length (L) and width (W) of the development proposal	(L)		m
	(W)		m
(f) For storage facilities: Indicate the volume of the storage facility	±320 000	±420 000	m <sup>3</sup>
(g) For sewage/effluent treatment facilities: Indicate the volume of the facility (Note: the maximum design capacity must be indicated)	N/A	N/A	m <sup>3</sup>

#### 4. SITE ACCESS

(a) Is there an existing access road?	YES	NO
(b) If no, what is the distance in (m) over which a new access road will be built?	m	

(c) Describe the type of access road planned:

N/A A site access road exists

**Please note:** The position of the proposed access road must be indicated on the site plan.

## 5. DESCRIPTION OF THE PROPERTY(IES) ON WHICH THE LISTED ACTIVITY(IES) ARE TO BE UNDERTAKEN AND THE LOCATION OF THE LISTED ACTIVITY(IES) ON THE PROPERTY

- 5.1 Provide a description of the property on which the listed activity(ies) is/are to be undertaken and the location of the listed activity(ies) on the property, as well as of all alternative properties and locations (duplicate section below as required).

The Farm, Portion 33 of the Farm Rietvalley No. 367 is located just east of Ceres (approximately 8km away) in the Witzenberg Local Municipality, Western Cape province. The property is about 521,4910 ha in size, with the existing dam located towards the north do the property.

The dam is situated within the Ceres-basin with a rather flat topography without any other alternative dam sites available on the property. The expansion of Driefontein dam is the preferred option between the existing dams on the particular farm because (1) the footprint area is available for the necessary expansion with the are almost being completely transformed/ disturbed due to agricultural activities and (2) it is close to the Warmbokkeveld Scheme sluice and outlet, ensuring minimal losses.



Figure 1: Google image showing Driefontein Dam and Brand se dam on the property (Portion 33 of Farm Rietvalley No. 367).

Coordinates of all the proposed activities on the property or properties (sites):	Latitude (S): (deg.; min.; sec)			Longitude (E): (deg.; min.; sec.)		
	33°	21 '	15.43"	19°	29'	17.03"
	o	'	"	o	'	"
	o	'	"	o	'	"
	o	'	"	o	'	"

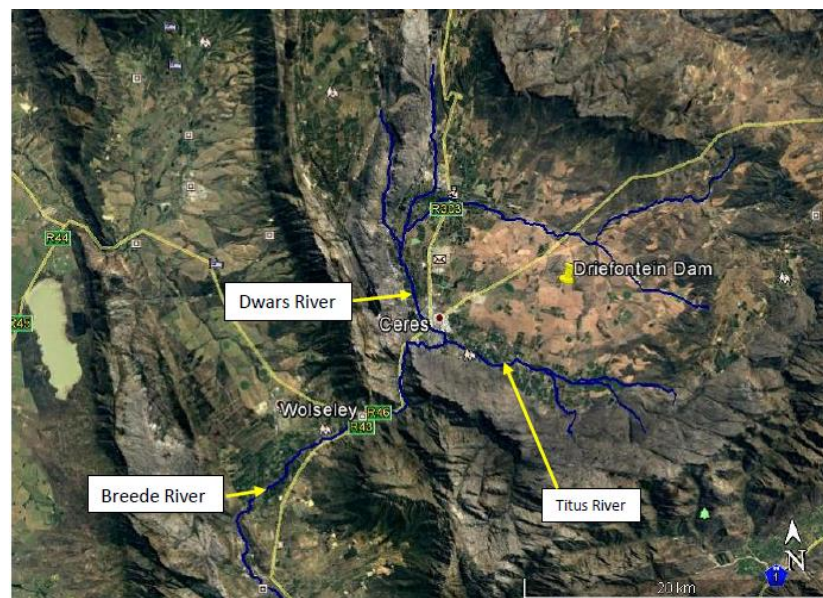
**Note:** For land where the property has not been defined, the coordinates of the area within which the development is proposed must be provided in an addendum to this report.

- 5.2 Provide a description of the area where the **aquatic** or ocean-based activity(ies) is/are to be undertaken and the location of the activity(ies) and alternative sites (if applicable).

The following information was taken from the Freshwater Specialist's Technical Report (**Appendix G2**):

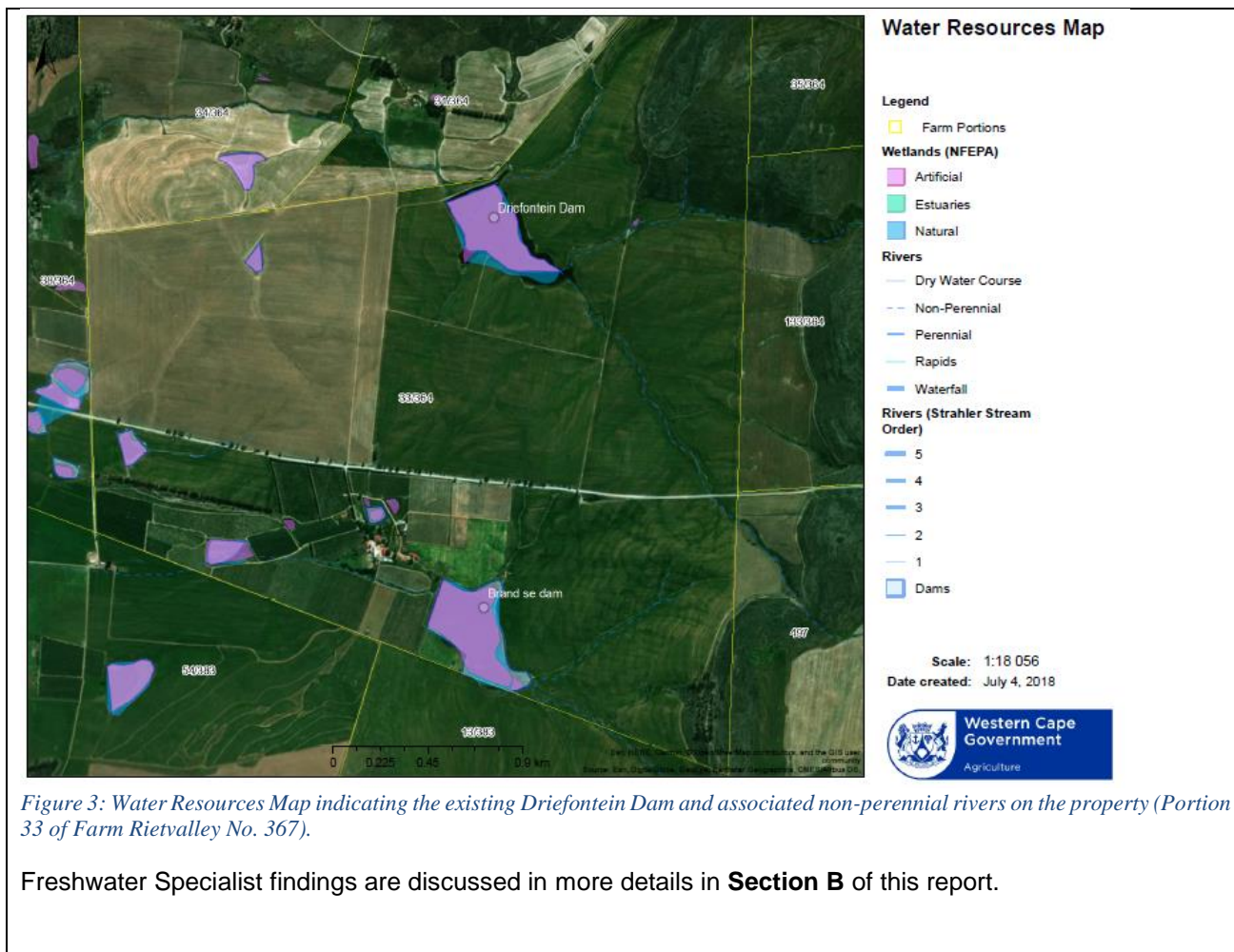
Driefontein dam lies within the Ceres Valley. The Titus River marks the Southern boundary of the Ceres Valley. It joins the Dwars River in the town of Ceres, to further downstream break through the mountain in a deep ravine as the Breede River. The figure below is rather schematic and simplified, as there are many more smaller rivers that have not been indicated.

Of importance is that the Driefontein Dam, which is located approximately in the middle of the valley, is not naturally connected to any rivers that flow out of the surrounding mountains. It has a small catchment of its own. Originally the catchment was twice as large as it is today, as it has been divided in two portions by a canal from the Warm Bokkeveld Irrigation Scheme. The irrigation canals form the boundary of the sub-catchment on the western and northern sides.



*Figure 2: Driefontein Dam regional setting in terms of surface water*

Driefontein Dam is considered an in-stream dam associated with non-perennial rivers. Please refer to the Water Resources Map (**Appendix D**) or the figure below:



Coordinates of the boundary /perimeter of all proposed aquatic or ocean-based activities (sites) (if applicable):	Latitude (S): (deg.; min.; sec)			Longitude (E): (deg.; min.; sec)		
	°	'	"	°	'	"
	°	'	"	°	'	"
	°	'	"	°	'	"
	°	'	"	°	'	"

- 5.3 For a linear development proposal, please provide a description and coordinates of the corridor in which the proposed development will be undertaken (if applicable).

--

For linear activities:	Latitude (S): (deg.; min.; sec)			Longitude (E): (deg.; min.; sec)		
• Starting point of the activity	°	'	"	°	'	"
• Middle point of the activity	°	'	"	°	'	"
• End point of the activity	°	'	"	°	'	"

**Note:** For linear development proposals longer than 1000m, please provide an addendum with co-ordinates taken every 250m along the route. All important waypoints must be indicated and the GIS shape file provided digitally.

- 5.4 Provide a location map (see below) as **Appendix A** to this report that shows the location of the proposed development and associated structures and infrastructure on the property; as well as a detailed site development plan / site map (see below) as **Appendix B** to this report; and if applicable, all alternative properties and locations. The GIS shape files (.shp) for maps / site development plans must be included in the electronic copy of the report submitted to the competent authority.

<p>Locality Map: <b>Appendix A</b></p>	<p>The scale of the locality map must be at least 1:50 000. For linear development proposals 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:</p> <ul style="list-style-type: none"> <li>• an accurate indication of the project site position as well as the positions of the alternative sites, if any;</li> <li>• road names or numbers of all the major roads as well as the roads that provide access to the site(s)</li> <li>• a north arrow;</li> <li>• a legend;</li> <li>• a linear scale;</li> <li>• the prevailing wind direction (during November to April and during May to October); and</li> <li>• GPS co-ordinates (to 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).</li> </ul> <p>For an ocean-based or aquatic activity, the coordinates must be provided within which the activity is to be undertaken and a map at an appropriate scale clearly indicating the area within which the activity is to be undertaken.</p> <p>Coordinates must be provided in degrees, minutes and seconds using the Hartebeesthoek94; WGS84 co-ordinate system.</p>
<p>Site Plan: <b>Appendix B</b></p>	<p>Detailed site development plan(s) must be prepared for each alternative site or alternative activity. The site plans must contain or conform to the following:</p> <ul style="list-style-type: none"> <li>• The detailed site plan must preferably be at a scale of 1:500 or at an appropriate scale. The scale must be indicated on the plan, preferably together with a linear scale.</li> <li>• The property boundaries and numbers of all the properties within 50m of the site must be indicated on the site plan.</li> <li>• The current land use (not zoning) as well as the land use zoning of each of the adjoining properties must be indicated on the site plan.</li> <li>• The position of each element of the application as well as any other structures on the site must be indicated on the site plan.</li> <li>• Services, including electricity supply cables (indicate aboveground or underground), water supply pipelines, boreholes, sewage pipelines, storm water infrastructure and access roads that will form part of the development <u>must</u> be indicated on the site plan.</li> <li>• Servitudes and an indication of the purpose of each servitude must be indicated on the site plan.</li> <li>• Sensitive environmental elements within 100m of the site must be included on the site plan, including (but not limited to): <ul style="list-style-type: none"> <li>○ Watercourses / Rivers / Wetlands - including the 32 meter set back line from the edge of the bank of a river/stream/wetland;</li> <li>○ Flood lines (i.e., 1:100 year, 1:50 year and 1:10 year where applicable);</li> <li>○ Ridges;</li> <li>○ Cultural and historical features;</li> <li>○ Areas with indigenous vegetation (even if degraded or infested with alien species).</li> </ul> </li> <li>• Whenever the slope of the site exceeds 1:10, a contour map of the site must be submitted.</li> <li>• North arrow</li> </ul> <p>A map/site plan must also be provided at an appropriate scale, which superimposes the proposed development and its associated structures and infrastructure on the environmental sensitivities of the preferred and alternative sites indicating any areas that should be avoided, including buffer areas.</p> <p>The GIS shape file for the site development plan(s) must be submitted digitally</p>

## 6. SITE PHOTOGRAPHS

Colour photographs of the site and its surroundings (taken on the site and taken from outside the site) with a description of each photograph. The vantage points from which the photographs were taken must be indicated on the site plan, or locality plan as applicable. If available, please also provide a recent aerial photograph. Photographs must be attached as **Appendix C** to this report. The aerial photograph(s) should be supplemented with additional photographs of relevant features on the site. Date of photographs must be included. Please note that the above requirements must be duplicated for all alternative sites.

## SECTION B: DESCRIPTION OF THE RECEIVING ENVIRONMENT

### Site/Area Description

For linear development proposals (pipelines, etc.) as well as development proposals that cover very large sites, it may be necessary to complete copies of 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 that is covered by each copy on the Site Plan.

#### 1. GRADIENT OF THE SITE

Indicate the general gradient of the sites (highlight the appropriate box).

Flat	Flatter than 1:10	1:10 – 1:4	Steeper than 1:4
------	-------------------	------------	------------------

#### 2. LOCATION IN LANDSCAPE

(a) Indicate the landform(s) that best describes the site (highlight the appropriate box(es)).

Ridgeline	Plateau	Side slope of hill / mountain	Closed valley	Open valley	Plain	Undulating plain/low hills	Dune	Sea-front
-----------	---------	-------------------------------	---------------	-------------	-------	----------------------------	------	-----------

(b) Provide a description of the location in the landscape.

The coastal plains along the Atlantic seaboard of the Western Cape are demarcated by mountain ranges that stretch from south to north. At the town of Ceres and Wolseley the mountains abruptly towards the east. It is in this mountainous elbow where the Ceres Valley is located, a depression on the mountains to which access is gained through steep mountain passes.

Driefontein Dam on Portion 33 of the Farm Rietvalley No. 367 is situated in the gently rolling hill terrain of the Warm Bokkeveld region.

Of importance is that the Driefontein Dam, which is located approximately in the middle of the valley, is not naturally connected to any rivers that flow out of the surrounding mountains. It has a small catchment of its own.

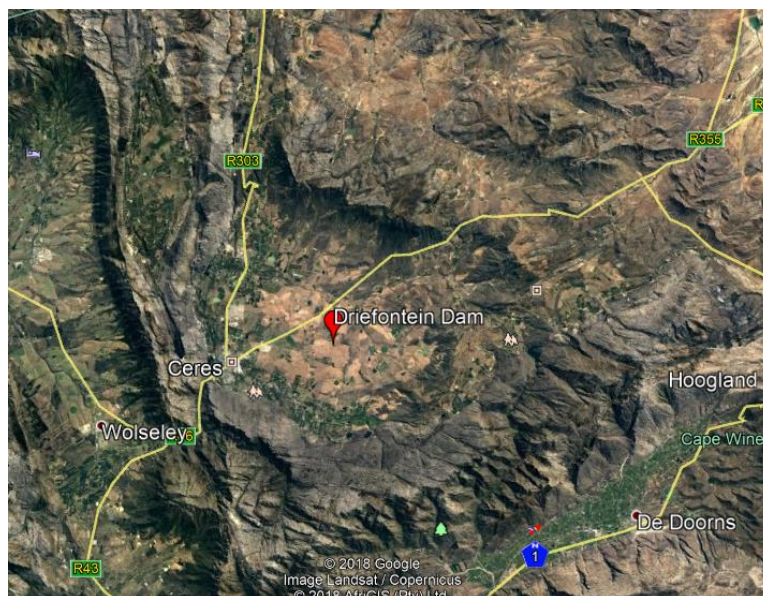


Figure 4: Regional Setting

### 3. GROUNDWATER, SOIL AND GEOLOGICAL STABILITY OF THE SITE

(a) Is the site(s) located on or near any of the following (highlight the appropriate boxes)?

Shallow water table (less than 1.5m deep)	YES	NO	UNSURE
Seasonally wet soils (often close to water bodies)	YES	NO	UNSURE
Unstable rocky slopes or steep slopes with loose soil	YES	NO	UNSURE
Dispersive soils (soils that dissolve in water)	YES	NO	UNSURE
Soils with high clay content	YES	NO	UNSURE
Any other unstable soil or geological feature	YES	NO	UNSURE
An area sensitive to erosion	YES	NO	UNSURE
An area adjacent to or above an aquifer.	YES	NO	UNSURE
An area within 100m of a source of surface water	YES	NO	UNSURE
An area within 500m of a wetland	YES	NO	UNSURE
An area within the 1:50 year flood zone	YES	NO	UNSURE
A water source subject to tidal influence	YES	NO	UNSURE

(b) If any of the answers to the above is "YES" or "UNSURE", specialist input may be requested by the Department. (Information in respect of the above will often be available at the planning sections of local authorities. The 1:50 000 scale Regional Geotechnical Maps prepared by Geological Survey may also be used).

(c) Indicate the type of geological formation underlying the site.

Granite	Shale	Sandstone	Quartzite	Dolomite	Dolorite	Other (describe)
Provide a description.						

The following information was taken from the Heritage Impact Report and Palaeontological Heritage Impact Report (**Appendix G3.1**).

Bokkeveld Group bedrock exposure in the study area is largely confined to small outcrops of gently - to steeply-dipping beds of dark grey, grey-green, blueish-green, rusty-brown to khaki, massive to laminated siltstone and wacke. These sediments crop out around the north-western and north-eastern margins of the existing dam as well as in the walls of a short pipeline trench leading from a small concrete reservoir on the southern side of the dam. The bedrocks are highly-weathered, and fractured with very little bedding plane exposure. They are locally impregnated with secondary iron and manganese minerals, including small ferruginous nodules. Soft-sediment loading of wacke units is locally developed and the succession is cut by several small-scale faults. Mottling of some horizons indicates high levels of bioturbation.

The bedrocks are overlain by fairly thick, sparsely gravelly, loamy to clay-rich soils of mixed alluvial and colluvial origin. A zone of downwasted coarse gravels along the eastern side of the dam includes angular to occasionally well-rounded clasts of pale quartzite, sandstone (often ferruginised), wacke and vein quartz. The surface gravels also include sparse crudely-flaked Early Stone Age (ESA) quartzite bifaces.

The Voorstehoek Formation bedrocks in the Driefontein Dam study area are generally highly weathered, fractured and locally secondarily mineralised, compromising preservation of scientifically-useful fossil remains. The only fossils recorded during the site visit were internal moulds of an orthocone nautiloid and an incomplete juvenile homalonotid trilobite. Nautiloids are comparatively rare in existing Bokkeveld Group fossil collections. The specimen here is unfortunately poorly preserved, while homalonotid trilobites are a very common element within Voorstehoek invertebrate biotas.

According to Almond (2018:12), neither of these fossils is considered to be of high scientific or conservation value, and have been rated as having low (Grade IIIC) significance.

No fossils were recorded from the overlying soils and downwasted gravels. The presence of sparse ESA quartzite artefacts in a disturbed context is noted. Comparable stone artefact assemblages have been reported elsewhere in the Warm Bokkeveld region by Kaplan (2007a, 2007b, 2009, 2010).



*Figure 5: Poorly-preserved internal mould of an orthocone nautiloid showing nested series of lens-shaped, biconvex casts of the shell chambers preserved within massive dark siltstone (Specimen is c. 3 cm long).*

#### 4. SURFACE WATER

(a) Indicate the surface water present on and or adjacent to the site and alternative sites (highlight the appropriate boxes)?

Perennial River	<del>YES</del>	NO	UNSURE
Non-Perennial River	YES	<del>NO</del>	UNSURE
Permanent Wetland	<del>YES</del>	NO	UNSURE
Seasonal Wetland	<del>YES</del>	NO	UNSURE
Artificial Wetland	YES	<del>NO</del>	UNSURE
Estuarine / Lagoon	<del>YES</del>	NO	UNSURE

(b) Provide a description.

**Please see the description on the next page**

The following information was taken from the Freshwater Specialist's technical Report (**Appendix G2**).

Driefontein dam lies within the Ceres Valley (as described in Section 2 (b) above. The Titus River marks the Southern boundary of the Ceres Valley. It joins the Dwars River in the town of Ceres, to further downstream break through the mountain in a deep ravine as the Breede River. The figure below is rather schematic and simplified, as there are many more smaller rivers that have not been indicated.

Of importance is that the Driefontein Dam, which is located approximately in the middle of the valley, is not naturally connected to any rivers that flow out of the surrounding mountains. It has a small catchment of its own. Originally the catchment was twice as large as it is today, as it has been divided in two portions by a canal from the Warm Bokkeveld Irrigation Scheme. The irrigation canals form the boundary of the sub-catchment on the western and northern sides.

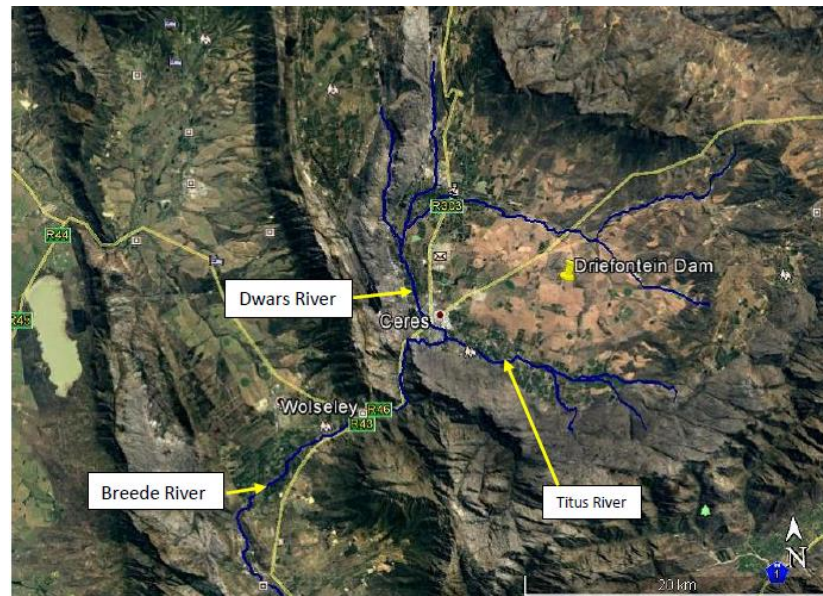


Figure 6: Driefontein Dam regional setting in terms of surface water (Freshwater Technical Report)

It should also be noted that there are several irrigation schemes in the Ceres Valley, each with a water offtake from a river. Please see the figure below.



Figure 7: Warm Bokkeveld Irrigation Scheme (Freshwater Technical Report)

The Warm Bokkeveld Scheme starts with the Glen Etive Dam. Water is conveyed through a pipe northward into the Ceres Valley across the Titus River from where water is further conveyed through a series of irrigation canals (yellow lines in the figure above). The Glen Etive Dam delivers water for 168 days per year, the rest of the time the pipe is dry. The scheme maximally delivers 7.7 million m<sup>3</sup> per year, this is existing legal water use. Farmer units benefitting from this scheme have formally enlisted to use this water for irrigation of crops. Any water in excess than this figure passes the Glen Etive Dam and flows down the mountain stream into the Titus River.

All water released from the Glen Etive Dam is used for water. None of it is allowed to flow back into any of the rivers. If any water flows past one farm because of lack of storing capacity, the next downstream farmer would use it for irrigation of crops.

In terms of Driefontein Dam, it is important to note that the volume of water that is proposed to be stored after the completion of phase 1 and phase 2 expansion, does not represent any more water that is going to be taken out of a river system. This is water already allocated for irrigation for the farm. This water is delivered to the farm via canal system.

The raising of the dam wall would merely store water that is currently flowing through to downstream farming operations. None of this water is currently flowing back to any river and therefore not making any contribution to river health and aquatic ecology.

In terms of the stream leaving Driefontein dam: This stream has been highly impacted with nothing left of the original qualities of a natural stream. It is an incised furrow through a ploughed-over wheat field devoid of water, aquatic habitat or riparian zone with mostly exotic grass species (Refer to Figure 8 below). The streams flowing into Driefontein Dam are not any different, they are mostly unnatural drainage lines through wheat fields (Figure 9 below).

The stream downstream and adjacent to Driefontein Dam (Figure 10) only flows during period of exceptionally high rainfall, when the Warm Bokkeveld Irrigation Scheme is filled up the Driefontein Dam and when there is runoff from the dam's catchment. This only occurs once in a couple of years, and flow only lasts for a couple of days, then it returns to its usual dry state. The dam and the spillway should be not any higher than the dam's full capacity, after the 182 000m<sup>3</sup> has been added to the capacity of the dam. This would ensure that if the dam is at its design capacity, it would overflow during these exceptional very high rainfall events. This water would hardly benefit the highly impacted stream adjacent and below the Driefontein Dam. It would possibly be of benefit further downstream where there may still be ecological functioning left.

The stream can only return to a more natural state if the entire landscape reverts to less farming and more natural catchment. It is unlikely that this would ever happen, because of the vested agricultural interests that has been entrenched in the region's economy since the country's early history.



*Figure 8: Watercourse downstream of Driefontein Dam (Technical Report)*



Figure 9: Inflowing watercourse (Technical Report)



Figure 10: Stream below Driefontein Dam (Technical Report)

## 5. THE SEAFRONT / SEA

- (a) Is the site(s) located within any of the following areas? (highlight the appropriate boxes).  
If the site or alternative site is closer than 100m to such an area, please provide the approximate distance in (m).

AREA	YES	NO	UNSURE	If "YES": Distance to nearest area (m)
An area within 100m of the high water mark of the sea	YES	NO	UNSURE	
An area within 100m of the high water mark of an estuary/lagoon	YES	NO	UNSURE	
An area within the littoral active zone	YES	NO	UNSURE	
An area in the coastal public property	YES	NO	UNSURE	
Major anthropogenic structures	YES	NO	UNSURE	
An area within a Coastal Protection Zone	YES	NO	UNSURE	
An area seaward of the coastal management line	YES	NO	UNSURE	
An area within the high risk zone (20 years)	YES	NO	UNSURE	
An area within the medium risk zone (50 years)	YES	NO	UNSURE	
An area within the low risk zone (100 years)	YES	NO	UNSURE	
An area below the 5m contour	YES	NO	UNSURE	
An area within 1km from the high water mark of the sea	YES	NO	UNSURE	
A rocky beach	YES	NO	UNSURE	
A sandy beach	YES	NO	UNSURE	

- (b) If any of the answers to the above is "YES" or "UNSURE", specialist input may be requested by the Department. (The 1:50 000 scale Regional Geotechnical Maps prepared by Geological Survey may also be used).

## 6. BIODIVERSITY

**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 development. To assist with the identification of the biodiversity occurring on site and the ecosystem status, consult <http://bgis.sanbi.org> or [BGIShelp@sanbi.org](mailto:BGIShelp@sanbi.org). Information is also available on compact disc ("cd") from the Biodiversity-GIS Unit, Tel.: (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) must be provided as an overlay map on the property/site plan as **Appendix D** to this report.

- (a) Highlight the applicable biodiversity planning categories of all areas on preferred and alternative sites and indicate the reason(s) provided in the biodiversity plan for the selection of the specific area as part of the specific category. Also describe the prevailing level of protection of the Critical Biodiversity Area ("CBA") and Ecological Support Area ("ESA") (how many hectares / what percentages are formally protected).

Systematic Biodiversity Planning Category	CBA	ESA	Other Natural Area ("ONA")	No Natural Area Remaining ("NNR")
If CBA or ESA, indicate the reason(s) for its selection in biodiversity plan and the conservation management objectives	<p>From the Biodiversity Overlay Maps from Cape Farm Mapper (<b>Appendix D</b>) and the Botanical Statement conducted by the Biodiversity Specialist (<b>Appendix G1</b>) the site falls within an Ecological Support Area Class 2 (ESA2) not a CBA.</p> <p>These areas are not essential for meeting biodiversity targets, but play a role in supporting the functioning of CBAs, and are often vital for delivering ecosystems services. The objective is to restore and/ or manage to minimize impact on ecological processes and ecological infrastructure functioning, especially soil and water-related services and to allow for faunal movement.</p>			
Describe the site's CBA/ESA quantitative values (hectares/percentage) in relation to the prevailing level of protection of CBA and ESA (how many hectares / what percentages are formally protected locally and in the province)	<p>The biodiversity specialist is of the opinion that in this case the ESA2s are delineations along the seasonal streams.</p> <p>Ideally, these areas should be restored to its natural state. However, in this case, restoration will require intervention as there are no more natural vegetation left, not even riparian vegetation due to agricultural activities. As a potential off-set the re-establishment and protection (fencing them off) of a more natural riparian vegetation along these streams should be considered. But this will be difficult as the area has been subject to intensive agriculture over a long period of time.</p> <p>Thus 0% ESA left.</p>			

- (b) Highlight and describe the habitat condition on site.

Habitat Condition	Percentage of habitat condition class (adding up to 100%) and area of each in square metre (m <sup>2</sup> )		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	0%	m <sup>2</sup>	
Near Natural (includes areas with low to moderate	0%	m <sup>2</sup>	

level of alien invasive plants)			
Degraded (includes areas heavily invaded by alien plants)	0%	m <sup>2</sup>	
Transformed (includes cultivation, dams, urban, plantation, roads, etc.)	100%	m <sup>2</sup>	From site visits and specialist studies it is clear that the site has already been completely transformed due to agricultural activities on site (wheat farming and dam construction). Restoration will require intervention as there are no more natural vegetation left, not even riparian vegetation due to agricultural activities.

(c) Complete the table to indicate:

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

Terrestrial Ecosystems		Description of Ecosystem, Vegetation Type, Original Extent, Threshold (ha, %), Ecosystem Status
Ecosystem threat status as per the National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004)	Critically	
	Endangered	
	Vulnerable	<p>According to the Vegetation Map (<b>Appendix D</b>) and the Botanical Statement report (<b>Appendix G1</b>) the site is located in an area that historically would have been covered by a vegetation type known as Ceres Shale Renosterveld, classified as vulnerable in terms of NEMBA.</p> <p>Site visits conducted by the Biodiversity specialist (Report <b>Appendix G1</b>) confirm that no natural vegetation was encountered on the site or its immediate surroundings, apart from a few hardy (and mostly weedy) species on or just below the dam wall or within the uncultivated areas near the seasonal drainage lines. The most common plant encountered was the indigenous weed; <i>Gomphocarpus fruticosus</i> (associated with the dam and small drainage lines).</p> <p>The only other indigenous species encountered was two individuals of the small tree, <i>Vachellia karroo</i> (= <i>Acacia karroo</i>), one individual of the shrubby <i>Diospyros lycioides</i> (surviving next to the old pump house), and a few individuals of the hardy shrub <i>Athanasia cf. trifurcata</i>.</p>
	Least Threatened	

Aquatic Ecosystems						
Wetland (including rivers, depressions, channelled and unchannelled wetlands, flats, seeps pans, and artificial wetlands)			Estuary		Coastline	
YES	NO	UNSURE	YES	NO	YES	NO

(d) Provide a description of the vegetation type and/or aquatic ecosystem present on the site, including any important biodiversity features/information identified on the site (e.g. threatened species and special habitats). Clearly describe the biodiversity targets and management objectives in this regard.

The following information was taken from the Botanical Statement Report (**Appendix G1**) and focusses on the **Biodiversity/ Vegetation** aspects of the site.

According to the Witzenberg spatial dataset of the Western Cape Biodiversity Spatial Plan (WCBSP), the dam (or its proposed enlargement) does not fall within any CBA, but it overlaps proposed Ecological Support Areas, Class 2 (ESA2) associated with the channeled valley bottom seasonal streams.

In this case the ESA2's are delineations along the channeled valley bottom wetlands (seasonal streams). Ideally these areas should be restored to its natural state. However, in this case restoration will require intervention as there is no more natural vegetation left, not even riparian vegetation.

According to the Vegetation Map (**Appendix D**) and the Botanical Statement report (**Appendix G1**) the site is located in an area that historically would have been covered by a vegetation type known as Ceres Shale Renosterveld, classified as vulnerable in terms of "List of ecosystems that are threatened and in need of protection" (GN 1002, December 2011), promulgated in terms of the National Environmental Management Biodiversity Act, Act 10 of 2004. Mucina & Rutherford (2006) describe Ceres Shale Renosterveld as medium tall cupressoid-leaved shrubland dominated by renosterbos, located on moderately undulating plains and lower mountain slopes, with heuweltjies (old termite mounts) prominent in places.

The existing dam (and the proposed enlargement) is located within an area subject to intensive wheat cultivation over a long period of time. Aerial imagery as well as BGIS land use results indicates that the site is most likely to be transformed as a result of past and present agricultural practices. The biodiversity specialist conducted site visits and confirmed these finding (Refer to Figure 11 below).

No natural vegetation was encountered on the site or its immediate surroundings, apart from a few hardy (and mostly weedy) species on or just below the dam wall or within the uncultivated areas near the seasonal drainage lines. The most common plant encountered was the indigenous weed; *Gomphocarpus fruticosus* (associated with the dam and small drainage lines) (Refer to Figure 12 below).

The only other indigenous species that the biodiversity specialist encountered was two individuals of the small tree, *Vachellia karroo* (= *Acacia karroo*), one individual of the shrubby *Diospyros lycioides* (surviving next to the old pump house), and a few individuals of the hardy shrub *Athanasia* cf. *trifurcata*.

The figures below and site photographs (**Appendix C**) clearly show that the transformed status of the area, with no natural veld remaining. It also clearly indicates that the site was subjected to agriculture over a long period of time and as a result it would be highly unlikely for any natural vegetation to remain.



Figure 11: Google image, showing the existing dam and cultivated land surrounding the dam (note the narrow, uncultivated areas associated with the small valley bottom seasonal drainage line) (Botanic Statement Report)



Figure 12: The dam wall showing its transformed status with only the weedy *Gomphocarpus fruticosus* remaining along the slopes (Botanic Statement Report)



Figure 13: Looking over the existing dam from southwest to northeast (Botanic Statement Report).



*Figure 14: Looking over the existing dam from east to west (Botanic Statement Report)*

From the Biodiversity Overlay Maps from Cape Farm Mapper (**Appendix D**) and the Botanical Statement conducted by the Biodiversity Specialist (**Appendix G1**) the site falls within an Ecological Support Area Class 2 (ESA2). The biodiversity specialist stated opinion that in this case the ESA2s are delineations along the seasonal streams (See Figure 11).

Ideally, these areas should be restored to its natural state. However, in this case, restoration will require intervention as there are no more natural vegetation left, not even riparian vegetation due to agricultural activities. Ideally ecological support areas should be established along the small streams. As a potential off-set the re-establishment and protection (fencing them off) of a more natural riparian vegetation along these streams should be considered. But this will be difficult as the area has been subject to intensive agriculture over a long period of time.

The biodiversity specialist is of the opinion that it is unlikely that the proposed development will lead to any significant impacts on biodiversity as a result of its placement. The site and its immediate surrounding are considered transformed with no natural veld remaining. Only a few hardy indigenous species remains.

The following information was taken from the Freshwater Specialist's Technical Report (**Appendix G2**) and focusses on the **aquatic** features of the site.

Please refer to **Section A and Section B (4)** of this report for a description of the receiving environment in terms of the aquatic habitat effected.

Additionally, the Freshwater specialist assess the Present Ecological State (PES) and Ecological Importance and Sensitivity (EIS) of the stream downstream and adjacent to the Driefontein Dam.

In terms of the PES, the instream and riparian habitat have both been classified being in a Class F, critically modified, condition. These habitats have been critically modified by farming practices and the storage of water.

The EIS is based on the presence of especially fish species that are endangered on a local regional or national level. The dam's water level fluctuates widely because the water is used for irrigation. This is a hostile environment for any of the indigenous fish species. There were none of these species and hence the dam cannot be considered as ecologically important. Neither were there any other species of whatever description that could be described as endangered or important. These were removed when the land was tilled. The sensitivity is often described as the ability of habitat to bounce back to a condition closer to its original status if the impacts are removed. It is doubtful if highly cultivated land would ever resemble aquatic habitat within the next millennium and hence the habitat cannot be described as particularly sensitive.

In Freshwater specialist concludes that the increase of Driefontein dam's storage capacity, will not impact the downstream aquatic environment. No less water would flow down the stream downstream of the dam as is currently the situation, as any water that is now not being used for irrigation is flowing down the canal and not the stream. Once the dam wall has been raised, less water would flow down the irrigation canal. The nett effect on the stream's water balance is no impact at all.

The freshwater specialist further states that Under the current irrigation system's operating rules, the heightening of the dam wall is ecologically insignificant. From this point of view the project should go ahead. A letter of consent or a General Authorisation would be in order.

## 7. LAND USE OF THE SITE

**Note:** The Department may request specialist input/studies depending on the nature of the land use character of the area and potential impact(s) of the proposed development.

Untransformed area	Low density residential	Medium density residential	High density residential	Informal residential
Retail	Commercial & warehousing	Light industrial	Medium industrial	Heavy industrial
Power station	Office/consulting room	Military or police base/station/compound	Casino/entertainment complex	Tourism and Hospitality facility
Open cast mine	Underground mine	Spoil heap or slimes dam	Quarry, sand or borrow pit	Dam or reservoir
Hospital/medical centre	School	Tertiary education facility	Church	Old age home
Sewage treatment plant	Train station or shunting yard	Railway line	Major road (4 lanes and more)	Airport
Harbour	Sport facilities	Golf course	Polo fields	Filling station
Landfill or waste treatment site	Plantation	Agriculture	River, stream or wetland	Nature conservation area
Mountain, koppie or ridge	Museum	Historical building	Graveyard	Archaeological site
Other land uses (describe):				

(a) Provide a description.

The Farm Agterfontein, on Portion 33 of Farm Rietvalley No 367 on which Driefontein dam is located is zoned for Agriculture. From the Land use map **Figure 15** below (and **Appendix D**) it is clear that the property is dominated by agricultural activities, specifically wheat crops and some pear orchards.

The site photographs (**Appendix C**), specialist findings as well as Figures 11 – 14 above also indicate that the site was subjected to agriculture over a long period of time.

As discussed in **Section A and Section B (4) & B (6)** of this report, there are also several streams on site. These streams and associated habitat have been critically modified by farming practices and the storage of water.

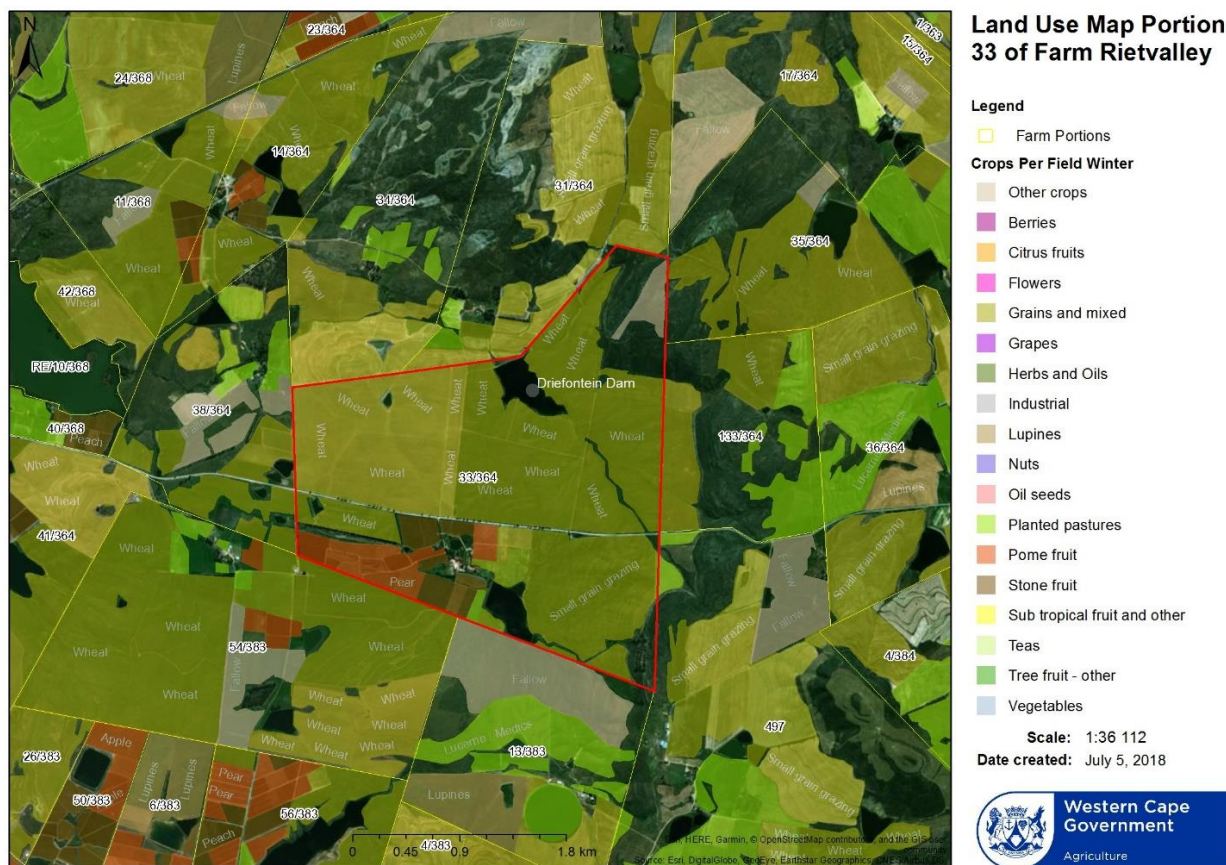


Figure 15: Land use map showing Driefontein dam on Portion 33 of Farm Rietvalley 367 dominated and surrounded by agricultural activities

## 8. LAND USE CHARACTER OF THE SURROUNDING AREA

- (a) Highlight the current land uses and/or prominent features that occur within +/- 500m radius of the site and neighbouring properties if these are located beyond 500m of the site.

**Note:** The Department may request specialist input/studies depending on the nature of the land use character of the area and potential impact(s) of the proposed development.

Untransformed area	Low density residential	Medium density residential	High density residential	Informal residential
Retail	Commercial & warehousing	Light industrial	Medium industrial	Heavy industrial
Power station	Office/consulting room	Military or police base/station/compound	Casino/entertainment complex	Tourism and Hospitality facility
Open cast mine	Underground mine	Spoil heap or slimes dam	Quarry, sand or borrow pit	Dam or reservoir
Hospital/medical centre	School	Tertiary education facility	Church	Old age home
Sewage treatment plant	Train station or shunting yard	Railway line	Major road (4 lanes and more)	Airport
Harbour	Sport facilities	Golf course	Polo fields	Filling station
Landfill or waste treatment site	Plantation	Agriculture	River, stream or wetland	Nature conservation area
Mountain, koppie or ridge	Museum	Historical building	Graveyard	Archaeological site
Other land uses (describe):				

- (b) Provide a description, including the distance and direction to the nearest residential area, industrial area, agri-industrial area.

The Land Use Map, **Figure 15** above show that land uses surrounding the property is also dominated by agricultural activities, mainly wheat farming.

Also refer to the Locality Map, **Appendix A**, which shows the locality of the Farm Agterfontein on Portion 33 of the Farm Rietvalley No. 367 in relation to surrounding towns. Ceres is approximately 8km away.

**Section B(4)** of this report discuss the several irrigation schemes and irrigation canals in the Ceres-valley surrounding the property.

## 9. SOCIO-ECONOMIC ASPECTS

- a) Describe the existing social and economic characteristics of the community in the vicinity of the proposed site, in order to provide baseline information (for example, population characteristics/demographics, level of education, the level of employment and unemployment in the area, available work force, seasonal migration patterns, major economic activities in the local municipality, gender aspects that might be of relevance to this project, etc.).

The following information was taken from the 2017 Witzenberg Municipality Social Economic Profile (SEP).

In 2018 the Witzenberg municipality will have an estimated population of 130 607 and after five years this population is estimated to be 139 972.

In terms of education, the learner enrolment in Witzenberg topped off from 18 181 in 2015 to 18048 in 2016. The drop-out rates for learners within Witzenberg municipal area that enrolled between 2015 and 2016 remained unchanged at 35.5 per cent. These high levels of drop-outs are influenced by a wide array of economic factors including unemployment, poverty, indigent households, high levels of households with no income or rely on less than R515 a month and teenage pregnancies. In 2016, Witzenberg had a total of 54 schools. Witzenberg matric pass rate declined slightly from 75.1 per cent to 72.5 per cent between 2014 and 2015. However, the matric pass increased to 74.5 per cent in 2016, which could improve access for learners to higher education to broaden their opportunities. The matric pass rate within the Witzenberg area remains well below that of the other regions in the Cape Winelands District

Unemployment has been steadily rising in the Witzenberg municipal area over the last decade, with an unemployment rate of 6.9 per cent recorded in 2015. In 2016, the unemployment rate of the Witzenberg municipal area is estimated to have increased to 7.0 per cent, which is lower than that of the Cape Winelands District (11.6 per cent) and significantly lower than that of the Province (18.7 per cent in 2016).

**The local economy of the Witzenberg municipal area is driven by the agriculture**, forestry and fishing sector (17.3 per cent), the wholesale and retail trade, catering and accommodation sector (16.9 per cent), the finance and business services sector (15.4 per cent) and the manufacturing sector (14.2 per cent). Combined, these sectors contribute more than R5.0 billion to the economy.

In terms of labour, the sectors contributed the most to the 63 361 jobs in the Witzenberg municipal area in 2015 were the **agriculture**, forestry and fishing sector (34.7 per cent) and the wholesale and retail trade, catering and accommodation sector (18.4 per cent). Even though the manufacturing sector contributes R1.1 billion (14.2 per cent) to the GDP, this sector only employed 3 605 people (5.7 per cent of employment) in 2015 indicating that the manufacturing sector within the Witzenberg municipal area is less labour intensive and more dependent on mechanisation.

The **agriculture**, forestry and fishing sector in the Witzenberg municipal area has shed 5 684 jobs between 2005 and 2015, however, it has experienced a significant increase in agricultural jobs in 2012, 2013 and 2015, which is in line with the change in employment in this sector for the District over the same period. Employment in this sector is volatile, with job losses in 2011, 2014 and 2016. Labour needs within the agricultural, forestry and fishing sector are seasonal i.e. not permanent, which depends on the harvest each year. Changes in the number of hectares under production will also have an impact on the demand for labour. Favourable economic conditions resulting in new investment from farmers to expand their orchards and vineyards will increase the demand for labour and vice versa.

## 10. HISTORICAL AND CULTURAL ASPECTS

- (a) Please be advised that if section 38 of the NHRA is applicable to your proposed development, you are requested to furnish this Department with written comment from Heritage Western Cape as part of your public participation process. Heritage Western Cape must be given an opportunity, together with the rest of the I&APs, to comment on any Pre-application BAR, a Draft BAR, and Revised BAR.

Section 38 of the NHRA states the following:

"38. (1) Subject to the provisions of subsections (7), (8) and (9), any person who intends to undertake a development categorised as-

- (a) the construction of a road, wall, power line, pipeline, canal or other similar form of linear development or barrier exceeding 300m in length;
- (b) the construction of a bridge or similar structure exceeding 50m in length;
- (c) any development or other activity which will change the character of a site-
  - (i) exceeding 5 000m<sup>2</sup> in extent; or
  - (ii) involving three or more existing erven or subdivisions thereof; or
  - (iii) involving three or more erven or divisions thereof which have been consolidated within the past five years; or
  - (iv) the costs of which will exceed a sum set in terms of regulations by SAHRA or a provincial heritage resources authority;
- (d) the re-zoning of a site exceeding 10 000m<sup>2</sup> in extent; or
- (e) any other category of development provided for in regulations by SAHRA or a provincial heritage resources authority,

must at the very earliest stages of initiating such a development, notify the responsible heritage resources authority and furnish it with details regarding the location, nature and extent of the proposed development".

- (b) The impact on any national estate referred to in section 3(2), excluding the national estate contemplated in section 3(2)(i)(vi) and (vii), of the NHRA, must also be investigated, assessed and evaluated. Section 3(2) states the following:

"3(2) Without limiting the generality of subsection (1), the national estate may include—

- (a) places, buildings, structures and equipment of cultural significance;
- (b) places to which oral traditions are attached or which are associated with living heritage;
- (c) historical settlements and townscapes;
- (d) landscapes and natural features of cultural significance;
- (e) geological sites of scientific or cultural importance;
- (f) archaeological and palaeontological sites;
- (g) graves and burial grounds, including—
  - (i) ancestral graves;
  - (ii) royal graves and graves of traditional leaders;
  - (iii) graves of victims of conflict;
  - (iv) graves of individuals designated by the Minister by notice in the Gazette;
  - (v) historical graves and cemeteries; and
  - (vi) other human remains which are not covered in terms of the Human Tissue Act, 1983 (Act No. 65 of 1983);
- (h) sites of significance relating to the history of slavery in South Africa;
- (i) movable objects, including—
  - (i) objects recovered from the soil or waters of South Africa, including archaeological and paleontological objects and material, meteorites and rare geological specimens;
  - (ii) objects to which oral traditions are attached or which are associated with living heritage;
  - (iii) ethnographic art and objects;
  - (iv) military objects;
  - (v) objects of decorative or fine art;
  - (vi) objects of scientific or technological interest; and
  - (vii) books, records, documents, photographic positives and negatives, graphic, film or video material or sound recordings, excluding those that are public records as defined in section 1(xiv) of the National Archives of South Africa Act, 1996 (Act No. 43 of 1996)".

Is Section 38 of the NHRA applicable to the proposed development?		YES	NO	UNCERTAIN
If YES or UNCERTAIN, explain:	The proposed expansion of Driefontein Dam (in the proposed 2 phases) will exceed 5000m <sup>2</sup> . A NID was submitted to HWC and HWC send back comments suggesting a full Heritage Impact Assessment (HIA) be conducted. A HIA which includes a Palaeontological Impact Assessment (PIA) was conducted ( <b>Appendix G3.1 &amp; 3.2</b> ).			
Will the development impact on any national estate referred to in Section 3(2) of the NHRA?		YES	NO	UNCERTAIN
If YES or UNCERTAIN, explain:	No, findings from the HIA conducted ( <b>Appendix G3.1</b> ) suggest that the proposed expansion of Driefontein dam will not have any impact on heritage resources.			

Will any building or structure older than 60 years be affected in any way?		YES	NO	UNCERTAIN
If YES or UNCERTAIN, explain:	No, there are no buildings in the vicinity that will be affected.			
Are there any signs of culturally or historically significant elements, as defined in section 2 of the NHRA, including Archaeological or paleontological sites, on or close (within 20m) to the site?		YES	NO	UNCERTAIN
If YES or UNCERTAIN, explain:	No, findings from the HIA conducted ( <b>Appendix G3.1</b> ) suggest that the proposed expansion of Driefontein dam will not have any impact on heritage resources.			

**Note:** If uncertain, the Department may request that specialist input be provided **and** Heritage Western Cape must provide comment on this aspect of the proposal. (Please note that a copy of the comments obtained from the Heritage Resources Authority must be appended to this report as Appendix E1).

## 11. APPLICABLE LEGISLATION, POLICIES, CIRCULARS AND/OR GUIDELINES

- (a) Identify all legislation, policies, plans, guidelines, spatial tools, municipal development planning frameworks, and instruments that are applicable to the development proposal and associated listed activity(ies) being applied for and that have been considered in the preparation of the BAR.

LEGISLATION, POLICIES, PLANS, GUIDELINES, SPATIAL TOOLS, MUNICIPAL DEVELOPMENT PLANNING FRAMEWORKS, AND INSTRUMENTS	ADMINISTERING AUTHORITY and how it is relevant to this application	TYPE Permit/license/authorisation/comment / relevant consideration (e.g. rezoning or consent use, building plan approval, Water Use License and/or General Authorisation, License in terms of the SAHRA and CARA, coastal discharge permit, etc.)	DATE (if already obtained):
National Environmental Management Act, 1998 (Act No. 107 of 1998) – NEMA EIA Regulations 2014 (As amended)	Department of Environmental Affairs and Development Planning (“DEA&DP”)	Environmental Authorisation	The Basic Assessment process (this report) is currently underway.
National Water Act, 1998 (Act No. 36 of 1998)	BGCMA	<p>Sarel Bester Ingenieurs submitted the EWULA for other activities that trigger section 21 of the National Water Act. These are the following:</p> <ul style="list-style-type: none"> <li>• <i>S21 (b) Storing of water</i></li> <li>• <i>S21 (c ) Impeding or diverting the flow of the water course</i></li> <li>• <i>S21 (i) Altering the bed, bank, course or characteristic of a watercourse</i></li> </ul>	EWULA in process <b>WULA REF: WU7859</b> (File no: 27/2/1/H310/4/1)
Dam safety regulations in terms of sections 117 to 123, chapter 12 of the National Water Act, 1998 (Act 36 of 1998).	DWS (Dam Safety Office)	Dam classification in terms of Dam safety regulations.	<p>Application submitted 14 Sep 2017 and was classified on 25 Oct 2017 as a Small Category I dam with a low hazard potential rating. Ref: 12/2/H101/FA.</p> <p>Refer to <b>Appendix E3</b> for the proof of classification from DWS or Refer to <b>Appendix K</b> for document 1731DOV0-S2 for the Prelim-Design report, Appendix D for proof of the classification from DWS.</p>

National Heritage Resources Act 1999 (Act 25 of 1999)	Heritage Western Cape	Notice of Intent to Develop (NID)	A NID was submitted to HWC. HWC commented on the NID and suggested a full HIA be conducted ( <b>Appendix E1</b> ) A HIA was conducted ( <b>Appendix G</b> )
---	-----------------------	-----------------------------------	---

- (b) Describe how the proposed development **complies with and responds** to the legislation and policy context, plans, guidelines, spatial tools, municipal development planning frameworks and instruments.

LEGISLATION, POLICIES, PLANS, GUIDELINES, SPATIAL TOOLS, MUNICIPAL DEVELOPMENT PLANNING FRAMEWORKS, AND INSTRUMENTS	Describe how the proposed development complies with and responds:
DEADP Guidelines	All guidelines were consulted and adhered to when undertaking this Basic Assessment Report.
National Environmental Management Act, 1998 (Act 107, 1998).	This application is being undertaken according to the National Environmental Management Act, 1998.
National Water Act (Act 36 of 1998)	<p>There is no need to apply for a new water use license for the <i>taking of water</i>. Please refer <b>Appendix E2</b> for <b>The verification of Existing Lawful Water Use for the property from BGCMA &amp; The Schedule of Rateable Areas</b>.</p> <p>Sarel Bester Ingenieurs submitted the EWULA for other activities that trigger section 21 of the National Water Act. These are the following:</p> <ul style="list-style-type: none"> <li>• <i>S21 (b) Storing of water</i></li> <li>• <i>S21 (c ) Impeding or diverting the flow of the water course</i></li> <li>• <i>S21 (i) Altering the bed, bank, course or characteristic of a watercourse</i></li> </ul> <p><b>WULA REF: WU7859</b> (File no: 27/2/1/H310/4/1)</p>
Dam safety regulations in terms of sections 117 to 123, chapter 12 of the National Water Act, 1998 (Act 36 of 1998).	<p>Application submitted 14 Sep 2017 and was classified on 25 Oct 2017 as a Small Category I dam with a low hazard potential rating. Ref: 12/2/H101/FA.</p> <p>Refer to <b>Appendix E3</b> for the proof of classification from DWS or <b>Appendix K</b> for document 1731DOV0-S2 (Prelim-Design report), Appendix D for proof of the classification from DWS.</p>
National Heritage Resources Act (Act 25 of 1999)	A NID was submitted to HWC. HWC commented on the NID and suggested a full HIA be conducted ( <b>Appendix E1</b> ) A HIA was conducted ( <b>Appendix G</b> )

**Note:** Copies of any comments, permit(s) or licences received from any other Organ of State must be attached to this report as **Appendix E**.

## Section C: PUBLIC PARTICIPATION

The PPP must fulfil the requirements outlined in the NEMA, the EIA Regulations, 2014 (as amended) and if applicable, the NEM: WA and/or the NEM: AQA. This Department's Circular EADP 0028/2014 (dated 9 December 2014) on the "One Environmental Management System" and the EIA Regulations, any subsequent Circulars, and guidelines must also be taken into account.

- Please highlight the appropriate box to indicate whether the specific requirement was undertaken or whether there was an exemption applied for.

In terms of Regulation 41 of the EIA Regulations, 2014 (as amended) -			
(a) fixing a notice board at a place conspicuous to and accessible by the public at the boundary, on the fence or along the corridor of -			
(i) the site where the activity to which the application relates, is or is to be undertaken; and	YES	EXEMPTION	
(ii) any alternative site	YES	EXEMPTION	N/A
(b) giving written notice, in any manner provided for in Section 47D of the NEMA, to -			
(i) the occupiers of the site and, if the applicant is not the owner or person in control of the site on which the activity is to be undertaken, the owner or person in control of the site where the activity is or is to be undertaken or to any alternative site where the activity is to be undertaken;	YES	EXEMPTION	N/A
(ii) owners, persons in control of, and occupiers of land adjacent to the site where the activity is or is to be undertaken or to any alternative site where the activity is to be undertaken;	YES	EXEMPTION	
(iii) the municipal councillor of the ward in which the site or alternative site is situated and any organisation of ratepayers that represent the community in the area;	YES	EXEMPTION	
(iv) the municipality (Local and District Municipality) which has jurisdiction in the area;	YES	EXEMPTION	
(v) any organ of state having jurisdiction in respect of any aspect of the activity; and	YES	EXEMPTION	
(vi) any other party as required by the Department;	YES	EXEMPTION	N/A
(c) placing an advertisement in -			
(i) one local newspaper; or	YES	EXEMPTION	
(ii) any official Gazette that is published specifically for the purpose of providing public notice of applications or other submissions made in terms of these Regulations;	YES	EXEMPTION	N/A
(d) placing an advertisement in at least one provincial newspaper or national newspaper, if the activity has or may have an impact that extends beyond the boundaries of the metropolitan or district municipality in which it is or will be undertaken	YES	EXEMPTION	N/A
(e) using reasonable alternative methods, as agreed to by the Department, in those instances where a person is desirous of but unable to participate in the process due to— (i) illiteracy; (ii) disability; or (iii) any other disadvantage.	YES	EXEMPTION	N/A
<b>If you have indicated that "EXEMPTION" is applicable to any of the above, proof of the exemption decision must be appended to this report.</b>			
Please note that for the NEM: WA and NEM: AQA, a notice must be placed in at least two newspapers circulating in the area where the activity applied for is proposed.			
If applicable, has/will an advertisement be placed in at least two newspapers?	YES		NO
If "NO", then proof of the exemption decision must be appended to this report.			

- Provide a list of all the State Departments and Organs of State that were consulted:

State Department / Organ of State	Date request was sent:	Date comment received:	Support / not in support
Department of Environment and Development Planning (DEADP)	27 October 2017	06 November 2018	DEADP acknowledged receipt of the Notice of Intent to Develop
DEADP	27 October 2017	16 November 2018	Support
Witzenberg Local Municipality	09 November 2018	No comments received yet	No comments received yet
Cape Winelands District Municipality	09 November 2018	No comments received yet	No comments received yet
Ward 3 & 5 Councillors Witzenberg Local Municipality	09 November 2018	No comments received yet	No comments received yet
Breede-Gouritz Catchment Management Area (BGCMA)	09 November 2018	14 December 2017	No decision made yet BGCMA would like to register as an I&AP

Cape Nature	09 November 2018	22 November	No decision made yet
Heritage Western Cape	09 November 2018	No comments received yet	No comments received yet
Western Cape Department of Agriculture – Land use Management	09 November 2018	No comments received yet	No comments received yet

3. Provide a summary of the issues raised by I&APs and an indication of the manner in which the issues were incorporated, or the reasons for not including them.  
(The detailed outcomes of this process, including copies of the supporting documents and inputs must be included in a Comments and Response Report to be attached to the BAR (see note below) as **Appendix F**).

Standard comments received from DEADP  
Standard comments received from BGCMA  
Comments received from Cape Nature

All I&APs and Organs of State will have the chance to comment on this Pre-Application BAR (for comment).

All comments and responses captured and addressed in the comments and response report (**Appendix F.1**).

4. Provide a summary of any conditional aspects identified / highlighted by any Organs of State, which have jurisdiction in respect of any aspect of the relevant activity.

Please refer to Cape Natures comments (point 3) and the best possible response to these comments (at this time) in the comments and response report **Appendix F.1**.

**Note:**

Even if pre-application public participation is undertaken as allowed for by Regulation 40(3), it must be undertaken in accordance with the requirements set out in Regulations 3(3), 3(4), 3(8), 7(2), 7(5), 19, 40, 41, 42, 43 and 44.

If the "exemption" option is selected above and no proof of the exemption decision is attached to this BAR, the application will be refused.

A list of all the potential I&APs, including the Organs of State, notified and a list of all the registered I&APs must be submitted with the BAR. The list of registered I&APs must be opened, maintained and made available to any person requesting access to the register in writing.

The BAR must be submitted to the Department when being made available to I&APs, including the relevant Organs of State and State Departments which have jurisdiction with regard to any aspect of the activity, for a commenting period of at least 30 days. Unless agreement to the contrary has been reached between the Competent Authority and the EAP, the EAP will be responsible for the consultation with the relevant State Departments in terms of Section 24O and Regulation 7(2) – which consultation must happen simultaneously with the consultation with the I&APs and other Organs of State.

All the comments received from I&APs on the BAR must be recorded, responded to and included in the Comments and Responses Report included as **Appendix F** of the BAR. If necessary, any amendments made in response to comments received must be effected in the BAR itself. The Comments and Responses Report must also include a description of the PPP followed.

The minutes of any meetings held by the EAP with I&APs and other role players wherein the views of the participants are recorded, must also be submitted as part of the public participation information to be attached to the final BAR as **Appendix F**.

Proof of all the notices given as indicated, as well as notice to I&APs of the availability of the Pre-Application BAR (if applicable), Draft BAR, and Revised BAR (if applicable) must be submitted as part of the public participation information to be attached to the BAR as **Appendix F**. In terms of the required "proof" the following must be submitted to the Department:

- a site map showing where the site notice was displayed, a dated photographs showing the notice displayed on site and a copy of the text displayed on the notice;
- in terms of the written notices given, a copy of the written notice sent, as well as:
  - if registered mail was sent, a list of the registered mail sent (showing the registered mail number, the name of the person the mail was sent to, the address of the person and the date the registered mail was sent);
  - if normal mail was sent, a list of the mail sent (showing the name of the person the mail was sent to, the address of the person, the date the mail was sent, and the signature of the post office worker or the post office stamp indicating that the letter was sent);
  - if a facsimile was sent, a copy of the facsimile report;
  - if an electronic mail was sent, a copy of the electronic mail sent; and
  - if a "mail drop" was done, a signed register of "mail drops" received (showing the name of the person the notice was handed to, the address of the person, the date, and the signature of the person); and
- a copy of the newspaper advertisement ("newspaper clipping") that was placed, indicating the name of the newspaper and date of publication (of such quality that the wording in the advertisement is legible).

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 F5**.

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.

*Please refer to the table below which indicate the public participation process conducted this far*

<b>R41</b>	<b>Posters, Advertisement &amp; Notification letters</b>
<u>(2) (a) (i)</u>	<p><u>Posters were displayed</u> on the site property across from Agterfontein Boerdery Gate, Ceres Agrimark and Pick n Pay notice board, Ceres.</p> <p><u>Posters were</u> A3 and A4 Please see <b>Appendix F2 &amp; F3</b></p>
<u>_____ (ii)</u>	<u>N/A No viable alternative site</u>
<u>(2) (b) (iii)</u>	<p><u>Notification letters were sent to the municipal ward councilor at the</u> Witzenburg Local Municipality &amp; Cape Winelands District Municipality. Please see <b>Appendix F4</b></p>
<u>_____ (iv)</u>	<p><u>Notification letters were sent to</u> Witzenburg Local Municipality</p> <p>Please see <b>Appendix F4</b></p>
<u>_____ (v)</u>	<p><u>Notification letters were sent to the following organs of state:</u></p> <ul style="list-style-type: none"> <li>• <u>Department of Environment and Development Planning</u></li> <li>• <u>Breede-Gouritz Catchment Management Area</u></li> <li>• <u>Cape Nature</u></li> <li>• <u>Heritage Western Cape</u></li> <li>• <u>WC Department of Agriculture and Land Use Management</u></li> </ul> <p>Please see <b>Appendix F4</b></p>
<u>_____ (vi)</u>	<p><u>Notification letters were sent to neighbours</u> Please see <b>Appendix F4</b></p>
<u>(2) (c) (i)</u>	<p><u>An advert was placed in the</u> Witzenburg Herald 10 November 2017. Please see <b>Appendix F6</b></p>

<b>R42 &amp; 34</b>	<b>Register of I&amp;AP</b>
(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 see <b>Appendix F5</b>
<b>R43</b>	<b>Registered I&amp;AP entitled to comments</b>
<u>3</u>	I&AP were given 30 days for comments during the initial public participation phase and will be given 30 days to comment on the Pre-Application BAR (this report).
<b>R44</b>	<b>I&amp;AP to be recorded</b>
	A summary of issues raised by I&AP are addressed in the comments and response report (C&RR).  Please see <b>Appendix F1</b> for the C&RR and <b>F1.1 – F1.5</b> for the original comments received thus far.

## SECTION D: NEED AND DESIRABILITY

**Note:** Before completing this section, first consult this Department's Circular EADP 0028/2014 (dated 9 December 2014) on the "One Environmental Management System" and the EIA Regulations, 2014 (as amended), any subsequent Circulars, and guidelines available on the Department's website: <http://www.westerncape.gov.za/eadp>. In this regard, it must be noted that the *Guideline on Need and Desirability in terms of the Environmental Impact Assessment (EIA) Regulations, 2010* published by the national Department of Environmental Affairs on 20 October 2014 (GN No. 891 on Government Gazette No. 38108 refers) (available at: [http://www.gov.za/sites/www.gov.za/files/38108\\_\\_891.pdf](http://www.gov.za/sites/www.gov.za/files/38108__891.pdf)) also applied to EIAs in terms of the EIA Regulations, 2014 (as amended).

1. Is the development permitted in terms of the property's existing land use rights?	YES	NO	Please explain
The property is zoned for Agriculture.			
2. Will the development be in line with the following?			
(a) Provincial Spatial Development Framework ("PSDF").	YES	NO	Please explain
The proposed enlargement of the dam would allow for the storage of summer irrigation water, which is usually lost. The enlargement of the dam would provide a more efficient use of water which has become a scarce resource, especially in the Western Cape. The water stored will be used for the irrigation of crops. Agriculture remains the backbone of the Western Cape economy and would lead to economic gains.			
(b) Urban edge / edge of built environment for the area.	YES	NO	Please explain
The property is part of the existing agricultural environment associated with the larger area and not near any build edge.			
(c) Integrated Development Plan and Spatial Development Framework 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
The approval of the proposed dam enlargement would not compromise the integrity of the Witzenberg Local Municipality IDP and SDF but will contribute to the more efficient use of an existing water use, a scarce resource, which is otherwise lost. The water stored will be used for the irrigation of crops. Agriculture remains the backbone of the Western Cape economy and would lead to economic gains.			
(d) An Environmental Management Framework ("EMF") adopted by this 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

An EMF has been adopted by the Cape Winelands District Municipality and approval of the proposed project, with correct mitigation measures in place, will support environmental management priorities as adopted in the EMF.			
(e) Any <b>other</b> Plans (e.g., Integrated Waste Management Plan (for waste management activities), etc.)).	YES	NO	Please explain
N/A			
3. Is the land use (associated with the project being applied for) considered within the timeframe intended by the existing approved SDF agreed to by the relevant environmental authority (in other words, is the proposed development in line with the projects and programmes identified as priorities within the credible IDP)?	YES	NO	Please explain
<p>The approval of the propose dam enlargement would not compromise the integrity of the Witzenberg Local Municipality IDP and SDF but will contribute to the more efficient use of an existing water use and a scarce resource, which is otherwise lost. The water stored will be used for the irrigation of crops. Agriculture remains the backbone of the Western Cape economy and would lead to economic gains.</p>			
4. Should development, or if applicable, expansion of the town/area concerned in terms of this land use (associated with the activity being applied for) occur on the proposed site at this point in time?	YES	NO	Please explain
N/A			
5. Does the community/area need the project 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
<p>The approval of the propose dam enlargement would not compromise the integrity of the Witzenberg Local Municipality IDP and SDF but will contribute to the more efficient use of an existing water use and a scarce resource, which is otherwise lost. The water stored will be used for the irrigation of crops. Agriculture remains the backbone of the Western Cape economy and would lead to economic gains.</p>			
6. Are the necessary <b>services</b> available together with adequate unallocated municipal capacity (at the time of application), or must additional capacity be created to cater for the project? (Confirmation by the relevant municipality in this regard must be attached to the BAR as <b>Appendix E.</b> )	YES	NO	Please explain
<p>There is no need to apply for a new water use license for the <i>taking of water</i>. Please refer <b>Appendix E2 for The verification of Existing Lawful Water Use for the property from BGCMA &amp; The Schedule of Rateable Areas.</b></p> <p>Sarel Bester Ingenieurs submitted the EWULA for other activities that trigger section 21 of the National Water Act. These are the following:</p> <ul style="list-style-type: none"> <li>• S21 (b) <i>Storing of water</i></li> <li>• S21 (c ) <i>Impeding or diverting the flow of the water course</i></li> <li>• S21 (i) <i>Altering the bed, bank, course or characteristic of a watercourse</i></li> </ul> <p>Water will be pumped from the dam to the new orchards for irrigation. Electricity would be provided by Witzenberg Local Municipality and come from Eskom's exiting connections. Irrigation pipes will connect with existing irrigation infrastructure and should not trigger any Listed Activities in terms of NEMA (Layout plan still to be provided).</p> <p>Existing access roads will be used.</p>			
7. Is this project provided for in the <b>infrastructure planning</b> 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 BAR as <b>Appendix E.</b> )	YES	NO	Please explain

This development is not expected to have any significant impact on infrastructure plans for the Municipality. It will not result in additional infrastructure or water use (or in impact on any existing infrastructure of the Municipality).			
8. Is this project part of a <b>national programme</b> to address an issue of national concern or importance?	YES	NO	Please explain
N/A			
9. Do location factors favour this land use (associated with the development proposal and associated listed activity(ies) applied for) at this place? (This relates to the contextualisation of the proposed land use on the proposed site within its broader context.)	YES	NO	Please explain
Yes, the location favours the land use as the property selected for the dam enlargement is zoned for agriculture and will fit in with surrounding land uses (refer to <b>Appendix D</b> for the land use map). The footprint for the enlargement is already available as the area is heavily disturbed with no natural vegetation remaining, due to past and current agricultural activities.			
10. Will the development proposal or the land use associated with the development proposal applied for, impact on sensitive natural and cultural areas (built and rural/natural environment)?	YES	NO	Please explain
No the proposed enlargement of Driefontein dam will not impact on sensitive natural or cultural areas. The footprint for the enlargement is already available as the area is heavily disturbed with no natural vegetation remaining, due to past and current agricultural activities. No vegetation will have to be removed. The Heritage impact assessment ( <b>Appendix G3.1</b> ) confirms that no heritage resources will be impacted by the proposed enlargement.			
11. Will the development impact on people's health and well-being (e.g., in terms of noise, odours, visual character and 'sense of place', etc.)?	YES	NO	Please explain
No negative health effects are expected for this project during construction / operations. The proposed dam enlargement will be on agricultural land and will fit in with the sense of place.			
12. Will the proposed development or the land use associated with the proposed development applied for, result in unacceptable opportunity costs?	YES	NO	Please explain
The proposed dam enlargement will not result in unpredictable opportunity costs but will contribute to the more efficient use of an existing water use and a scarce resource, which is otherwise lost.			
13. What will the <b>cumulative impacts</b> (positive and negative) of the proposed land use associated with the development proposal and associated listed activity(ies) applied for, be?			
<p><b>Positive:</b></p> <ul style="list-style-type: none"> <li>The proposed dam expansion will contribute to the more efficient use of an existing water and a scarce resource, which is otherwise lost. With the storing of winter listed water, more fruit orchards can be planted, resulting in more seasonal and permanent jobs.</li> <li>The footprint area for the expansion is available with the area being almost completely transformed and disturbed due to past and ongoing agricultural activities. No indigenous vegetation will be removed for the dam expansion and no species will be lost;</li> <li>With the proposed dam expansion the potential to restore degraded ESA2s via intervention is realised;</li> </ul> <p><b>Negative:</b></p> <ul style="list-style-type: none"> <li>Although the footprint area for the expansion already exists with the area being completely transformed, the proposed dam expansion would contribute to the further transformation of the area. The biodiversity specialist recommends that with intervention, the ESA2 could possibly be restored. This would not have been realised without the assessment of the proposed dam expansion.</li> </ul>			

14. Is the development the <b>best practicable environmental option</b> for this land/site?	YES	NO	Please explain
At present there are no other viable alternative land use options for these sites (unless it to keep it natural).			
15. What will the benefits be to society in general and to the local communities?			Please explain
More water for irrigation allows for the expansion for fruit orchards resulting in an increase in seasonal and or permanent work.			
16. Any <b>other</b> need and desirability considerations related to the proposed development?			Please explain
N/A			
17. Describe how the <b>general objectives of Integrated Environmental Management</b> as set out in Section 23 of the NEMA have been taken into account:			
<p>The general objectives of Integrated Environmental Management have been taken into account through the following:</p> <ul style="list-style-type: none"> <li>- The actual and potential impacts of the activity on the environment, socio-economic conditions and cultural heritage have been identified, predicted and evaluated, as well as the risks and consequences and alternatives and options for mitigation of activities, with a view to minimizing negative impact, maximizing benefits and promoting compliance with the principles of environmental management – <i>please refer to Section F below.</i></li> <li>- The effects of the activity on the environment have been considered before actions taken in connection with them – <i>alternatives have been considered and investigated (please refer to Section E below).</i></li> <li>- Adequate and appropriate opportunity for public participation is ensured through the public participation process</li> <li>- The environmental attributes have been considered in the management and decision-making of the activity – <i>an EMP has been included (<b>Appendix H</b>) with the proposed activity and must adhere to the requirements of all applicable state Authorities.</i></li> </ul>			
18. Describe how the <b>principles of environmental management</b> as set out in Section 2 of the NEMA have been taken into account:			
<p>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:</p> <ul style="list-style-type: none"> <li>- People and their needs have been placed at the forefront while serving their physical, psychological, developmental, cultural and social interests – <i>the proposed activity will have a beneficial impact on people, regarding their cultural believes.</i></li> <li>- Development must 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. - <i>Although the activity is expected to have little to no environmental impact, these impacts have been considered, and mitigation measures have been put in place.</i></li> <li>- Where waste cannot be avoided, it is minimised and remedied through the implementation and adherence of EMP.</li> <li>- The use of non-renewable natural resources is responsible and equitable – <i>no exploitation of non-renewable natural resources occurs with the proposed activity, the activity aims to better utilize an existing water use.</i></li> <li>- The negative impacts on the environment and on people's environmental rights have been anticipated and prevented, and where they cannot be prevented, are minimised and remedied - <i>refer to Section F below.</i></li> </ul>			

- 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 have been considered, assessed and evaluated, including the disadvantages and benefits – *refer to Section F below.*
- The effects of decisions on all aspects of the environment and all people in the environment have been taken into account, by pursuing what is considered the best practicable environmental option – *the proposed activity is expected to have minimal/negligible environmental impacts, especially after mitigation measures as described under Section F and in the EMP are implemented.*

## SECTION E: DETAILS OF ALL THE ALTERNATIVES CONSIDERED

**Note:** Before completing this section, first consult this Department's Circular EADP 0028/2014 (dated 9 December 2014) on the "One Environmental Management System" and the EIA Regulations, 2014 (as amended), any subsequent Circulars, and guidelines available on the Department's website <http://www.westerncape.gov.za/eadp>.

The EIA Regulations, 2014 (as amended) defines "alternatives" as "*in relation to a proposed activity, means different means of fulfilling the general purpose and requirements of the activity, which may include alternatives to the—*

*(a) property on which or location where the activity is proposed to be undertaken;*

*(b) type of activity to be undertaken;*

*(c) design or layout of the activity;*

*(d) technology to be used in the activity; or*

*(e) operational aspects of the activity;*

*(f) and includes the option of not implementing the activity;"*

The NEMA (section 24(4)(a) and (b) of the NEMA, refers) prescribes that the procedures for the investigation, assessment and communication of the potential consequences or impacts of activities on the environment must, *inter alia*, with respect to every application for environmental authorisation –

- ensure that the general objectives of integrated environmental management laid down in the NEMA and the National Environmental Management Principles set out in the NEMA are taken into account; and
- include an investigation of the potential consequences or impacts of the alternatives to the activity on the environment and assessment of the significance of those potential consequences or impacts, including the option of not implementing the activity.

The general objective of integrated environmental management (section 23 of NEMA, refers) is, *inter alia*, to "*identify, predict and evaluate the actual and potential impact on the environment, socio-economic conditions and cultural heritage, the risks and consequences and alternatives and options for mitigation of activities, with a view to minimising negative impacts, maximising benefits, and promoting compliance with the principles of environmental management*" set out in the NEMA.

The identification, evaluation, consideration and comparative assessment of alternatives directly relate to the management of impacts. Related to every identified impact, alternatives, modifications or changes to the activity must be identified, evaluated, considered and comparatively considered to:

- in terms of negative impacts, firstly avoid a negative impact altogether, or if avoidance is not possible alternatives to better mitigate, manage and remediate a negative impact and to compensate for/offset any impacts that remain after mitigation and remediation; and
- in terms of positive impacts, maximise impacts.

### 1. DETAILS OF THE IDENTIFIED AND CONSIDERED ALTERNATIVES AND INDICATE THOSE ALTERNATIVES THAT WERE FOUND TO BE FEASIBLE AND REASONABLE

**Note:** A full description of the investigation of alternatives must be provided and motivation if no reasonable or feasible alternatives exists.

(a) Property and **location/site** alternatives to avoid negative impacts, mitigate unavoidable negative impacts and maximise positive impacts, or detailed motivation if no reasonable or feasible alternatives exist:

Both Alternative 1 (Preferred alternative – Driefontein dam) and Alternative 2 (not preferred alternative – Brand se dam) is on the same property, Portion 33 of the Farm Rietvalley 364, Ceres. The farm is located within the Ceres-basin, with a rather flat topography. The following section will attempt to clarify why Driefontein dam (Alternative 1) was chosen as the preferred, reasonable and feasible site for the expansion of the dam to be able to store winter listed water on the property for the expansion of fruit orchards.

Alternative 1 (Preferred): Expansion of Driefontein dam on Portion 33 of Farm Rietvalley 364, Ceres

- The footprint area for the expansion is available with the area being almost completely transformed and disturbed due to past and ongoing agricultural activities;
- Driefontein dam is close to the Warmbokkeveld Scheme sluice and outlet, ensuring minimal losses;
- The existing dam wall integrity and stability is of a good enough standard to enlarge on it;
- Pipeline infrastructure exists to pump water from Driefontein dam to Brand se dam for irrigation of crops

Alternative 2 (Not preferred): Expansion of Brand se dam on Portion 33 of Farm Rietvalley 364, Ceres

- Planted crops will have to be removed to make the footprint available for the expansion which will be expensive and defeat the purpose of wanting to expand crops;
- The expansion of Brand se dam would expand over the farm border on to the neighbouring property.

As a result, Alternative 1, Driefontein dam would be the preferred alternative to be expanded for the storing of winter listed water.



*Figure 16: Google image showing Driefontein Dam (Alternative 1- Preferred) and Brand se Dam (Alternative 2 - Not preferred) on Portion 33 of the Farm Rietvalley 364, Ceres*

- (b) **Activity** alternatives to avoid negative impacts, mitigate unavoidable negative impacts and maximise positive impacts, or detailed motivation if no reasonable or feasible alternatives exist:

N/A. No activity alternatives were investigated (or viable activity alternatives identified).

- (c) **Design or layout** alternatives to avoid negative impacts, mitigate unavoidable negative impacts and maximise positive impacts, or detailed motivation if no reasonable or feasible alternatives exist:

For reasons listed above, Alternative A, Driefontein dam is considered the preferred alternative to be expanded for the storing of winter listed water.

The layout designs (**Appendix B** – site plans) as presented in the Preliminary design reports from Sarel Bester Ingenieurs: **1731DOV-S2** and **1731DOV-S2)(Rev1)** (**Appendix K**) are not necessary the final designs, although recommendations and findings from the Freshwater specialist's Technical report was considered. Designs will be finalised, considering all environmental aspects and assessments and conditions set out in the EA, should the EA be granted.

- (d) **Technology** alternatives (e.g., to reduce resource demand and increase resource use efficiency) to avoid negative impacts, mitigate unavoidable negative impacts and maximise positive impacts, or detailed motivation if no reasonable or feasible alternatives exist:

No technology alternatives considered or applicable.

- (e) **Operational** alternatives to avoid negative impacts, mitigate unavoidable negative impacts and maximise positive impacts, or detailed motivation if no reasonable or feasible alternatives exist:

No operational alternatives considered or applicable.

- (f) The option of **not implementing** the activity (the 'No-Go' Option):

The no-go alternative will result in no further development, which will mean that there will be no impact on the environment and listed winter water will still flow past the dam to water users down-stream.

The 'status quo' persisting as long as there was no unanticipated disturbance and the sites will remain as is, transformed and disturbed.

Although this no-go option will not result in potential negative environmental impacts, the potential social benefits from implementing the activity would not be achieved.

- (g) **Other** alternatives to avoid negative impacts, mitigate unavoidable negative impacts and maximise positive impacts, or detailed motivation if no reasonable or feasible alternatives exist:

It is the opinion of the Freshwater specialist and Botanical specialist that the footprint for the expansion is available due to the area being completely disturbed and transformed, meaning that not water or botanic resources will be lost because of the proposed expansion.

- (h) Provide a **summary** of all alternatives investigated and the outcome of each investigation:

Alternative 1 (Preferred): Expansion of Driefontein dam on Portion 33 of Farm Rietvalley 364, Ceres

- The footprint area for the expansion is available with the area being almost completed transformed and disturbed due to past and ongoing agricultural activities;
- Driefontein dam is close to the Warmbokkeveld Scheme sluice and outlet, ensuring minimal losses;
- The existing dam wall integrity and stability is of a good enough standard to enlarge on it;

Alternative 2 (Not preferred): Expansion of Brand se dam on Portion 33 of Farm Rietvalley 364, Ceres

- Planted crops will have to be removed to make the footprint available for the expansion which will be expensive and defeat the purpose of wanting to expand crops;
- To pump water from the Warmbokkeveld Scheme sluice and outlet to Brand se dam and the planned crop/ fruit orchard expansion would be expensive because of the distance and planted crops will have to be removed;
- The expansion of Brand se dam would expand over the farm border on to the neighbouring property.

As a result, Alternative 1, Driefontein dam would be the preferred alternative to be expanded for the storing of winter listed water.

- (i) Provide a detailed **motivation for not further considering** the alternatives that were found not feasible and reasonable, including a description and proof of the investigation of those alternatives:

Please refer to the reasons above.

## 2. PREFERRED ALTERNATIVE

- (a) Provide a **concluding statement** indicating the preferred alternative(s), including preferred location, site, activity and technology for the development.

Alternative 1, Driefontein dam, is the preferred alternative selected for the expansion. The main reasons being that the footprint for the expansion is available, not resulting in any environmental losses or economic losses. The dam wall is also considered by the engineers to be stable and in a good condition to be able to enlarge it. Driefontein dam is also Warmbokkeveld Scheme sluice and outlet, ensuring minimal losses.

Having considered Brand se dam (Alternative 2) as a possible alternative, **Driefontein dam (Alternative 1) is considered to be the only feasible and reasonable alternative for the expansion and is therefore the Preferred Alternative.**

## SECTION F: ENVIRONMENTAL ASPECTS ASSOCIATED WITH THE ALTERNATIVES

**Note:** The information in this section must be DUPLICATED for all the feasible and reasonable ALTERNATIVES.

### 1. DESCRIBE THE ENVIRONMENTAL ASPECTS ASSOCIATED WITH THE PROPOSED DEVELOPMENT AND ITS ALTERNATIVES, FOCUSING ON THE FOLLOWING:

- (a) Geographical, geological and physical aspects:

Please see the explanation on the next page.

Having considered Brand se dam (Alternative 2) as a possible alternative, **Driefontein dam (Alternative 1) is considered to be the only feasible and reasonable alternative for the expansion and is therefore the Preferred Alternative.**

According to the Biodiversity, Freshwater and Heritage Specialists. the proposed expansion of Driefontein Dam will not have a significant impact on geographical, geological or physical environmental aspects as the site has already been completely transformed due to past and current agricultural activities and the fact that Driefontein does in not connected to any of the streams in the area.

#### **Vegetation:**

According to the Biodiversity specialist and maps from Cape Farm Mapper (**Appendix D for sensitivity maps**), vegetation that would have been present on site would have been Ceres Shale Renosterveld which is classified as vulnerable in terms of NEMBA. The specialist confirms that no natural vegetation remains on the site or its immediate surroundings apart from a few hardy (and mostly weedy) species just below the dam wall or within the uncultivated areas near seasonal drainage lines. the expansion of the dam is not expected to have any significant long term impacts on vegetation since the site is already transformed.

#### **Topography:**

Driefontein Dam on Portion 33 of the Farm Rietvalley No. 367 is situated in the gently rolling hill terrain of the Warm Bokkeveld region. Driefontein dam falls within the Ceres-basin with a rather flat topography. The proposed expansion will not impact on the topography of the area.

#### **Rivers, streams, Ecological Support Areas:**

Driefontein dam falls within an ESA2 associated with channelled valley bottom seasonal streams (**Appendix D for sensitivity maps**). According to the Biodiversity specialists' findings (**Appendix G**), the ESA2s are delineations along the channelled valley bottom wetlands (seasonal streams). Ideally these areas should be restored to its natural state, however in this case, restoration will require intervention as there are no more natural vegetation left (not even riparian vegetation).

In terms of the rivers and streams associated with the dam enlargement, the Freshwater specialist's Technical Report (**Appendix G2**), explains that Driefontein dam, which is located approximately in the middle of the valley, is not naturally connected to any rivers that flow out of the surrounding mountains. It has a small catchment of its own.

In Freshwater specialist is concludes that the increase of Driefontein dam's storage capacity, will not impact the downstream aquatic environment. No less water would flow down the stream downstream of the dam as is currently the situation, as any water that is now not being used for irrigation is flowing down the canal and not the stream. Once the dam wall has been raised, less water would flow down the irrigation canal. The nett effect on the stream's water balance is no impact at all.

The stream downstream and adjacent to Driefontein Dam (Figure 6 above) only flows during period of exceptionally high rainfall, when the Warm Bokkeveld Irrigation Scheme is filled up the Driefontein Dam and when there is runoff from the dam's catchment. This only occurs once in a couple of years, and flow only lasts for a couple of days, then it returns to its usual dry state. The dam and the spillway should be not any higher than the dam's full capacity, after the 182 000m<sup>3</sup> has been added to the capacity of the dam. This would ensure that if the dam is at its design capacity, it would overflow during these exceptional very high rainfall events. This water would hardly benefit the highly impacted stream adjacent and below the Driefontein Dam. It would possibly be of benefit further downstream where there may still be ecological functioning left

The stream can only return to a more natural state if the entire landscape reverts to less farming and more natural catchment. It is unlikely that this would ever happen, because of the vested agricultural interests that has been entrenched in the region's economy since the country's early history.

(b) Ecological aspects:

Will the proposed development and its alternatives have an impact on CBAs or ESAs? If yes, please explain: Also include a description of how the proposed development will influence the quantitative values (hectares/percentage) of the categories on the CBA/ESA map.	YES	NO
--	-----	----

No, please refer to the explanation above.		
Will the proposed development and its alternatives have an impact on terrestrial vegetation, or aquatic ecosystems (wetlands, estuaries or the coastline)? If yes, please explain:	YES	NO
No, please refer to the explanation above.		
Will the proposed development and its alternatives have an impact on any populations of threatened plant or animal species, and/or on any habitat that may contain a unique signature of plant or animal species? If yes, please explain:	YES	NO
<p>No, please refer to the explanation above. No threatened plant or animal species/ habitat detected on the proposed site.</p> <p>The Freshwater Specialist Technical Report (<b>Appendix G2</b>) states that the EIS is based on the presence of especially fish species that are endangered on a local regional or national level. The dam's water level fluctuates widely because the water is used for irrigation. This is a hostile environment for any of the indigenous fish species. There were none of these species and hence the dam cannot be considered as ecologically important. Neither were there any other species of whatever description that could be described as endangered or important. These were removed when the land was tilled. The sensitivity is often described as the ability of habitat to bounce back to a condition closer to its original status if the impacts are removed. It is doubtful if highly cultivated land would ever resemble aquatic habitat within the next millennium and hence the habitat cannot be described as particularly sensitive.</p>		
Describe the manner in which any other biological aspects will be impacted:		
No, please refer to the explanation above.		
Will the proposed development also trigger section 63 of the NEM: ICMA?	YES	NO
<p>If yes, describe the following:</p> <p>(i) the extent to which the applicant has in the past complied with similar authorisations;</p> <p>(ii) whether coastal public property, the coastal protection zone or coastal access land will be affected, and if so, the extent to which the proposed development proposal or listed activity is consistent with the purpose for establishing and protecting those areas;</p> <p>(iii) the estuarine management plans, coastal management programmes, coastal management lines and coastal management objectives applicable in the area;</p> <p>(iv) the likely socio-economic impact if the listed activity is authorised or is not authorised;</p> <p>(v) the likely impact of coastal environmental processes on the proposed development;</p> <p>(vi) whether the development proposal or listed activity—</p> <p>(a) is situated within coastal public property and is inconsistent with the objective of conserving and enhancing coastal public property for the benefit of current and future generations;</p> <p>(b) is situated within the coastal protection zone and is inconsistent with the purpose for which a coastal protection zone is established as set out in section 17 of NEM: ICMA;</p> <p>(c) is situated within coastal access land and is inconsistent with the purpose for which coastal access land is designated as set out in section 18 of NEM: ICMA;</p> <p>(d) is likely to cause irreversible or long-lasting adverse effects to any aspect of the coastal environment that cannot satisfactorily be mitigated;</p> <p>(e) is likely to be significantly damaged or prejudiced by dynamic coastal processes;</p> <p>(f) would substantially prejudice the achievement of any coastal management objective; or</p> <p>(g) would be contrary to the interests of the whole community;</p> <p>(vii) whether the very nature of the proposed activity or development requires it to be located within coastal public property, the coastal protection zone or coastal access land;</p> <p>(viii) whether the proposed development will provide important services to the public when using coastal public property, the coastal protection zone, coastal access land or a coastal protected area; and</p> <p>(ix) the objects of NEM: ICMA, where applicable.</p>		
N/A		

(c) Social and Economic aspects:

What is the expected capital value of the project on completion?	R600 000.00	
What is the expected yearly income or contribution to the economy that will be generated by or as a result of the project?	R2 000 000.00	
Will the project contribute to service infrastructure?	YES	NO
Is the project a public amenity?	YES	NO
How many new employment opportunities will be created during the development phase?	10	
What is the expected value of the employment opportunities during the development phase?	R1000 000.00	
What percentage of this will accrue to previously disadvantaged individuals?	100%	
How will this be ensured and monitored (please explain):		
How many permanent new employment opportunities will be created during the operational phase of the project?	10	
What is the expected current value of the employment opportunities during the first 10 years?	R 1000 000.00	
What percentage of this will accrue to previously disadvantaged individuals?	100%	
How will this be ensured and monitored (please explain):		
Only employee's of disadvantaged will be employed and monitored by the owner.		
Any other information related to the manner in which the socio-economic aspects will be impacted:		

(d) Heritage and Cultural aspects:

<p>A Palaeontological Impact Assessment were conducted and findings were consolidated in a Heritage Impact Assessment (<b>Appendix G3.1</b>).</p> <p><u>The HIA concludes:</u></p> <p>Lower Bokkeveld Group (Voorstehoek Formation) bedrocks in the Warm Bokkeveld region have yielded rich assemblages of shelly marine invertebrates. However, in the Driefontein Dam study area the Voorstehoek Formation bedrocks are generally poorly exposed, highly-weathered near the surface, fractured and secondarily mineralised locally. Shelly fossil remains here are very sparse, with only two invertebrate specimens recorded during the site visit - viz. a poorly-preserved orthocone nautiloid and a juvenile homalonotid trilobite. <u>The heritage remains have been rated as having low significance.</u></p> <p>According to Almond, 'the bedrocks within the study area are generally of low paleontological sensitivity and the proposed Driefontein Dam project therefore does not pose a significant threat to local paleontological heritage resources'.</p> <p>Pending the chance discovery of substantial new fossil remains during construction, no further specialist palaeontological studies or mitigation are recommended.</p>
---

## 2. WASTE AND EMISSIONS

### (a) Waste (including effluent) management

Will the development proposal produce waste (including rubble) during the development phase?	YES	NO
If yes, indicate the types of waste (actual type of waste, e.g. oil, and whether hazardous or not) and estimated quantity per type?	Unsure m <sup>3</sup>	
Excavations from the dam basin will be used to construct the dam wall. Some rubble might be produced from the demolishing of the existing spillway, which will be disposed of in a legal manner at a registered landfill site.		

Will the development proposal produce waste during its operational phase?	YES	NO
If yes, indicate the types of waste (actual type of waste, e.g. oil, and whether hazardous or not) and estimated quantity per type?	m <sup>3</sup>	
No waste to be produced during operations.		

Will the development proposal require waste to be treated / disposed of on site?	YES	NO
If yes, indicate the types of waste (actual type of waste, e.g. oil, and whether hazardous or not) and estimated quantity per type per phase of the proposed development to be treated/disposed of?	m <sup>3</sup>	
No waste to be produced during operations.		
If no, where and how will the waste be treated / disposed of? Please explain. Indicate the types of waste (actual type of waste, e.g. oil, and whether hazardous or not) and estimated quantity per type per phase of the proposed development to be treated/disposed of?	m <sup>3</sup>	
No waste to be produced during operations.		

Has the municipality or relevant authority confirmed that sufficient capacity exists for treating / disposing of the waste to be generated by the development proposal? If yes, provide written confirmation from the municipality or relevant authority. N/A	YES	NO
Will the development proposal produce waste that will be treated and/or disposed of at another facility other than into a municipal waste stream? N/A	YES	NO
If yes, has this facility confirmed that sufficient capacity exists for treating / disposing of the waste to be generated by the development proposal? Provide written confirmation from the facility. N/A	YES	NO
Does the facility have an operating license? (If yes, please attach a copy of the licence.) N/A	YES	NO
Facility name:		
Contact person:		
Cell:	Postal address:	
Telephone:	Postal code:	
Fax:	E-mail:	

Describe the measures that will be taken to reduce, reuse or recycle waste:
Litter on site should be minimised with bins dedicated for food scraps and plastic/paper. Recyclable waste should be disposed of at a dedicated recycle point.

### (b) Emissions into the atmosphere

Will the development proposal produce emissions that will be released into the atmosphere?	YES	NO
If yes, does this require approval in terms of relevant legislation?	YES	NO
If yes, what is the approximate volume(s) of emissions released into the atmosphere?	m <sup>3</sup>	
Describe the emissions in terms of type and concentration and how these will be avoided/managed/treated/mitigated:		
No emissions to be produced		

### 3. WATER USE

(a) Indicate the source(s) of water for the development proposal by highlighting the appropriate box(es).

Municipal	Water board	Groundwater	River, Stream, Dam or Lake	Other	The project will not use water
-----------	-------------	-------------	-------------------------------	-------	-----------------------------------

**Note:** Provide proof of assurance of water supply (e.g. Letter of confirmation from the municipality / water user associations, yield of borehole)

Agterfontein Trust proposed the enlargement of the existing Driefontein dam on Portion 33 of the Farm Rietvalley No. 364, Ceres of which an existing water use license exists. The existing dam did not provide enough storage capacity on the farm for scheduled winter water from the Warmbokkeveld Scheme and a substantial portion of the water has been sacrificed and lost to the benefit of downstream water users for many years.

There is thus no need to apply for a new water use license for the *taking of water*. Please refer **Appendix E2** for **The verification of Existing Lawful Water Use for the property from BGCMA & The Schedule of Rateable Areas**. The dam is however, classified as an instream dam and therefore other activities in terms of section 21 of the National Water Act (Act 36 of 1998) will be triggered.

Sarel Bester Ingenieurs submitted the EWULA **WULA REF: WU7859** (File no: 27/2/1/H310/4/1) for other activities that trigger section 21 of the National Water Act. These are the following:

- S21 (b) Storing of water
- S21 (c) Impeding or diverting the flow of the water course
- S21 (i) Altering the bed, bank, course or characteristic of a watercourse

Existing Lawful Water Use for Portion 33 of the Farm Rietvalley No 364 can be seen in the figure below taken from 'The verification of Existing Lawful Water Use for the property from BGCMA' Appendix E2.

Section of NWA	Type of Water Use	Existing Lawful Water Use		
		Volume (m <sup>3</sup> /annum)*	Source	Irrigation Board or Water User Association Scheme
21(a)	Taking of water for irrigation purposes	514400	WUA/IB Scheme	Warmbokkeveld IB
21(a)	Taking of water for irrigation purposes	111623	Groundwater	
21(b)	Storage of water	285213		

\* In the case of **Storage**, the Existing Lawful Water Use is in m<sup>3</sup>

Figure 17: Existing Lawful Water Use (1731DOV-S2).

(b) If water is to be extracted from a groundwater source, river, stream, dam, lake or any other natural feature, please indicate the volume that will be extracted per month:	To be provided	m <sup>3</sup>
--	----------------	----------------

(c) Does the development proposal require a water use permit / license from DWS?	YES	NO
If yes, please submit the necessary application to the DWS and attach proof thereof to this application as an Appendix.		

Please refer to explanation above.

The application to DWS was done on the EWULA system.

Sarel Bester Ingenieurs submitted the EWULA **WULA REF: WU7859** (File no: 27/2/1/H310/4/1)

(d) Describe the measures that will be taken to reduce water demand, and measures to reuse or recycle water:
The proposed expansion of the dam will allow for the better utilisation of an existing water use right and scarce resource. Drip irrigation is proposed which will save water.

#### 4. POWER SUPPLY

- (a) Describe the source of power e.g. municipality / Eskom / renewable energy source.

Water will be pumped from the dam to the new orchards for irrigation. Electricity would be provided by Witzenberg Local Municipality and come from Eskom's exiting connections.

- (b) If power supply is not available, where will power be sourced?

Water will be pumped from the dam to the new orchards for irrigation. Electricity would be provided by Witzenberg Local Municipality and come from Eskom's exiting connections.

#### 5. ENERGY EFFICIENCY

- (a) Describe the design measures, if any, that have been taken to ensure that the development proposal will be energy efficient:

Driefontein Dam is the preferred alternative when compared to Brand, one of the reason is that the distance to pump water from the water scheme outlet to the dam and then ultimately to the planned fruit orchards will be shorter (and thus more energy efficient) than it would have been from Brand se dam.

- (b) Describe how alternative energy sources have been taken into account or been built into the design of the project, if any:

It is proposed that drip irrigation be used which does not only save water but also energy (pumping cost).

#### 6. TRANSPORT, TRAFFIC AND ACCESS

Describe the impacts in terms of transport, traffic and access.

Existing access roads will be used. Vehicles will only be allowed to stay in the roads and within the demarcated footprint set out for development.

#### 7. NUISANCE FACTOR (NOISE, ODOUR, etc.)

Describe the potential nuisance factor or impacts in terms of noise and odours.

No noise or odours is expected during construction or operations.

**Note:** Include impacts that the surrounding environment will have on the proposed development.

#### 8. OTHER

Should other factors impacted the environment be identified they will be addressed.

## SECTION G: IMPACT ASSESSMENT, IMPACT AVOIDANCE, MANAGEMENT, MITIGATION AND MONITORING MEASURES

### 1. METHODOLOGY USED IN DETERMINING AND RANKING ENVIRONMENTAL IMPACTS AND RISKS ASSOCIATED WITH THE ALTERNATIVES

- (a) Describe the **methodology** used in determining and ranking the nature, significance consequences, extent, duration and probability of potential environmental impacts and risks associated with the proposed development and alternatives.

Please refer to **Appendix J1** for the methodology applied for the environmental impacts and risk assessment for the proposed expansion of Driefontein dam.

- (b) Please describe any gaps in knowledge.

There are no significant gaps of knowledge that have been identified.

- (c) Please describe the underlying assumptions.

The following assumptions are made:

- The information on which the report is based (i.e. project information) is correct.
- The construction and management of this proposed development will be in line with the recommendations in this report, which will be enforced by the implementation of detailed Environmental Management Plan. Much of the long-term success lies in the effective implementation of the measures prescribed in the Environmental Management Plan.

- (d) Please describe the uncertainties.

There are no uncertainties that we are aware of at present.

- (e) Describe adequacy of the assessment methods used.

The assessment criteria are based on the EIA Guidelines, published by the Department of Environmental Affairs and Tourism (June 2006) in support of the EIA Regulations, 2014 (as amended 2017).

## 2. IDENTIFICATION, ASSESSMENT AND RANKING OF IMPACTS TO REACH THE PROPOSED ALTERNATIVES INCLUDING THE PREFERRED ALTERNATIVE WITHIN THE SITE

**Note:** In this section the focus is on the identified issues, impacts and risks that influenced the identification of the alternatives. This includes how aspects of the receiving environment have influenced the selection.

(a) List the identified impacts and risks for each alternative.

Alternative 1:	Alternative 1 (Preferred): Expansion Driefontein Dam- No risks have been identified as the area is considered completely transformed. No natural/ sensitive areas will be lost
Alternative 2:	Alternative 2 (Not preferred): Expansion Brand se dam No risks associated with Alternative 2 as the area is also considered completely transformed. Crops will be lost with the expansion of Brand se dam. The expansion will extend to the neighbouring farm.
Alternative x:	N/A
No-go Alternative:	The status quo of the environment will remain the same if the no-go option is implemented. The area will remain transformed.

(b) Describe the impacts and risks identified for each alternative, including the nature, significance, consequence, extent, duration and probability of the impacts, including the degree to which these impacts can be reversed; may cause irreplaceable loss of resources; and can be avoided, managed or mitigated.

The following table serves as a guide for summarising each alternative. The table should be repeated for each alternative to ensure a comparative assessment. (The EAP has to select the relevant impacts identified in blue in the table below for each alternative and repeat the table for each impact and risk).

<b>Alternative 1:</b> <b>Preferred Alternative - Driefontein dam</b> <b>Please refer to Appendix J2 for the comprehensive Impact Rating Matrix</b>	<b>Geology / geohydrological / ecological / socio-economic / heritage and cultural-historical / noise / visual / etc.</b>
<b>PLANNING, DESIGN AND DEVELOPMENT PHASE</b>	
<b>Potential impact and risk:</b>	
Nature of impact:	
Extent and duration of impact:	
Consequence of impact or risk:	
Probability of occurrence:	
Degree to which the impact may cause irreplaceable loss of resources:	
Degree to which the impact can be reversed:	
Indirect impacts:	
Cumulative impact prior to mitigation:	
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	
Degree to which the impact can be avoided:	
Degree to which the impact can be managed:	
Degree to which the impact can be mitigated:	
Proposed mitigation:	
Residual impacts:	
Cumulative impact post mitigation:	
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	
<b>OPERATIONAL PHASE</b>	
<b>Potential impact and risk:</b>	
Nature of impact:	
Extent and duration of impact:	
Consequence of impact or risk:	
Probability of occurrence:	
Degree to which the impact may cause irreplaceable loss of resources:	
Degree to which the impact can be reversed:	
Indirect impacts:	

Cumulative impact prior to mitigation:	
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	
Degree to which the impact can be avoided:	
Degree to which the impact can be managed:	
Degree to which the impact can be mitigated:	
Proposed mitigation:	
Residual impacts:	
Cumulative impact post mitigation:	
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	
<b>DECOMMISSIONING AND CLOSURE PHASE</b>	
<b>Potential impact and risk:</b>	
Nature of impact:	
Extent and duration of impact:	
Consequence of impact or risk:	
Probability of occurrence:	
Degree to which the impact may cause irreplaceable loss of resources:	
Degree to which the impact can be reversed:	
Indirect impacts:	
Cumulative impact prior to mitigation:	
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	
Degree to which the impact can be avoided:	
Degree to which the impact can be managed:	
Degree to which the impact can be mitigated:	
Proposed mitigation:	
Residual impacts:	
Cumulative impact post mitigation:	
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	

**Note:** The EAP may decide to include this section as Appendix J to the BAR.

**Please refer to Appendix J1 for the method methodology applied for the environmental impacts and risk assessment for the proposed development Alternative 1 (preferred) Alternative 2 (not preferred) and No-Go alternative.**

**Appendix J2 for the Environmental impacts and risk assessment (Impact Rating Matrix) for the proposed development Alternative 1 (preferred) Alternative 2 (not preferred) and No-Go alternative.**

(c) Provide a summary of the site selection matrix.

**With the correct mitigation measures in place the impact significance can be summarised as the following for Alternative 1 – Preferred Alternative Expansion of Driefontein Dam:**

**Pre construction & Construction Phase:**

**Botanical:**

Loss of Ceres Shale Renosterveld – very low significance

Loss of Ecological Support Areas – very low significance

Soil contamination from vehicles – very low significance

**Water:**

Loss of riparian habitat – very low significance

Alteration of hydrology of stream downstream of the dam wall and spillway – very low significance

**Heritage:**

Loss of archaeological/ palaeontological resources – very low significance

Dust – very low significance

Visual – very low significance  
Noise – very low significance

**Operational Phase:**

**Water**

Alternation of hydrology of stream downstream of the dam wall and spillway – very low significance  
Erosion & Sedimentation - very low significance

Dust – very low significance  
Visual – very low significance  
Noise – very low significance

**Rehabilitation/ Decommission:**

**Botanical:**

Soil contamination from vehicles on site – very low significance

**Water:**

Loss of riparian habitat – very low significance  
Alternation of hydrology of surrounding streams - very low significance

Dust – very low significance  
Visual – very low significance  
Noise – very low significance

**Alternative 2 (Not preferred) Expansion of Brand se dam:**

With the correct mitigation measures in place, the impact significance for Alternative 2 (Not preferred Alternative) Expansion of Brand se dam, can be summarised as having a very low significance on the receiving environment, just as Alternative 1 (Driefontein). With the expansion of Brand se dam (Alternative 2) existing crops will have to be removed to make space for the expansion, defeating the purposes for the expansion of the dam to plant an additional 22ha fruit orchards. The expansion of Brand se dam will also have to extend to the neighbouring farm.

**No-go Alternative:**

The status quo of the environment will remain the same if the no-go option is implemented. The area will remain transformed.

(d) Outcome of the site selection matrix.

It is expected that the proposed expansion of Driefontein Dam (Alternative 1 – Preferred) and Brand se dam (Alternative 2 – Not preferred) will have an insignificant negative impact on the receiving environment if the correct mitigation measures as described in the risk matrix, specialist recommendations and EMP is implemented.

Driefontein dam remains the preferred alternative as no crops will have to be removed for the expansion, the footprint exists. Infrastructure to pump the water to Brand se dam is also already in place. The expansion of Driefontein dam will not impact on neighbouring properties.

### 3. SPECIALIST INPUTS/STUDIES, FINDINGS AND RECOMMENDATIONS

**Note:** Specialist inputs/studies must be attached to this report as **Appendix G** and must comply with the content requirements set out in Appendix 6 of the EIA Regulations, 2014 (as amended). Also take into account the Department's Circular EADP 0028/2014 (dated 9 December 2014) on the "One Environmental Management System" and the EIA Regulations, 2014, any subsequent Circulars, and guidelines available on the Department's website (<http://www.westerncape.gov.za/eadp>).

Provide a summary of the findings and impact management measures identified in any specialist report and an indication of how these findings and recommendations have been included in the BAR.

The following mitigation measures/ recommendations from the specialists were included in the Environmental Management Plan (**Appendix H**) which should be complied with by the Applicant and relevant contractors. These mitigation measures were also considered while conducting the Impact significant ratings (Impact Rating Matrix) (**Appendix J**).

Recommendations on impact minimisation from the Biodiversity Impact Statement Report:

- A suitably qualified Environmental Control Officer must be appointed to monitor the construction phase.
- Before any work is done the site and access routes must be clearly demarcated (with the aim at minimal width/smallest footprint).
- Lay-down areas or construction sites must be located within already disturbed areas or areas of low ecological value and must be pre-approved by the ECO.
- Indiscriminate clearing of areas must be avoided.
- All alien plants must be removed from within the construction footprint and immediate surroundings.
- All areas impacted as a result of construction must be rehabilitated on completion of the project.
- An integrated waste management approach must be implemented during construction.
- Ideally ecological support areas should be established along the small streams. As a potential off-set the re-establishment and protection (fencing them off) of a more natural riparian vegetation along these streams should be considered. But this will be difficult as the area has been subject to intensive agriculture over a long period of time.

Mitigation measures from the Freshwater Specialist's technical Report:

- The dam should not be built any bigger than its enlarged design capacity;
- During construction its footprint should be kept as small as possible;
- All building rubble should be removed following the completion of the dam
- Building should take place during the dry summer months
- The spillway should not be increased higher than the increase of the dam wall to ensure overflow.

Mitigation measures from Heritage Specialists:

- In the case of any significant new fossil finds exposed during dam construction (e.g. concentrations of well-preserved fossil shells such as "starfish beds"), these should be safeguarded - preferably in situ - and reported by the ECO as soon as possible to Heritage Western Cape (Att: Mr Andrew September 021 483 9543).

#### 4. ENVIRONMENTAL IMPACT STATEMENT

Provide an environmental impact statement of the following:

(i) A summary of the key findings of the EIA.

##### **Key findings regarding Biodiversity:**

Site visits conducted by the Biodiversity specialist (Report **Appendix G1**) confirm that no natural vegetation was encountered on the site or its immediate surroundings, apart from a few hardy (and mostly weedy) species on or just below the dam wall or within the uncultivated areas near the seasonal drainage lines.

The existing dam (and the proposed enlargement) is located within an area subject to intensive wheat cultivation over a long period of time. Aerial imagery as well as land use map (**Appendix D**) indicates that the site is most likely to be transformed as a result of past and present agricultural practices.

From the Biodiversity Overlay Maps from Cape Farm Mapper (**Appendix D**) and the Botanical Statement conducted by the Biodiversity Specialist (**Appendix G2**) the site falls within an Ecological Support Area Class 2 (ESA2). The biodiversity specialist stated that in this case the ESA2s are delineations along the seasonal streams (See Figure 11).

Ideally, these areas should be restored to its natural state. However, in this case, restoration will require intervention as there are no more natural vegetation left, not even riparian vegetation due to agricultural activities. The biodiversity specialist recommends that ecological support areas should be established along the small streams (similar to those already implemented in Figure 18 below). As a potential off-set the re-establishment and protection (fencing them off) of more natural riparian vegetation along these streams should be considered. But this will be difficult as the area has been subject to intensive agriculture over a long period of time.

The biodiversity specialist is of the opinion that it is unlikely that the proposed development will lead to any significant impacts on biodiversity as a result of its placement. The site and its immediate surrounding are considered transformed with no natural veld remaining. Only a few hardy indigenous species remains.



*Figure 18: Google image, showing the existing dam and cultivated land surrounding the dam (note the narrow, uncultivated areas associated with the small valley bottom seasonal drainage line) (Botanic Statement Report)*

### **Key findings regarding Freshwater resources:**

The following information was taken from the Freshwater Specialist's Technical report (**Appendix G2**). It is important to note that the volume of water that is proposed to be stored in the Driefontein dam, after the completion of phase 1 and phase 2 expansion, does not represent any more water that is going to be taken out of a river system. This is water already allocated for irrigation for the farm. This water is delivered to the farm via canal system. The raising of the dam wall would merely store water that is currently flowing through to downstream farming operations. None of this water is currently flowing back to any river and therefore not making any contribution to river health and aquatic ecology.

In terms of the stream leaving Driefontein dam: This stream has been highly impacted with nothing left of the original quality of a natural stream. It is an incised furrow through a ploughed-over wheat field devoid of water, aquatic habitat or riparian zone with mostly exotic grass species. The streams flowing into Driefontein Dam are not any different, they are mostly unnatural drainage lines through wheat fields.

The stream downstream and adjacent to Driefontein Dam (Figure 6 above) only flows during period of exceptionally high rainfall, when the Warm Bokkeveld Irrigation Scheme is filled up the Driefontein Dam and when there is runoff from the dam's catchment. This only occurs once in a couple of years, and flow only lasts for a couple of days, then it returns to its usual dry state. The freshwater specialist recommends that the dam and the spillway should be not any higher than the dam's full capacity, after the 182 000m<sup>3</sup> has been added to the capacity of the dam. This would ensure that if the dam is at its design capacity, it would overflow during these exceptional very high rainfall events. This water would hardly benefit the highly impacted stream adjacent and below the Driefontein Dam. It would possibly be of benefit further downstream where there may still be ecological functioning left.

Additionally, the Freshwater specialist assess the Present Ecological State (PES) and Ecological Importance and Sensitivity (EIS) of the stream downstream and adjacent to the Driefontein Dam. In terms of the PES, the instream and riparian habitat have both been classified being in a Class F, critically modified, condition. These habitats have been critically modified by farming practices and the storage of water. In terms of the EIS, the habitat cannot be described as sensitive.

The Freshwater specialist concludes that the increase of Driefontein dam's storage capacity, will not impact the downstream aquatic environment. No less water would flow down the stream downstream of the dam as is currently the situation, as any water that is now not being used for irrigation is flowing down the canal and not the stream. Once the dam wall has been raised, less water would flow down the irrigation canal. The nett effect on the stream's water balance is no impact at all.

The freshwater specialist further states that under the current irrigation system's operating rules, the heightening of the dam wall is ecologically insignificant. From this point of view the project should go ahead. A letter of consent or a General Authorisation would be in order.

#### **Key findings regarding Heritage Resources:**

Lower Bokkeveld Group (Voorstehoek Formation) bedrocks in the Warm Bokkeveld region have yielded rich assemblages of shelly marine invertebrates. However, in the Driefontein Dam study area the Voorstehoek Formation bedrocks are generally poorly exposed, highly-weathered near the surface, fractured and secondarily mineralised locally. Shelly fossil remains here are very sparse, with only two invertebrate specimens recorded during the site visit - viz. a poorly-preserved orthocone nautiloid and a juvenile homalonotid trilobite. The heritage remains have been rated as having low significance.

According to Almond, 'the bedrocks within the study area are generally of low paleontological sensitivity and the proposed Driefontein Dam project therefore does not pose a significant threat to local paleontological heritage resources'.

Pending the chance discovery of substantial new fossil remains during construction, no further specialist palaeontological studies or mitigation are recommended.

(ii) Has a map of appropriate scale been provided, which superimposes the proposed development and its associated structures and infrastructure on the environmental sensitivities of the preferred site, indicating any areas that should be avoided, including buffers? <b>Refer to the layout plans (Appendix B) and Sensitivity maps (Appendix D). Map to be provided once fruit orchard and irrigation infrastructure plans are available.</b>	YES	NO
---	-----	----

(iii) A summary of the positive and negative impacts that the proposed development and alternatives will cause in the environment and community.
--

#### **Positive impact associated with the proposed expansion of Driefontein dam:**

The proposed enlargement of Driefontein dam would allow for the storage of summer irrigation water, which is usually lost. The enlargement of the dam would provide a more efficient use of water which has become a scarce resource, especially in the Western Cape. The water stored will be used for the irrigation of new fruit orchards. The plantation of new fruit trees will lead to more seasonal/ permanent jobs. Agriculture remains the backbone of the Western Cape economy and would lead to economic gains.

Another positive impact can be related to the possible restoration of the degraded Class 2 Ecological Support Areas along the seasonal streams (See Figure 11). Ideally, these areas should be restored to its natural state. However, in this case, restoration will require intervention as there are no more natural vegetation left, not even riparian vegetation due to agricultural activities. The biodiversity specialist recommends that ecological support areas should be established along the small streams (similar to those already implemented in Figure 18 above). As a potential off-set the re-establishment and protection (fencing them off) of more natural riparian vegetation along these streams should be considered. But this will be difficult as the area has been subject to intensive agriculture. The degradation of these ESA areas would just have continued if no assessment was conducted for the proposed enlargement of Driefontein dam. With the proposed expansion of the dam, practical measures can be looked at to try and rehabilitate these ESA2 areas.

#### **Negative impact associated with the proposed expansion of Driefontein dam:**

The specialists confirmed that due to past and ongoing agricultural activities, the site selected for the expansion of the dam, has already been critically transformed. The footprint for the expansion already exists and there is no need to clear any indigenous vegetation. No biodiversity, freshwater or heritage resources would be lost due to the expansion of Driefontein dam. Therefore there are no negative impacts associated with the expansion.

## 5. IMPACT MANAGEMENT, MITIGATION AND MONITORING MEASURES

- (a) Based on the assessment, describe the impact management, mitigation and monitoring measures as well as the impact management objectives and impact management outcomes included in the EMPr. The EMPr must be attached to this report as Appendix H.

### Objective 1: Maintain a healthy biodiversity environment:

From a Biodiversity specialist Botanical Statement the report (**Appendix G1**), it is important to note the area has been completely transformed due to agricultural activities, with no natural vegetation remaining.

#### Potential Impacts:

- Further loss of Ecological Support Areas Class 2 (ESA2s)
- Soil contamination from construction

The following mitigation/ monitoring measure can be implemented to reduce these impact and ultimately achieve Objective 1:

- A suitably qualified ECO must be appointed;
- Environmental Awareness training to be conducted with all workers
- Ensure construction activities are restricted to the demarcated footprint, strictly prohibit any vehicles or construction related activities outside of the demarcated footprint area
- Access roads to the dam should be limited to a single circular route in and out. Ensure construction vehicles stay on existing roads and erect signs to remind workers not to deviate from the roads.
- No concrete will be mixed on site and surplus must be disposed of in the correct manner.
- Inspect all vehicles daily for the early detection of deterioration or leaks.
- The contractor should ensure drip trays are placed under stationary vehicles.
- Spill kits must be available. Workers should be trained how to use spill kits to rectify a spill immediately. Records must be kept of any spills.
- Portable toilets must be placed no less than 32m from any watercourse/ stream and serviced regularly in order to prevent leakage/spillage. No portable toilets to be placed in watercourse 1 where the weir it to be rehabilitated.
- Lay-down areas or construction sites must be located within already disturbed areas or areas of low ecological value and must be pre-approved by the ECO.
- Indiscriminate clearing of areas must be avoided.
- All alien plants must be removed from within the construction footprint and immediate surroundings.
- All areas impacted as a result of construction must be rehabilitated on completion of the project.
- An integrated waste management approach must be implemented during construction.
- Ideally ecological support areas should be established along the small streams. As a potential off-set the re-establishment and protection (fencing them off) of a more natural riparian vegetation along these streams should be considered. But this will be difficult as the area has been subject to intensive agriculture over a long period of time.

### Objective 2: Protection of Freshwater resources:

#### Potential Impacts:

- Loss of riparian habitat
- Further degradation of the river systems downstream of the dam wall and spillway
- Erosion and sedimentation

The following mitigation/ monitoring measure can be implemented to reduce these impact and ultimately achieve Objective 2:

- A suitably qualified ECO must be appointed;
- Environmental Awareness training to be conducted with all workers
- Ensure construction activities are restricted to the demarcated footprint, strictly prohibit any vehicles or construction related activities outside of the demarcated footprint area
- Access roads to the dam should be limited to a single circular route in and out. Ensure construction vehicles stay on existing roads and erect signs to remind workers not to deviate from the roads.
- No concrete/ cement will be mixed on site and surplus must be disposed of in the correct manner.
- Inspect all vehicles daily for the early detection of deterioration or leaks.
- The dam and the spillway should be not any higher than the dam's full capacity, after the 182 000m<sup>3</sup> has been added to the capacity of the dam. This would ensure that if the dam is at its design capacity, it would overflow during exceptional very high rainfall events.
- During construction its footprint should be kept as small as possible;
- All building rubble should be removed following the completion of the dam;
- No building rubble should be allowed to wash into the stream;
- Building should take place during the dry summer months
- Monitor areas below the dam wall (at the spillway) after heavy rainfall events for erosion and sedimentation.
- Should erosion and incision be noted, immediate corrective measures must be undertaken.
- Erosion at the spillway can be prevented by using rip-rap mattresses or spreaders.
- Nuisance vegetation and sedimentation to be removed to ensure overflow;
- Rehabilitation measures may include the filling of erosion gullies and rills, and the stabilization of gullies with silt fences.

### Objective 3: Prevent the loss of any heritage resources

Potential Impact : Loss of paleontological or archaeological resources

The following mitigation/ monitoring measure can be implemented to reduce these impact and ultimately achieve Objective 3:

- A suitably qualified ECO must be appointed;
- Environmental Awareness training to be conducted with all workers
- Ensure construction activities are restricted to the demarcated footprint, strictly prohibit any vehicles or construction related activities outside of the demarcated footprint area
- Access roads to the dam should be limited to a single circular route in and out. Ensure construction vehicles stay on existing roads and erect signs to remind workers not to deviate from the roads.
- In the case of any significant new fossil finds exposed during dam construction (e.g. concentrations of well-preserved fossil shells such as "starfish beds"), these should be safeguarded - preferably in situ - and reported by the ECO as soon as possible to Heritage Western Cape (Att: Mr Andrew September 021 483 9543).
- All construction within a radius of at least 20m of the indicator should cease. This distance should be increased at the discretion of supervisory staff if heavy machinery or explosives could cause further disturbance to the suspected heritage resource.
- This area must be marked using clearly visible means, such as barrier tape, and all personnel should be informed that it is a no-go area.
- The grave (Site 665) must be fenced off prior to site preparation commencing. Alternatively, a buffer of 30m must be established around the site, which includes the modern kraal (Site 664).

- A guard should be appointed to enforce this no-go area if there is any possibility that it could be violated, whether intentionally or inadvertently, by construction staff or members of the public.
- No measures should be taken to cover up the suspected heritage resource with soil, or to collect any remains such as bone, ceramics or stone.
- If a heritage practitioner has been appointed to monitor the project, s/he should be contacted and a site inspection arranged as soon as possible.
- All parties concerned should respect the potentially sensitive and confidential nature of the heritage resources, particularly human remains, and refrain from making public statements until a mutually agreed time.
- Any extension of the project beyond its current footprint involving vegetation and/or earth clearance should be subject to prior assessment by a qualified heritage practitioner, taking into account all information gathered during this initial heritage impact assessment.
- We recommend the appointment of a Stone Age Specialist if any large finds of stone tools are discovered during construction.

Any potential unforeseen impacts are covered in the EMPr (**Appendix H**) which should be implemented.

- (b) Describe any provisions for the adherence to requirements that are prescribed in a Specific Environmental Management Act relevant to the listed activity or specified activity in question.

- Compliance with the Environmental Management Program (**Appendix H**) must be mandatory; and
- Appointment of an Environmental Control Officer during the construction phase;
- A rehabilitation plan must be agreed upon and provisions must be made for rehabilitation.

- (c) Describe the ability of the applicant to implement the management, mitigation and monitoring measures.

Under South African environmental legislation, the Applicant is accountable for the potential impacts of the activities that are undertaken and is responsible for managing these impacts.

The Applicant therefore has overall and total environmental responsibility to ensure that the implementation of the construction phase of this EMP complies with the relevant legislation and the conditions of the environmental authorisation.

The Applicant will be responsible for the development and implementation of the conditions of the Environmental Authorisation in terms of the design of the development and construction thereof. The developer will thus be responsible for the implementation of this EMP.

The applicant has shown commitment to implement management, mitigation and monitoring measures as specified in the recommendations in and the EMP.

- (d) Provide the details of any financial provisions for the management of negative environmental impacts, rehabilitation and closure of the proposed development.

Provisions must be made available for rehabilitation. A rehabilitation plan must be agreed upon and the rehabilitation must occur after construction.  
More information regarding financial provisions to be included.

- (e) Provide the details of any financial provisions for the management of negative environmental impacts, rehabilitation and closure of the proposed development.

Please refer to (d) above. More information to be provided.

- (f) Describe any assumptions, uncertainties, and gaps in knowledge which relate to the impact management, mitigation and monitoring measures proposed.

The following assumptions are made:

- The information on which the report is based (i.e. project information) is correct.
- The construction and management of this proposed development will be in line with the recommendations in this report, which will be enforced by the implementation of detailed Environmental Management Plan. Much of the long-term success lies in the effective implementation of the measures prescribed in the Environmental Management Plan.

There are no significant gaps of knowledge that have been identified.

There are no uncertainties that we are aware of at present.

## SECTION H: RECOMMENDATIONS OF THE EAP AND SPECIALISTS

(a) In my view as the appointed EAP, the information contained in this BAR and the documentation attached hereto is sufficient to make a decision in respect of the listed activity(ies) applied for.	YES	NO
---	-----	----

(b) If the documentation attached hereto is sufficient to make a decision, please indicate below whether, in your opinion, the listed activity(ies) should or should not be authorised:		
Listed activity(ies) should be authorised:	YES	NO
Provide reasons for your opinion		
<p>The proposed expansion of Driefontein Dam should be authorised for the following reasons</p> <ul style="list-style-type: none"> <li>• The footprint area for the expansion is available with the area being almost completely transformed and disturbed due to past and ongoing agricultural activities. No indigenous vegetation will be removed for the dam expansion and no species will be lost;</li> <li>• Pipeline infrastructure to pump water to Brand se dam for irrigation is also in place;</li> <li>• The biodiversity specialist agrees that the proposed development will not lead to any significant impacts on biodiversity as a result of its placement. The site and its immediate surrounding are considered transformed with no natural veld remaining. Only a few hardy (weedy) indigenous species remains;</li> <li>• With the proposed dam expansion the potential to restore degraded ESA2s via intervention is realised;</li> <li>• Driefontein dam is close to the Warmbokkeveld Scheme sluice and outlet, ensuring minimal losses;</li> <li>• The existing dam wall integrity and stability is of a good enough standard to enlarge on it;</li> <li>• The Freshwater specialist states that the increase of Driefontein dam's storage capacity, will not impact the downstream aquatic environment. No less water would flow down the stream downstream of the dam as is currently the situation, as any water that is now not being used for irrigation is flowing down the canal and not the stream. Once the dam wall has been raised, less water would flow down the irrigation canal. The nett effect on the stream's water balance is no impact at all.</li> <li>• The heritage remains have been rated as having <i>low</i> significance. According to Almond, the bedrocks within the study area are generally of low paleontological sensitivity and the proposed Driefontein Dam project therefore does not pose a significant threat to local paleontological heritage resources.</li> <li>• The proposed expansion of Driefontein is not expected to have any adverse effects on people's health and well-being.</li> <li>• It is also not expected to produce any unacceptable noise or odours during the construction or operational phases.</li> <li>• The proposed expansion of the dam, is not expected to have any significant negative impact on the visual character of the area.</li> <li>• The proposed development will result in positive socio-economic spin-offs for the community. With the storing of winter listed water, more fruit orchards can be planted, resulting in more seasonal and permanent jobs.</li> </ul> <p>Considering all the information, it is not envisaged that the proposed dam expansion pose any significant negative impact on the environment, while it is likely to result in a positive socio-economical outcome.</p> <p><u>It is therefore recommended that this application be authorised with the necessary conditions of approval as described throughout this BAR.</u></p>		
(c) Provide a description of any aspects that were conditional to the findings of the assessment by the EAP and Specialists which are to be included as conditions of authorisation.		
<p>The <u>stream downstream and adjacent to Driefontein Dam</u> (Figure 6 above) only flows during period of exceptionally high rainfall, when the Warm Bokkeveld Irrigation Scheme is filled up the Driefontein Dam and when there is runoff from the dam's catchment. This only occurs once in a couple of years, and flow only lasts for a couple of days, then it returns to its usual dry state.</p> <p>The freshwater specialist recommends that the dam and the spillway should be not any higher than the dam's full capacity, after the 182 000m<sup>3</sup> has been added to the capacity of the dam. Meaning, the spillway should</p>		

be increased with the same height (The spillway will be heightened with the same measurements of the dam wall: During phase 1 the spillway will be increased with 1,55m and then a further 0,6m during phase 2).

This would ensure that if the dam is at its design capacity, it would overflow during these exceptional very high rainfall events. This water would hardly benefit the highly impacted stream adjacent and below the Driefontein Dam. It would possibly be of benefit further downstream where there may still be ecological functioning left.

(d) If you are of the opinion that the activity should be authorised, please provide any conditions, including mitigation measures that should in your view be considered for inclusion in an environmental authorisation.

A suitably qualified ECO should be appointed to oversee the project.  
Recommendations as set out by the specialists and captured in the EMPr should be adhered to at all times.  
A rehabilitation plan should be agreed upon and implemented after construction.

(e) Please indicate the recommended periods in terms of the following periods that should be specified in the environmental authorisation:

i.	the period within which commencement must occur;	Upon granting of the EA and WUL commencement of Phase 1 must occur within 2 years.  To be confirmed.
ii.	the period for which the environmental authorisation is granted and the date on which the development proposal will have been concluded, where the environmental authorisation does not include operational aspects;	Construction of phase 1 is expected to take a period of 3 – 4 months.  The EA should be granted for the maximum of 5 years.  The applicant might have to ask for an amendment of the EA for construction of phase 2.  To be confirmed.
iii.	the period for which the portion of the environmental authorisation that deals with non-operational aspects is granted; and	N/A
iv.	the period for which the portion of the environmental authorisation that deals with operational aspects is granted.	N/A

## SECTION I: APPENDICES

The following appendices must be attached to this report:

APPENDIX		Confirm that Appendix is attached
Appendix A:	Locality map	Yes
Appendix B:	Site development plan(s)	Yes
	A map of appropriate scale, which superimposes the proposed development and its associated structures and infrastructure on the environmental sensitivities of the preferred site, indicating any areas that should be avoided, including buffer areas;	No The area is considered completely transformed with no natural/ sensitive areas remaining
Appendix C:	Photographs	Yes
Appendix D:	Biodiversity overlay map	Yes
Appendix E:	Permit(s) / license(s) from any other Organ of State, including service letters from the municipality.	Yes
	Appendix E1: Copy of comment from HWC.	Yes
Appendix F:	Public participation information: including a copy of the register of I&APs, the comments and responses report, proof of notices, advertisements and any other public participation information as is required in Section C above.	Yes
Appendix G:	Specialist Report(s)	Yes
Appendix H :	EMPr	Yes
Appendix I:	Additional information related to listed waste management activities (if applicable)	N/A
Appendix J:	If applicable, description of the impact assessment process followed to reach the proposed preferred alternative within the site.	Yes
Appendix K:	Any Other (if applicable).	Yes
	Sarel Bester Ingenieurs BK Preliminary Design Reports: 1731DOV-S2 (for Phase 1) and 1731DOV-S2(Rev1) (for Phase 2).	
Appendix L:	CVs	Yes

## SECTION J: DECLARATIONS

### THE APPLICANT

**Note:** Duplicate this section where there is more than one applicant.

I ....., in my personal capacity or duly authorised thereto, hereby declare/affirm all the information submitted as part of this Report is true and correct, and that I –

- am aware of and understand the content of this report;
- am fully aware of my responsibilities in terms of the NEMA, the EIA Regulations in terms of the NEMA (Government Notice No. R. 982, refers) (as amended) and any relevant specific environmental management Act and that failure to fulfil these requirements may constitute an offence in terms of relevant environmental legislation;
- have provided the EAP and Specialist, Review EAP (if applicable), and Review Specialist (if applicable), and the Competent Authority with access to all information at my disposal that is relevant to the application;
- will be responsible for complying with conditions that may be attached to any decision(s) issued by the Competent Authority;
- will be responsible for the costs incurred in complying with the conditions that may be attached to any decision(s) issued by the Competent Authority;

**Note:** If acting in a representative capacity, a certified copy of the resolution or power of attorney must be attached.

Signature of the Applicant:

---

Name of Organisation:

---

Date:

---

## THE ENVIRONMENTAL ASSESSMENT PRACTITIONER

I ....., as the appointed EAP hereby declare/affirm:

- the correctness of the information provided as part of this Report;
- that all the comments and inputs from stakeholders and I&APs have been included in this Report;
- that all the inputs and recommendations from the specialist reports, if specialist reports were produced, have been included in this Report;
- any information provided by me to I&APs and any responses by me to the comments or inputs made by I&APs;
- that I have maintained my independence throughout this EIA process, or if not independent, that the review EAP has reviewed my work (Note: a declaration by the review EAP must be submitted);
- that I have throughout this EIA process met all of the general requirements of EAPs as set out in Regulation 13;
- I have throughout this EIA process disclosed to the applicant, the specialist (if any), the Department and I&APs, all material information that has or may have the potential to influence the decision of the Department or the objectivity of any report, plan or document prepared as part of the application;
- have ensured that information containing all relevant facts in respect of the application was distributed or was made available to I&APs and that participation by I&APs was facilitated in such a manner that all I&APs were provided with a reasonable opportunity to participate and to provide comments;
- have ensured that the comments of all I&APs were considered, recorded and submitted to the Department in respect of the application;
- have ensured the inclusion of inputs and recommendations from the specialist reports in respect of the application, if specialist inputs and recommendations were produced;
- have kept a register of all I&APs that participated during the PPP; and
- am aware that a false declaration is an offence in terms of Regulation 48 of the EIA Regulations, 2014 (as amended).

Signature of the EAP: \_\_\_\_\_

Name of Company: \_\_\_\_\_

Date: \_\_\_\_\_

## THE REVIEW ENVIRONMENTAL ASSESSMENT PRACTITIONER

I ....., as the appointed Review EAP hereby declare/affirm:

- that I have reviewed all the work produced by the EAP;
- the correctness of the information provided as part of this Report;
- that I have, throughout this EIA process met all of the general requirements of EAPs as set out in Regulation 13;
- I have, throughout this EIA process disclosed to the applicant, the EAP, the specialist (if any), the review specialist (if any), the Department and I&APs, all material information that has or may have the potential to influence the decision of the Department or the objectivity of any report, plan or document prepared as part of the application; and
- am aware that a false declaration is an offence in terms of Regulation 48 of the EIA Regulations, 2014 (as amended).

Signature of the  
Review EAP:

---

Name of Company:

---

Date:

---

## THE SPECIALIST

**Note:** Duplicate this section where there is more than one specialist.

I ....., as the appointed Specialist hereby declare/affirm the correctness of the information provided or to be provided as part of the application, and that I :

- in terms of the general requirement to be independent:
  - other than fair remuneration for work performed in terms of this application, have no business, financial, personal or other interest in the development proposal or application and that there are no circumstances that may compromise my objectivity; or
  - am not independent, but another specialist (the "Review Specialist") that meets the general requirements set out in Regulation 13 has been appointed to review my work (Note: a declaration by the review specialist must be submitted);
- in terms of the remainder of the general requirements for a specialist, have throughout this EIA process met all of the requirements;
- have disclosed to the applicant, the EAP, the Review EAP (if applicable), the Department and I&APs all material information that has or may have the potential to influence the decision of the Department or the objectivity of any report, plan or document prepared or to be prepared as part of the application; and
- am aware that a false declaration is an offence in terms of Regulation 48 of the EIA Regulations, 2014 (as amended).

Signature of the Specialist:

---

Name of Company:

---

Date:

---

## THE REVIEW SPECIALIST

I ....., as the appointed Review Specialist hereby declare/affirm:

- that I have reviewed all the work produced by the Specialist(s);
- the correctness of the specialist information provided as part of this Report;
- that I have, throughout this EIA process met all of the general requirements of specialists as set out in Regulation 13;
- I have, throughout this EIA process disclosed to the applicant, the EAP, the review EAP (if applicable), the Specialist(s), the Department and I&APs, all material information that has or may have the potential to influence the decision of the Department or the objectivity of any report, plan or document prepared as part of the application; and
- I am aware that a false declaration is an offence in terms of Regulation 48 of the EIA Regulations, 2014 (as amended).

Signature of Review Specialist:

---

Name of Company:

---

Date:

---