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## **Section 27 Motivation**

**Water Use License Application: Portion 17/232 Redford.**

**Prepared for Denina Bernard**

**by**

**Confluent Environmental (Pty) Ltd**



**TABLE OF CONTENTS**

**1. SECTION 27 MOTIVATION..... 1**

1.1 SECTION 27 (A) - EXISTING LAWFUL USE ..... 1

1.2 SECTION 27 (B) - THE NEED TO REDRESS THE RESULTS OF PAST RACIAL AND GENDER DISCRIMINATION ..... 1

1.3 SECTION 27 (C) - EFFICIENT AND BENEFICIAL USE OF WATER IN THE PUBLIC INTEREST ..... 2

1.4 SECTION 27 (D) - SOCIO-ECONOMIC IMPACT ..... 3

1.5 SECTION 27 (E) RELEVANT CATCHMENT MANAGEMENT STRATEGIES ..... 5

1.6 SECTION 27 (F) - THE LIKELY EFFECT OF THE WATER USE ON THE WATER RESOURCE AND OTHER WATER USERS ..... 6

1.7 SECTION 27 (G) – THE CLASS AND RESOURCE QUALITY OBJECTIVES OF THE WATER RESOURCE..... 6

1.8 SECTION 27 (H) - INVESTMENTS ALREADY MADE AND TO BE MADE BY THE WATER USER IN RESPECT OF THE WATER USE ..... 6

1.9 SECTION 27 (I) – THE STRATEGIC IMPORTANCE OF THE WATER USE TO BE AUTHORISED ..... 7

1.10 SECTION 27 (J) – THE QUALITY OF WATER IN THE WATER RESOURCE WHICH MAY BE REQUIRED FOR THE RESERVE. .... 7

1.11 SECTION 27 (K) – THE PROBABLE DURATION OF ANY UNDERTAKING FOR WHICH THE WATER USE IS TO BE AUTHORISED ..... 8

**2. REFERENCES ..... 8**

## 1. SECTION 27 MOTIVATION

The requirements contained in Section 27(1) of the National Water Act, 1998 (Act 36 of 1998) have been considered with reference to the proposed storage of water on Portion 17/232 Redford Farm, Plettenberg Bay. These requirements are discussed further below.

### 1.1 Section 27 (a) - Existing Lawful Use

The Rondebosch River Water User Association (RRWUA) have provided Certificates of Entitlement which permit the use of a 1:31 share of water for each of three properties owned by the applicant. These are Portions 12, 15, and 17/232 Redford. All three properties receive a proportional allocation of water from the Rondebosch Furrow system, which supplies 31 properties in total. On this basis, the applicant has a 3:31 share of the scheme in total. While the RRWUA furrow system has yet to be assessed through a formal Validation and Verification process, it is a long-standing WUA and water has been diverted from the Rondebosch River since the early 1900s. The hydrological specialist report (Confluent Environmental, Sep. 2021) calculated the mean monthly furrow volumes for the catchment and divided them proportionally between the 31 properties to determine an estimated allocation per property.

Calculations from the report indicate that each property receives approximately 16 792 m<sup>3</sup>/a, which means the landowner is permitted to take a total of 50 377 m<sup>3</sup>/a from the furrow system. The applicant wishes to store the allocation from all three properties in the dam proposed on Portion 17/232.

There are no other existing lawful water uses for Portion 17.

### 1.2 Section 27 (b) - The Need to Redress the Results of Past Racial and Gender Discrimination

The construction phase and operating phase of the project will contribute to redressing the results of past racial and gender discrimination (Table 2 and Table 3). Various temporary job opportunities have already been created for the preparation of the agricultural area. During the construction phase of the dam, 19 job opportunities will be created. Employment will be sourced from local areas such as Kurland, benefitting previously disadvantaged men and women. All employment will be sourced locally as far as the necessary skills are available. Where specific skills are required, these will be sourced from as nearby as possible. At the moment only labour sourced within the local area and within the Eastern and Western Cape as far as professional services has been required.

During the operational phase of the Macadamia Nut orchards, permanent as well as seasonal work opportunities will be created. An estimate of the seasonal and permanent job opportunities on Balderja Farm along with an estimate of the racial and gender demographics is provided in Table 3. Once the orchards are established, it will be expanded to 40 ha of Macadamia Nut trees, creating almost double the job opportunities. Job opportunities created will include skilled as well as unskilled work. This project will allow further economic growth and development for these people, benefitting their families and other residents.

The farm has a 50%-female ownership, who also gains 50% of the profit from harvests. The applicant does not have a B-BBEE status.

**Commented [DB1]:**

This is a development of approx. R40m of which almost the entire amount is injected into the Western Cape with the guarantee of sustainable or continuous investing over many years to come.

Furthermore, if you are going to talk about phases, then I would assume there should be three phases:

1. Developmental
2. Construction
3. Operational

Truth is, we have spent a significant amount on development already as will reflect from the figures provided. Jobs to the benefit of local community have already been created over almost two years:

- Initial clearing of alien vegetation(done)
- Amelioration of 35ha(done)
- Borehole(done)
- Solar panels and installation of pipes to connect borehole to the house(done)
- Fencing(ongoing with approx. 6-8 guys involved)
- Ridging(ongoing with approx. 5 guys involved)

It might even be relevant to mention that we sent a local excavator operator to White River to undergo training on how to construct perfect ridges.

I have 3 permanent staff who do continuous weeding/maintenance.

Obviously somebody locally benefits from transporting people too.

With regards to construction, it is not only the dam. There will be infrastructure built to house the irrigation facility, the machinery and equipment and the eventual drying/dehusking facility. This facility will be mainly operated by woman.

Implementation of the irrigation facility and the actual laying of the pipes require specialised skills with ongoing skills development. Our irrigation consultant has recommended somebody who will be training a local team to lay pipes, etc. and who will then be able to complete the installation independently.

Roads need to be built.

The planting of the trees requires about 14 planters. Even here I have sourced a lady who comes with a few dedicated planters and then trains around ten locals to supplement the team. Many of these planters are ladies of which some stay on as scouts and pruners and others will return as seasonal workers..

And the list can go on. With more money in circulation in the local area, many more advantages become evident.

It is also very important to be able to see the larger picture... 40ha in the Crag is not only creating jobs on the farm...

As more farms are established, more processing capacity is also created to cope with the ever-increasing volumes.

Eventually when enough farms are established in the Western Cape a processing facility will be established locally which will also employ a large number of people. These facilities are labour intensive and the majority of people who are employed there are woman.

The development in processing facilities located in the Western Cape could then also lead to the expectation of more products to be exported from the province. The Western Cape Province can take a trade advantage in the Chinese market attributable to the distance and transaction cost the Western Cape have with these markets.

(Just my opinion, being incredibly frustrated by all of this : should the dam be decommissioned, there will be a significant amount of individuals who will be severely negatively affected with jobs coming to an end, to the extent that I actually believe that they will ...)

**Commented [DB2]:** This isn't totally accurate, but I leave it up to you to phrase it. The size of property we currently have, does not allow for more than a max of 28 ha. We do wish to expand to 40ha, and our planning is based on this, but will require the acquisition of adjacent property (portions 16 and 18) in the future. This would also increase our furrow allocations.

**1.3 Section 27 (c) - Efficient and Beneficial Use of Water in the Public Interest**

The water uses relate to construction of a dam primarily for the storage of water from three furrow allocations, along with surface runoff from a small catchment and the supplementary storage of water abstracted from a borehole. The water will be used to irrigate Macadamia Nut orchards. Activities for which a Water Use License need to be applied for according to Section 21 of the National Water Act are included in [Table 1](#).

Table 1: Water use activities for Portion 17 of Farm Redford 232.

Water Use	Description	Property
Section 21(a)	This relates to the abstraction of water from the catchment into the dam.	Portion 17/232
Section 21(a)	The abstraction of water from a borehole	
Section 21(b)	The storage of water in the dam	
Section 21(c)	This refers to impeding additional waterflow from the downstream watercourse due to the dam.	
Section 21(i)	This refers to the altering of the bed and banks of the watercourse and clearing of vegetation due to the dam construction.	

The development is focussed on creating a healthy agricultural environment supported by key infrastructure developments such building a dam, a technically advanced irrigation plant and, in the future, a processing facility.

Construction of the instream dam from which to irrigate the orchards is critical to the applicant’s agricultural development plan. Without a water storage facility, ~~the orchards would need to be substantially reduced in extent, leading to a reduced number of job opportunities.~~ Job opportunities not only benefit individuals. These benefits extend to their families too. ~~Both permanent and seasonal work opportunities would be reduced if the orchard area is reduced or considered not viable due to a lack of reliable water supply.~~ The minimum economically viable unit of macadamia nuts is 20 – 25 ha. Reducing job opportunities is not in the public interest, given the high unemployment rate (28%) in the Bitou Municipality. In the concluding statements of the Bitou Integrated Development Plan, the report concludes that:

“A number of factors contribute to the growing rate of unemployment and there is not much the municipality can do except **create favourable conditions for job creation and economic growth.**” It goes on to state that:

“The fight against unemployment should be a concerted effort by Private Sector, National, Provincial and local government. The coastal location of Bitou makes its economy seasonal and increase the unemployment rate off-season.

The efforts to diversify the economy should include the following:

- Increase government services and facilities; construction of Correctional Facility, Public Hospital, additional schools and weigh-bridge

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**Commented [DB3]:** Will result in abandonment of the project altogether, and the opportunity will be lost to provide smaller communities with improved economy. As such security of water supply is critical for protection of the investment.

**Commented [DB4]:** No job opportunities

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- *Unlock the possibilities of the ocean economy;*
- **Maximise the agricultural and forestry sectors; and**
- *Regularly maintain the government infrastructure like roads etc.”*

The ultimate goal of the farm is to irrigate 40 ha of macadamia nut orchards, with low-flow drip irrigation, which is the most efficient irrigation method for these orchards. Water from the catchment (surface runoff), furrow allocation and the borehole will be used to irrigate the Macadamia Nut orchards. In addition to the highly efficient method of drip irrigation, precision irrigation technology with soil moisture probes and weather stations monitored through computer software will be used to ensure accurate and optimal irrigation schedules.

Additional water uses applied for include Section 21(c) and i). Should construction of the dam be permitted through the WULA, comprehensive rehabilitation / mitigation measures have been prescribed in the aquatic specialist study (Confluent Environmental, 2022). The rehabilitation of banks above the high-water mark, and revegetation of a 10 m buffer zone measured from the high-water mark will improve habitat around the proposed dam. The buffer zone aims to intercept diffuse overland flow from surrounding fields to reduce agricultural runoff entering the watercourse.

#### 1.4 Section 27 (d) - Socio-economic Impact

At a broad scale, the socio-economic importance of agriculture is captured well in the following quote by Allan Savory:

*“Agriculture is not crop production as popular belief holds – it is the production of food and fibre from the world’s land and waters. Without agriculture, it is impossible to have a city, stock market, banks, university, church or army. Agriculture is the foundation of civilisation and any stable economy.”*

In South Africa, agriculture has a great capacity to provide employment and economic upliftment in rural and semi-rural communities as well as downstream business opportunities within the agri-processing and manufacturing sectors.

The macadamia nut value chain starts off with growers using various inputs and primary activities to support on-farm production. According to SAMAC (2020), the average operating cost per hectare to produce macadamia’s is around R25 000 (weeding, fertilising and irrigation) and another R100 000 to establish new orchards. All of these activities directly translates into the industry creating economic opportunities for primary inputs applied in the cultivation of macadamias including seedling, fertilizers, crop protection chemicals, research of cultivars, and agricultural equipment, contractors and other businesses services (Western Cape Government, 2021).

The Bitou Local Municipality has the third smallest population within the Garden Route District, after Hessequa and Kannaland. As of 2019, the Bitou Local Municipality had a population of 61,645 people with an annual growth of 0.8%. There is an unemployment rate of 27.9% within the Bitou Local Municipality (BIDP).

According to The Macadamia (South Africa’s leading publication for the Macadamia nut industry), seasonal workers on farms in South Africa increased from 10 174 in 2019 to 11 111 this year. Seasonal factory workers increased from 2 356 to 2 460. They predict that a 65 000-ton crop will be harvested for 2021, creating a bigger uptake of seasonal workers for longer periods of time in factories as well as on farms. South Africa is the second largest producer of Macadamia Nuts after Australia.

Macadamia nuts are classified among the 17 super foods of 2017. The popularity of superfoods has been growing in recent years, with accelerated growth fuelled by the COVID-19 pandemic and the strong focus on general health, wellbeing, and immunity. The investment in new and upgrading of existing infrastructure throughout the value chain is undisputedly critical to increase the potential for sustainable production at a primary level.

According to SAM Worldwide the demand for macadamia nuts exceeds supply, so the market is expected to grow (Department of Agriculture, Forestry and Fisheries, 2019). As a Macadamia nut grower, the contribution to the economy through the capital investment required to establish the orchards, creation of both permanent and seasonal employment opportunities and through contribution to GDP will be achieved. As a luxury foodstuff, Macadamia Nuts are not going to feed the poor of the world directly, but their production creates jobs which puts food on the table for individuals and their families.

Failure to approve the dam for water storage will result in abandonment of the project altogether, and the opportunity will be lost to provide smaller communities with improved economy. As such security of water supply is critical for protection of the investment.

Table 2. Job opportunities during the **Construction / Establishment phase** of the orchard.

Activity	Number of Job Opportunities	Type of Opportunities (skilled and unskilled)	% Gender and Race (approximate)
Completion of Dam Construction and buffer rehabilitation		Dam engineer Dam construction contractor Revegetation of buffers Consultant fees	
Field layout, ridging, soil preparation		Earth moving Soil ameliorants Operation of farm machinery Consultant fees Supervision	
Installation of irrigation systems		Consultant fees Labour	
Tree planting		Labour	
<b>TOTAL</b>	<b>19</b>		N/A
<b>Approximate Cost (R)</b>		-	-

Table 3. Permanent and seasonal job opportunities in the Operational Phase for the initial development (25 ha) and future development (40 ha).

Job Opportunities	Number of Job Opportunities for 25 ha	Number of Job Opportunities for 40 ha	Type of Opportunities (skilled and unskilled)	% Gender and Race (approximate)
Permanent (1 per 3.5 ha)	7	11	General orchard maintenance Supervisors Farm manager Finance & accounting staff Logistics staff	
Seasonal (1 per 4 ha)	6	10	Planting Herbicide and pesticide spraying Irrigation Fertilizer application Harvesting Tree trimming & pruning Stripping & drying Grading and packing	
<b>TOTAL</b>	<b>13</b>	<b>21</b>	N/A	N/A
<b>Cost (R)</b>				

**1.5 Section 27 (e) Relevant Catchment Management Strategies**

Portion 17 Farm Redford 232 ~~fall-falls~~ within the Breede-Gouritz Catchment Management Agency (BGCMA). Catchment Management Strategies focuses on the equity and efficiency with which water resources can be used to support social and economic development.

The Bitou Municipality Integrated Development Plan (BIDP) has policy guidelines to manage the Municipal area in a manner that supports sustainable resource use. Portions 12, 15 and 17 / 232 are zoned agricultural land, and the BIDP refers to the Redford Area as an ‘agricultural focus area’ (Bitou IDP, 2020-2021) Barring dryland pasture, which has limited productive value, any cultivation on the land would require irrigation and security of water supply.

The vision of the Keurbooms-Bitou estuarine system, is in line with the vision of the BGCMA. Their aim is to maintain biodiversity and to preserve the natural and cultural heritage for all South Africans, by harmoniously managing the catchment to coast area of the Keurbooms and Bitou systems.

The vision of the BGCMA Catchment Management Strategy is captured by:

*“Healthy water resources, for all, forever”,*

This can be reflected by the mission statements to maintain healthy water resources for all forever by means of policy and regulation.

The water use license application process has been implemented to ensure that water use activities are authorised in a manner that achieves these broad mission statements, particularly the mission of ensuring healthy water resources and allocating water for all forever.

Sustainable development is emphasised, and given that the land is zoned agricultural, it is reasonable to expect that sustainable use of water be permitted to develop the agricultural potential of the land.

#### **1.6 Section 27 (f) - The Likely Effect of the Water Use on the Water Resource and other Water Users**

With the location of the dam at the top of the catchment and drainage line, the impact of storing surface water to downstream users as well as the aquatic ecosystem are considered fairly low. The average annual volume of surface water from the catchment is approximately 19 000 m<sup>3</sup>. The majority of storage volume would therefore be taken up by the 3 furrow allocations (50 377 m<sup>3</sup>) and the borehole volume of 70 000 m<sup>3</sup>. The hydrological and engineering assessments indicated that with a combination of water from the furrow allocations, surface runoff and the use of a borehole, a dam size of 70 000 m<sup>3</sup>, will be sufficient to ensure security of supply.

Should the dam fail to be authorised through the WULA process, the decommissioning of the project and rehabilitation of the site is likely to be complex and high risk, with a good chance of repeated failures requiring ongoing interventions to maintain for years to come. This will result in a continuous impact to the water resource, dominated by ongoing sedimentation. Should the dam be authorised, these impacts will be mitigated by completing the dam construction where any mobile sediment will be retained in the dam basin. The recommendation of the aquatic specialist study is that the dam should be retained within the existing footprint of disturbance with no further disturbance beyond this area.

The geohydrological study done for the borehole indicates that the abstraction of 70 000 m<sup>3</sup> groundwater from the site will have an overall 'negligible – negative' impact on the geohydrological environment if appropriate mitigation measures are implemented. The irrigation demand of 0.069 Mm<sup>3</sup>/a, falls within the sustainable yield from the borehole and places the application in Category B (medium scale abstractions: 60% - 100% recharge to the Groundwater Resource Unit - GRU). The tested boreholes will be able to supply 100% of the demand. The impact to other groundwater users was considered in the hydrocensus conducted as part of the geohydrological study.

#### **1.7 Section 27 (g) – The Class and Resource Quality Objectives of the Water Resource**

The classification of water resources and development of RQOs for the Breede-Gouritz CMA was finalised in 2018. Portion 17 of Redford Farm 232 falls within quaternary catchment K60E, which falls within the G15 Coastal Integrated Unit of Analysis (IUA). The Water Resource Class for this IUA is II, indicating moderate protection and moderate utilisation. Main rivers falling within the IUA are the Keurbooms River, with a Target Ecological Category of B. The proposed dam on portion 17/232 is located on a non-perennial tributary of the Whiskey Creek which is a tributary of the Keurbooms River.

#### **1.8 Section 27 (h) - Investments Already made and to be made by the Water User in Respect of the Water Use**

Significant investment, in excess of R16 000 000, has already been made in the acquisition of the property and various environmental authorisation and planning development processes.



### 1.9 Section 27 (i) – The Strategic Importance of the Water Use to be Authorised

According to the 2020-2021 Integrated Development Plan for Bitou Municipality, their strategic objectives will strengthen the National Development Plan objectives. In line with the National Water Resources Strategy the Municipality is creating a sustainable environment for social development and economic growth.

A draft Strategic Environmental Assessment will be prepared, to identify the impacts development has on the natural environment and a management framework to reduce environmental risks caused by future developments.

The National Water Resource Strategy's framework on water use can be summarised as the protection, use, development, conservation, management and control of the water resources for the whole country. This provides the framework within which regional and catchment level water management areas are defined.

In this respect, the water use can be regarded as of strategic importance with respect to meeting the development goals for the Bitou Municipality. However, it is acknowledged that social development and economic growth opportunities supported by the agricultural enterprise must be balanced with sustainability for the environment. Hence the requirement, and completion of specialist studies that have been provided in support of the application.

### 1.10 Section 27 (j) – The Quality of Water in the Water Resource which may be Required for the Reserve.

A 10 m vegetated buffer surrounding the dam and watercourse was recommended in the aquatic specialist study. Given the location of the dam adjacent to the Whiskey Creek Nature Reserve it is important that water quality impacts are kept to a minimum. The vegetated buffer aims to achieve this, and if the water use is authorised should be fully implemented.

Given the likely depth of the dam (approximately 17 m), a bottom release from the dam will probably release water of a poor quality, likely to have low to no dissolved oxygen, into the watercourse below if any Reserve releases are required. This is no reflection on the surrounding land-use but the result of natural and predictable physico-chemical changes in water in the hypolimnion (deep water layer) when it undergoes stratification. It would be preferable to release surface water.

As a non-perennial drainage line, the sensitivity of the system downstream to periods of low to no flow is low according to the aquatic specialist report. Given the location of the proposed dam at the very upper end of a small catchment, measured as 0.21 km<sup>2</sup>, there is also a low volume of surface runoff annually that enters the watercourse (Figure 1).

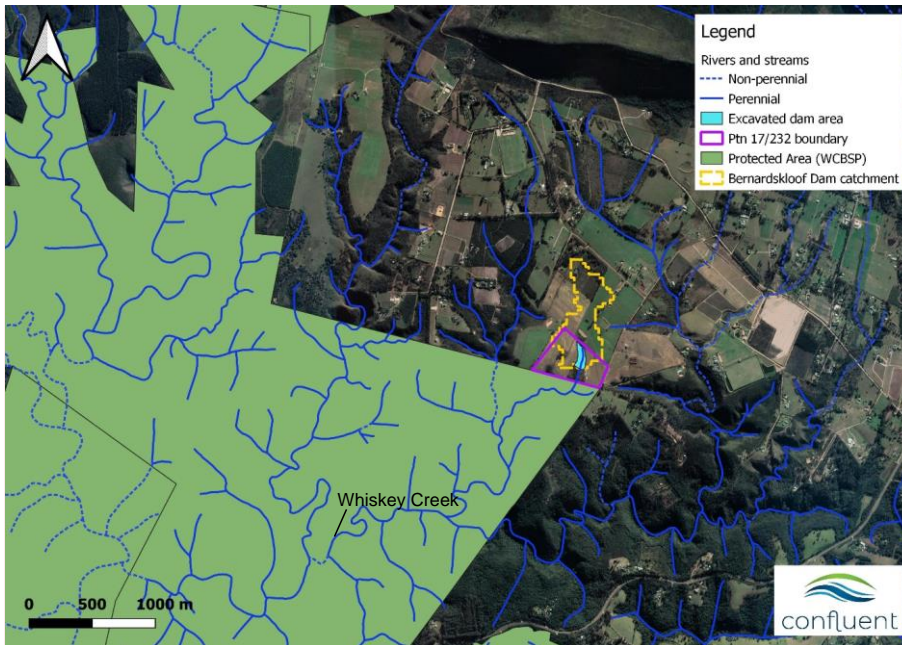


Figure 1. Location of the excavated dam area and its catchment in relation to the broader area and Whiskey Creek Nature Reserve.

**1.11 Section 27 (k) – The Probable Duration of any Undertaking for which the Water Use is to be Authorised**

The duration of the water use is permanent.

**2. REFERENCES**

Bitou IDP

W Cape Govt doc

SAMAc (2020)