WATER USE LICENCE APPLICATION:

TECHNICAL REPORT: FOR PUBLIC REVIEW

&

THE AUTHORISATION BY THE DEPARTMENT OF WATER AFFAIRS
BERG RIVER WATER MANAGEMENT AREA

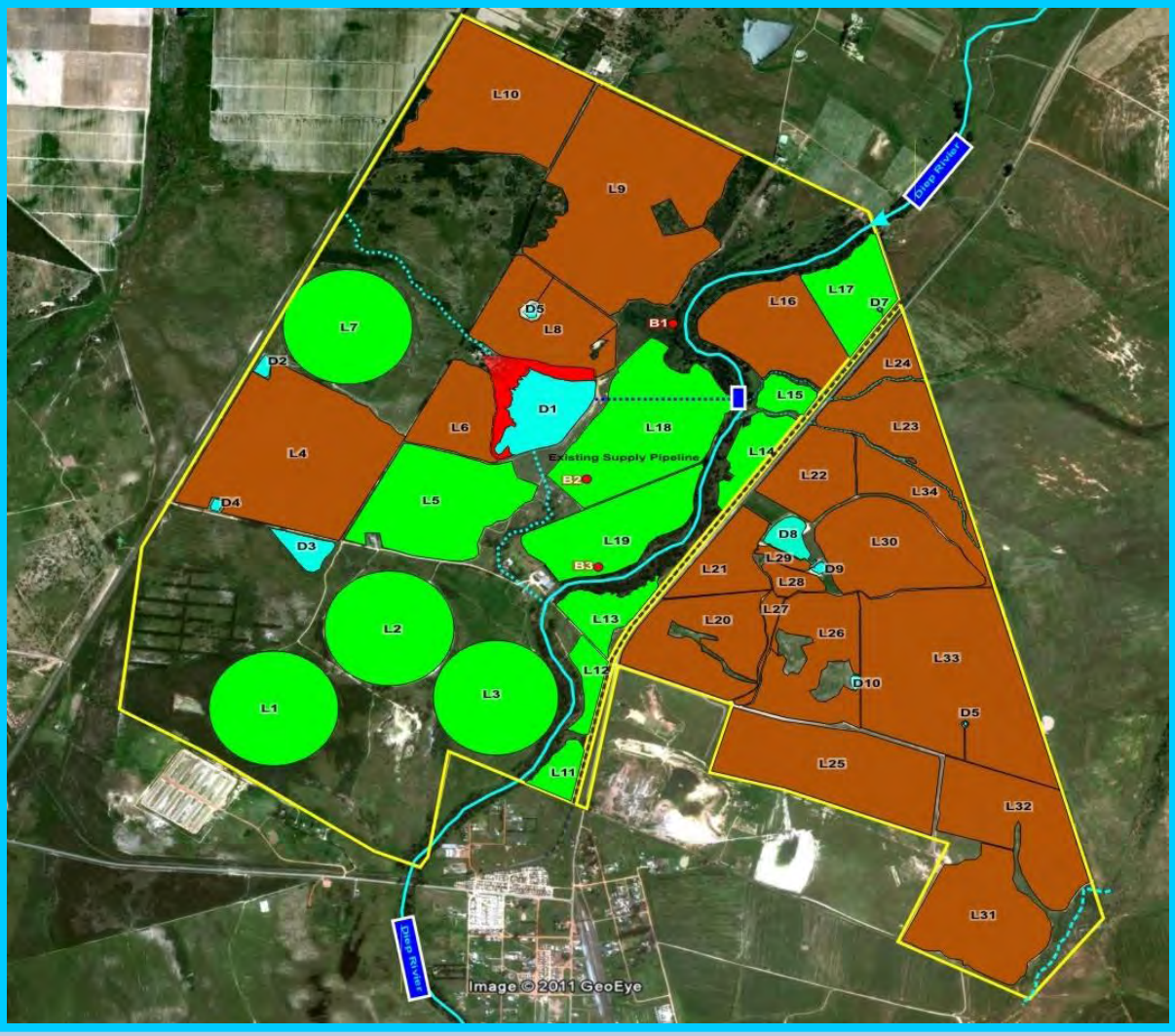
MOLLENBERG IRRIGATION AUGMENTATION ("MIA")

THE AUGMENTATION OF THE PUMPING CAPACITY OF THE PUMPSTATION ON THE DIEP RIVER AND THE STORAGE CAPACITY OF THE KLOOF DAM.

A PROJECT FOR:

SAAMSTAAN BELEGGINGS TRUST ("SBT")

A PROJECT REFERENCE NUMBER: C757.MIA Ver 1.0
DATE: August 2012



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DOCUMENT DESCRIPTION

Client:	SAAMSTAAN BELEGGINGS TRUST
Report name:	WATER USE LICENCE APPLICATION: MOLLENBERG IRRIGATION AUGMENTAION OR ñMIAò: THE AUGMENTATION OF THE EXISTING PUMP CAPACITY AND THE EXISTING STORAGE CAPACITY OF THE KLOOF DAM FOR THE IRRIGATION OF 300 HECTARES OF MAIZE AND WINTER WHEAT ON THE FARM MOLLENBERG 953 IN THE MALMESBURY MUNICIPAL AREA, WESTERN CAPE PROVINCE
Report type:	WATER USE LICENCE APPLICATION, TECHNICAL REPORT AND WULA SUBMISSION TO THE DEPARTMENT OF WATER AFFAIRS.
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Approval	Retief Kleynhans Pr Eng **(ECSA 830210)** Signature: Date/location August 2012, Cape Town

ABSTRACT: BRIEF OVERVIEW OF THE WATER USE APPLICATION

What is applied for in this Water Use License Application?

1. **Taking of an additional 694 190m^3 surface water from the Diep River (G21D, Berg River WMA),**
2. **from an existing pump station on the banks of the Diep River,**
3. **and an increase in the Storing of the existing Kloof Dam to 1 200 000m^3 .**

The **Property** which is ***located in the Winter Rain Region*** is the Remainder of farm Mollenberg No 953 in the Malmesbury RD. The **Development** is the sole supplier of feeds to the beef and dairy farm Saamstaan (Telheim). This dairy and beef farm is owned by the **Applicant,** Saamstaan Beleggings Trust and a direct beneficiary is the Voorspoed Werkers Trust (a trust owned by the employees ï fully BBEEE compliant). This **Venture** is called ñ**SBT**ò and **the Project** is called the Mollenberg Irrigation Augmentation , ñ**MIA**ò onwards in this Water Use License Application

Mollenberg is a vital link in the SBT commercial venture and access to water is a key for long term sustainability. This is for the upgrading of the existing Diep River Pump Station and the increased storage of the existing Kloof Dam. All the infrastructure is located on the Remainder of the farm Mollenberg No 953 in the Malmesbury Registration District (C17-953-0). This Farm is Located in the G21D Quaternary Catchment of the Berg River Water Management Area.

This Application therefore includes the following:

1. **The amendmend of the registration of the Existing Lawful Water Uses:** The assessment and amendment of Existing Lawful Water Uses exercised and Registered for the Mollenberg Farm. These ELUõs are (a) the Taking of a Surface Water volume of 525 742m^3 p/a from the Diep River and 756 000m^3 sub surface water p/a (b) the Storing of Water to a volume of 508 000 m^3 p/a in the existing Kloof Dam (c) the Impeding and Diverting of a River or Stream and (d) these Water Uses are being applied to currently irrigate some 191,7 hectares
2. **The increased Taking of Surface Water from the Diep River:** The Water Use Application for an increased volume to be Taken (from 525 742m^3 to 1 219 932 m^3 ï an increase of 694 190m^3) from the Diep River. This river flows through the Mollenberg Farm and drain into the Atlantic Ocean at Milnerton near Cape Town. This in terms of Section 21(a) of the NWA, Act 36 of 1998.
3. **The increased Storing of Water in the existing Kloof Dam which will be enlarged:** The Water Use Application for the increase in storage volume (from 508 000m^3 to 1 200 000m^3 ï an increase of 692 000m^3) of the existing Kloof Dam. This dam is already classified as a Medium Sized, Category 2 dam with a Significant Risk ï this in terms of Section 21(b) of the NWA, Act 36 of 1998.
4. **The Reserve:** The Reserve is considered (allowing only a percentage abstraction of the monthly flow in only the wetter months of May (21%), June (21%), July (13%), August (24%), September (18%), October (15%) and November (18%)
5. **Other Water Users**: Downstream and other Water Users are considered .
6. **Increase in irrigation area**: The increase of irrigation from 191,7 hectares to a proposed irrigation of 300 hectares of maize planted in summer and on the same area winter wheat through the year.
7. **Impeding and Diverting & Altering the Banks of a Water Course:** The General Authorisations are used to register the existing pump station structure (with a pumping capacity of 295 liter per second) on the banks of the Diep River ï this in terms of Section 21(c) & (j) of the NWA, Act 36 of 1998.
8. **1:100 year Flood Line:** The consideration of the 1:100 year flood line related to the existing and proposed infrastructure

In conclusion and with consideration of:

(a) Socio-economic impacts and advantages (b) Public Participation (c) Sec. 27 substantiation (d) consideration of Other Water Users (e) sufficient Assurance of Supply (f) Environmental impacts (g) Return Flow impacts (h), Water Supply and Demand Management (i) Management and Monitoring of potential impacts it is concluded that sufficient support exists for this WULA to allow the Applicant to Take an annual total volume of 1 219 932m^3 water from the Diep River and to increase the Storage of water to 1 200 000m^3 in the enlarged Kloof Dam. This will assure the commercial survival of the **SBT** venture through the **MIA** project, improved employment and quality of life, socially and economically of a part of the Malmesbury community.

Signed for Saamstaan Beleggings Trust in Malmesbury on ……. September 2012

Mr A Atkinson (ID No……..…….. – Agent, authorised by the Saamstaan Beleggings Trust)

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ACRONYMS

MIA	Mollenberg Irrigation Augmentation
DWA	Department of Water Affairs
DWAF	Department of Water Affairs and Forestry (currently DWA)
EAP	Environmental Assessment Practitioner
ECA	Environment Conservation Act
EIA	Environmental Impact Assessment
EMP	Environmental Management Plan
FT	Fairtrade
I&AP	Interested and Affected Party
IDP	Integrated Development Plan
IEM	Integrated Environmental Management
ISP	Internal Strategic Perspective
WULA	Integrated Water Use Licence Application
MLM	Malmesbury Local Municipality
N	National
NEMA	National Environmental Management Act (Act No 107 of 1998)
NWA	National Water Act (Act No 36 of 1998)
NWRS	National Water Resource Strategy
PPP	Public Participation Process
SAPS	South African Police Service
SOFF	Saamstaan Outreach Foundation Fund
SBT	Saamstaan Beleggings Trust
TDS	Total Dissolved Solids
VWT	Voorspoed Werkers Trust
WMA	Water Management Area
WQMP	Water Quality Management Plan
WUA	Water Use Association
WULA	Water Use Licence Application

SECTION A: GENERAL INFORMATION.

1. INTRODUCTION

The farm Mollenberg is the sole supplier of feeds to the dairy and beef farm of SBT. This cattle farm SBT is owned by Saamstaan Beleggings and beneficiaries are inter alia Voorspoed Werkers Trust(fully BBEEE compliant) . Mollenberg is a vital feed link in the SBT commercial venture and access to water is a key for long term sustainability.

Gorra Water Consulting Civil & Agricultural Engineers was commissioned by the owners of SBT to submit a Water Use License Application (ñWULAò) on behalf of Saamstaan Beleggings Trust for the Mollenberg Irrigation Augmentation (ñMIAò). This is the upgrading of the existing Diep River Pump and the increased storage of the Kloof Dam ï all located on the Remainder of the farm Mollenberg No 953 in the Malmesbury Registration District (C17-953-0). This Farm is Located in the G21D Quaternary Catchment of the Berg River Water Management Area.

In terms of Section 40 of the National NWA each party proposing water usage as defined in Section 21 of the Act, must apply to the responsible authority for authorisation before such water use can commence.

This document aims to provide the Department of Water Affairs, DWA, with the necessary information associated with the proposed Mollenberg Irrigation Augmentation (MIA) in order to authorise the Water Uses in terms of Section 40 onwards of the National Water Act. There are no Water Users Associations for the management of Water Uses in this section of the Berg River Water Management Area .

A pre-application meeting was held between Gorra Water and the Department of Water Affairs: Western Cape Regional Office in Cape Town on 18 March 2012 to identify the proposed Water Uses as well as the proposed processes to be followed in terms of the National Water Act.
A Water Use Licence Application ito Sec. 40 onwards must address the following water uses with respect to the Mollenberg Irrigation Augmentation:
Section 21(a) - Taking of Water from a water source;
Section 21(b) - Storing of Water;

General Authorisations ito of Sec. 39 of the NWA must be applied to amend the Registration for the pump station for:
Section 21(c) - Impeding and Diverting the flow of water in a water course;
Section 21(i) - Altering the banks and course and characteristics of a water course;

The proposed Mollenberg Irrigation Augmentation has a footprint of approximately 347 hectares including the footprint for abstraction and bulk transportation of raw water to the Kloof Dam.

The Applicant considered available technology and installed a siphon pipe leading to a sump with low lift/high volume pumps, conveying water through a 400 mm dia pipe to the Kloof Dam.

- The Taking of Water from the river and boreholes
- The Storing of this water in a dam
- The application of this Water mainly agricultural irrigation on the farm
- Limited human and industrial use.

2. OBJECTIVES OF THE WATER USE LICENCE APPLICATION

This Water Use Licence Application aims to provide information to the DWA on all water uses associated with MIA and the eventual irrigation and management of this commercial venture on the Farm Mollenberg as a vital link in the supply chain for the SBT beef and dairy production unit.

All and important legislative requirements including:

a. A motivation in terms of Section 27 of the NWA; and
b. Proof of all public participation actions taken to notify all Stakeholders, Local and Provincial Governments, Landowners and Interested and Affected Parties (I&APs)

3. THE APPLICANT

SBT Trusts has commissioned the Saamstaan Boerdery Beleggings Trust as the MIA project applicant and will fulfil the role of project developers and project managers for the proposed MIA project. The applicantôs details are summarised in Table 1.

Table 1: The Applicant

Name of Applicant	Saamstaan Boerdery Beleggings Trust for SBT
Delegated responsible Individual	Mr. A. Atkinson
Position of delegated responsible Individual	Agent , authorised by the Saamstaan Beleggings Trust
Identification Number	C757.01
Direct Contact Information	021 873 4567
Physical Address	Farm Mollenberg Malmesbury South Africa
Postal Address	PO Box 130 MALMESBURY 7300 South Africa

4. LEGISLATIVE REQUIREMENTS.

The proposed MIA Project requires authorisation in terms of numerous legislative frameworks. A list of legislative requirements and/or authorisations is provided below and will form part of the pre-construction studies that require approval before the MIA project can commence.

Each individual legislative authorisation has an integral part in the Water Use Licence Application and must not be seen as a separate study.

4.1 The National Water Act, 1998 (Act 36/1998) - NWA

The purpose of the National Water Act No 36 of 1999 (ñthe National Water Actò) is to provide for fundamental reform of the law relating to water resources; to repeal certain laws; and to provide for matters connected therewith.

In terms of the definitions contained in Section 1 of the National Water Act, ñwater resourceò includes a watercourse, surface water, estuary, or aquifer. ñAquiferò means a geological formation which has structures or textures that hold water or permit appreciable water movement through them.

ñWatercourseòmeans a river or spring; a natural channel in which water flows regularly or intermittently; a wetland, lake or dam into which, or from which, water flows; and any collection of water which the Minister may, by notice in the Gazette, declare to be a watercourse, and a reference to a watercourse includes, where relevant, its bed and banks. Furthermore, in terms of the definitions contained in Section 1 of the National Water Act, ñwasteòincludes any solid material or material that is suspended, dissolved or transported in water (including sediment) and which is spilled or deposited on land or into a water resource in such volume, composition or manner as to cause, or to be reasonably likely to cause, the water resource to be pollutedò

An Environmental Impact Assessment (EIA) and independent specialist studies are being compiled for the Mollenberg Irrigation Augmentation. All above mentioned studies were used in the compilation of this Water Use Licence Application documentation.

4.2 National Environmental Management Act, 1998 (Act 107/1998) - NEMA

The National Environmental Management Act (NEMA) (No.107 of 1998) states that the principles of Integrated Environmental Management (IEM) should be adhered to in order to ensure sustainable development. A vital underpinning of the IEM procedure is accountability to the various parties that may be interested in or affected by a proposed development. Public participation is a requirement of the IEM procedure, in terms of the identification of potentially significant environmental impacts. The IEM procedure aims to ensure that the environmental consequences of development proposals are understood and adequately considered during all stages of the EIA project cycle, and that negative aspects are resolved or mitigated and positive aspects enhanced.

5. SUMMARY TABLE: WATER USES FOR THE PROPOSED MIA PROJECT.

Table 2: Summary of the water use information.

Property Description	Remainder of the Farm Mollenberg No 953 In the Malmesbury Registration District (c17-953-0)
Property Zoning	Current zoning is Agriculture . No application to any form of industrial zoning is required
Co-ordinates of the property centre point	33ę33.25ô53.00ôS 18ę38.00ô38.59ôE
Water Uses	1 Section 21(a) Taking water from a water resource 2 Section 21(b) Storing water 3 Section 21(c) Impeding and diverting the flow of water in a water course. 4 Section 21(e) Controlled activities: - Dam Safety 5 Section 21(i) Altering the bed, bank, course and characteristics of a watercourse.
Abstraction point and co-ordinates	Abstraction 1: 953MA0P1 & Water Use No 1 33ę33 03.29S 18ę39 15.33E. (The abstraction point is referenced as 593MA0P1 on the location maps)
Projection	Hartbeeshoek 94
Water Management Area	Berg River Water Management Area (BRWMA)
Quaternary Drainage Region	G21D

SECTION B: PROJECT AND ENVIRONMENTAL DESCRIPTION.

1. DESCRIPTION OF THE PROJECT

The continued growth and sustainability of the joint SBT beef venture is dependant on a dependable supplier of feeds to maintain the beef and dairy production.

MIA - The Mollenberg Irrigation Augmentation project imitated by the SBT and executed by the Saamstaan Beleggings Trust is developed as the primary provider of bulk feeds to the SMB cattle Farm.

Currently the MIA project consists of approximately 191,7 hectares of irrigated mealies and wheat (as Registered with DWA). These crops are cultivated on Mollenberg, harvested, converted into bulk feeds and transported to the SMB farm where it is used as the feeds for cattle and dairy cows ï in total some 7 000 Large Stock Units (dairy cows and beef).

The productive infrastructure currently established on Mollenberg is (refer to Figure 1 and Annexure 6):

1. A raw water abstraction point in the Diep River delivering water to the horizontal siphon
2. A horizontal siphon from the Diep River consisting of two 350mm diameter and one 700mm diameter pipe to a sump.
3. The upgraded pump station with three pumps pumping the Diep River water with capacity of 1 062m^3 per hour.
4. A 400mm dia large diameter supply pipe conveying water from the pump station to the existing Kloof Dam.
5. The existing 3 equipped boreholes yielding 756 000m^3 cubic metres sub surface water per year.
6. The Kloof Dam with a current Registered storage volume of 508 000m^3 , a FSL Area of 11 hectares and a wall height of 17 meters ï a Category 2 ñDam Safetyòdam
7. Irrigated lands , approximately 191,7 hectares with mainly centre pivots as irrigation equipment.
8. Irrigation related equipment
9. Vehicles
10. Workshops
11. Administrative offices
12. Housing.

The MIA project is intended to :

1. To increase the allowable annual pumping capacity from the Diep River of surface water from 450 000m^3 to 1 238 213m^3 - an annual increase of 692 000m^3
2. To increase the allowable volume of 508 000m^3 storing of Water in the existing Kloof Dam to a volume of 1 200 000m^3 ï an increase of 692 000m^3
3. To increase the existing irrigated area of 191,7 hectares of mealies planted in summer and on the same area winter wheat to a total of 300 hectares ï an increase of 108,3 hectares
4. To ensure compliance of the various water uses with the National Water Act and the National Environmental Act.

Each of the MIA project elements have associated infrastructure that will be contained within a the total 341 hectare development footprint on the 858,7 hectare farm Mollenberg.

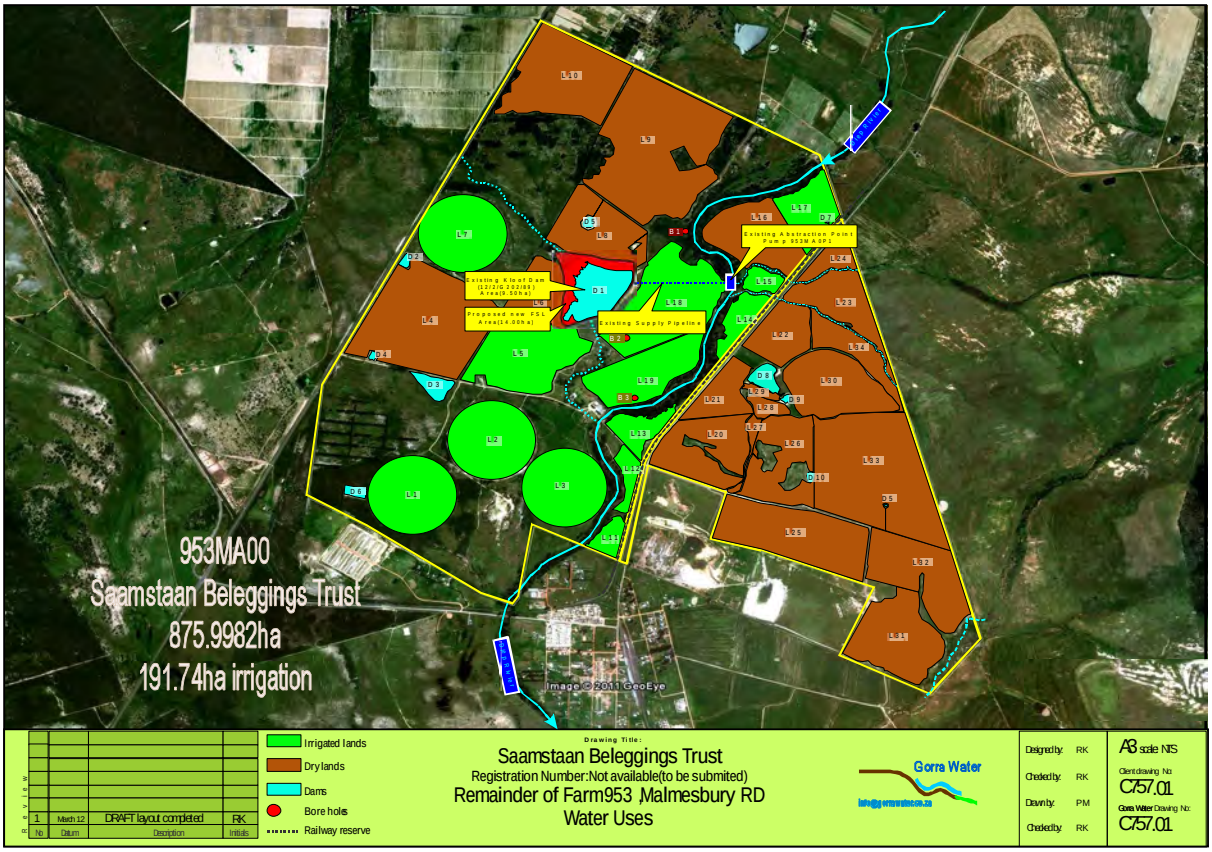

Figure 1:
The existing Water Use related infrastructure on the Remainder of Mollenberg 953 in the Malmesbury RD.

The applicant is proposing to operate the facility for at least a 40 year lifespan with possible future capacity increases over the project life cycle.

2. LOCATION OF THE PROJECT.

The MIA project is located on the farm Mollenberg No 953 in the Malmesbury Registration District (C46-953-0) and also the Malmesbury Local Municipality, Ward 7, Western Cape Province

The project falls within the Berg River Water Management Area and in the G21D Quaternary Catchment. Mollenberg covers 875,9662 hectares and is a property straddling the Diep River but is also riparian to the Diep River , both geographically and as a ñRipariannòproperty in terms of the previous Water Act, Act 54 of 1956.

The N7 forms passes next to the western boundary and this makes Mollenberg ideal in both proximity and accessibility to the SMB Farm which is only 23 km to the north west of the farm. This makes the transport of feeds produced on Mollenberg a viable enterprise.

3. TECHNOLOGY DESCRIPTION

The technology employed is standard to irrigation farms irrigating lands with both surface water and sub surface water.

The surface water is abstracted from the Diep River with the use of a horizontal siphon consisting of 2 off 350mm steel pipes and one 750 mm pipe leading water from the flow of river to the sump where the pump suction inlets are located.

The three pumps (2 pumps of 450 m^3/hr each and one pump of 162m^3/hr ï a total of 1 062m^3/hr capacity at duty point) lifting the water from the sump and conveying the water at a flow rate of 295 litres per second to the existing 508 000m^3 Kloof Dam.

The pumped water is discharged at a point in the spillway where it flows into the dam. This aspect is also addressed in the Dam Safety Inspection of the Kloof Dam.

Sub surface water is sourced from eleven registered boreholes at an annual volume of 756 000m^3 per annum. This volume of water is a major consideration in the water security of the venture ï this water is available at an assurance of supply of 100% compared to the 80% assurance of supply of the Diep River. The water from the boreholes is lifted through 45 meters and is also be stored in the Kloof Dam.

The water supply to the irrigation farm has two drawbacks:
1. A high evaporation rate of 1 455 mm per annum.
2. The energy cost related to lifting 756 000m^3 borehole water through at least 45 meter of height requiring approximately 311 Mw per annum.

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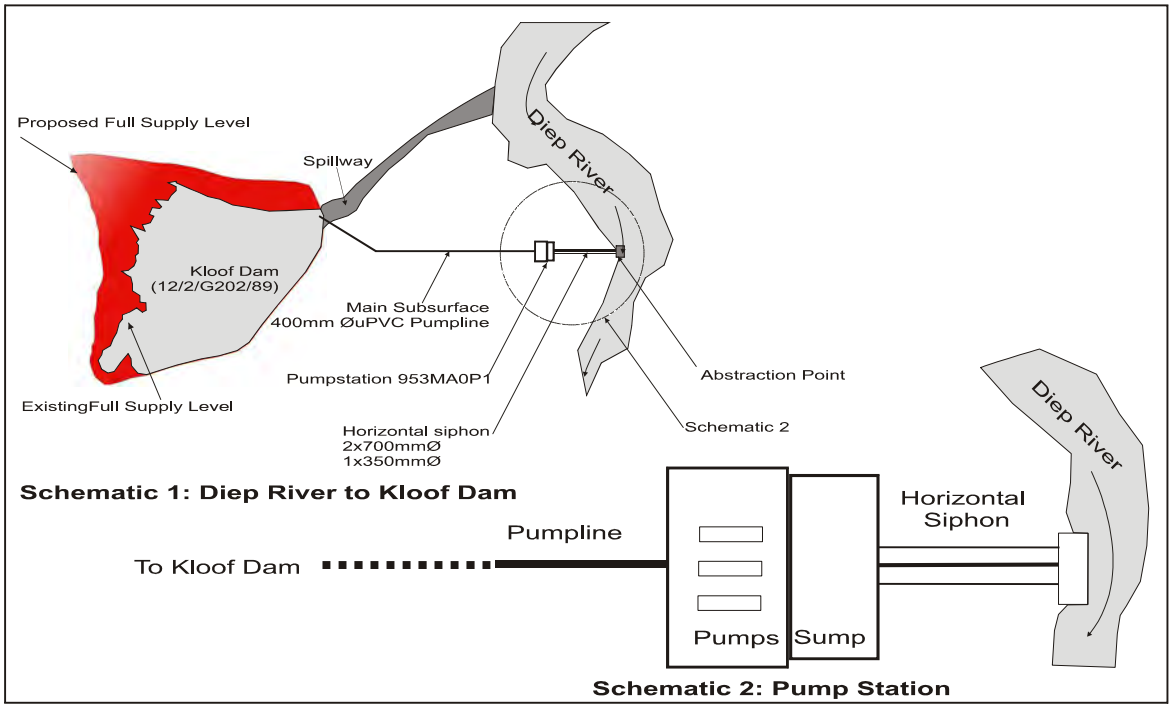

Figure 2:
Diagram of the irrigation infrastructure – siphon, leading pipes, sump, pumps, main pipeline. Dam.

3.1.1 The Siphon

The function of the existing siphon is to divert water from the Diep River and convey this surface water in 2 350mm dia and one 750mm dia pipe to the sump.

3.1.2 The Pump Station

The pump station is a 23m wide by 24m in length concrete structure with essentially three components. The sump into which the horizontal siphon discharges the water in. The

suction ends of the three pumps which lifts the water in the sump through the pumps and to the 400mm dia pipe which conveys the water at a rate of 82 liters/second (295 m^3 per hour) to the Kloof Dam.

3.1.3 The Main pipeline

This 400mm dia uPVC sub surface pump line conveys at a maximum rate of 295 cubes per hour the water currently to the spillway of the Kloof Dam where the water is discharged into the Kloof Dam

3.1.4 The Kloof Dam

The existing Kloof dam with a volume of 508 000 cubes will be enlarged to 1 200 000m^3 to service the 300hectare irrigation

Figure 3:

Perspective of the existing Kloof Dam, Diep River and the N7

SECTION C – 1: WATER RESOURCE DESCRIPTION

1 THE BERG RIVER WATER MANAGEMENT AREA

The Farm Mollenberg is situated in the Berg River Water Management Area (WMA) and in the Q21D Quaternary Drainage Region. Figure 4 shows the Farm Mollenberg and the surrounding quaternary drainage regions.

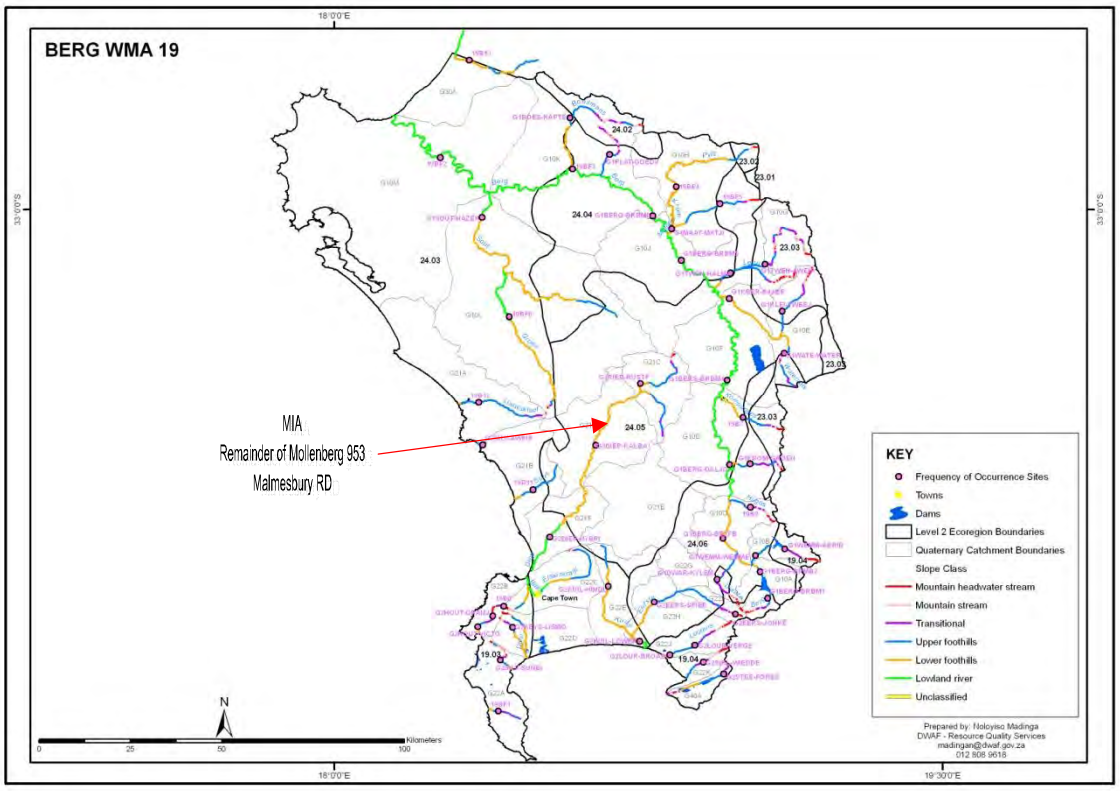

Figure 4:

The Farm Mollenberg and the associated drainage regions of the Berg River WMA.

The water availability of the catchment is based on runoff from the upstream Quaternary G21C and a section of the G21D quaternary. Water is imported from the Berg River Scheme and partially discharged as Treated Sewage Effluent upstream of Mollenberg at a rate of approximately of 7Ml per day throughout the year. The main water uses in these quaternaries are the municipalities and the agricultural sector. The Department of Water Affairs delegated the responsibility of controlling the water use in certain parts of a catchment to the Berg River Water Management Area (BRMA). This application falls within the ambit region of the BRMA

1,1 Water User Associations

The Diep River is not a member of any Water User Association and DWA confirmed that none was formed and is currently planned for the G21 Tertiary Catchment

The BRWMA will have to regulate the MIA project as one of its water users (Table 3 summarises the contact details for this association)

Table 3: Contact details for the Berg River Water Management Area

Institution	Berg River Water Management Area
Contact Name	Mr D. Daniels
Delegated Power	Corporate Executive Officer
Contact Details	Danielsd@dwa.gov.za

2. PROCESS FOLLOWED DURING THE WATER USE LICENCE APPLICATION.

2.1 Pre-Application Consultation: DWA, Western Cape Regional Office.

The Environmental Assessment Practitioner (EAP) had a Pre-Application Consultation meeting with officers from the Department of Water Affairs on 3 March 2012 to discuss the proposed water uses and to receive guidance from the officials on the type of application required and the approach to be undertaken.

A second meeting was held with the Department of Water Affairs: Western Cape Regional Offices on 19 May 2012 to discuss the outcomes of communications and the meeting that was held with the following authorities:

- The Malmesbury Local Municipality: Technical Director;
- Berg River Water Management Area

The outcome of the second meeting with DWA: Western Cape Region led to the following actions:

- The applicant should apply for a Water Use Licence for Section 21 (a), (b), (c), (e) and (i) water uses respectively before the activity can commence.
  - Section 21 (a) -Taking water from a water resource
  - Section 21 (b) - Storing water
- The applicant should register the Water Use Licence for Section 21 (c) and (i) water uses respectively under the General Authorisations of Section 39.
  - Section 21 (c) - Impeding and diverting the flow of water in a watercourse
  - Section 21(i) - Altering the bed, banks, course and characteristics of a watercourse.
- The applicant should compile a Technical Report in which all water uses are addressed according to the requirements of Section 28 and Section 29 of the NWA as well as include a Section 27 motivation for the water uses.
- The applicant should undergo a Public Participation Process (PPP) in terms of the EIA Regulations, published in Government Notice R.385.

The meetings held with responsible authorities in terms of the water uses that can be associated with a MIA and addressed the following points:

- Will there be enough water within the catchment to supply water for the activity?
- What alternative water resources were considered during this application?
- What is the probability of success of authorising the alternative water use options?

Based on the outcome of the meetings, it was indicated by the Commissioner of the Berg River Catchment Management Agency, Mr. Daniels that the Diep River is over allocated and will probably only have excess flow over the Reserve requirements in a limited number of winter months. Water is already imported from the Berg River Scheme. Discharge of this treated water by the Malmesbury Municipality is the only water that can be additionally allocated (a remark also supported by the Technical Director of the Municipality). will have enough water in the system and will be able to supply to the applicant, based on the conditions as determined for the Reserve Determination. The

Corporate Executive Officer (CEO) of the region again indicated that the applicant should formally apply for Section 21 (a), (b) Water Use Licences.

2.2 The Technical Report and Water Use Registration

This proposed document serves as the technical report for the Water Use License Application for the proposed MIA project. The current Water Uses registered for Mollenberg is current and the Water Resource Charges are paid up. The algorithm considering the Reserve, Surface Water , available Sub Surface Water , Evaporation, Precipitation, Seepage, Return flow, other Water Users, proposed irrigation with crop demands, Water Quality and a sensitivity analysis to determine the 80% assured yield of actual available surface water that can be authorised is detailed in .

2.3 Public Participation Process

A full public participation process was undertaken during the application process. The public participation process is fully addressed in Section G of this report. This includes letters sent to immediate neighbours of MIA (refer to Annexure 11)

2.4 Pre-Submission Authority Information Session

Already completed. Once submitted a meeting will be scheduled to discuss the complete submission.

2.5 Submission of the WATER USE LICENSE APPLICATION

The WATER USE LICENSE APPLICATION will be submitted to the Department of Water Affairs: Cape Town Regional Office. Date of submission will be in early September 2012

SECTION C-2: WATER USE DESCRIPTION

1 SECTION 21 (A) – TAKING WATER FROM A WATER RESOURCE

The applicant, Saamstaan Boerdery Beleggings Trust, is applying in terms of Chapter 4 of the National Water Act, (Act No 36 of 1998), for a Section 21 (a) water use authorisation for the abstraction of 1 219 932m³ raw water per annum from the Diep River for a 300 hectare irrigation enterprise on the Farm Mollenberg, in the Western Cape Province.

The Applicant has already constructed the pump station, and this is therefore the only alternative available. (Refer to Annexure 6 for a locality map of the existing abstraction points as well as an ñAs Builtò Drawing of the structure).

The applicant has installed the pump station on the shores of the Diep River and is currently abstracting water according to his existing lawful use. It is intended to abstract the full 295m^3 per hour once the Licence has been authorised and a Section 24G NEMA application has been approved. No other alternative abstractions were assessed as the existing one was already in place and the in stream impact on the watercourse is known.

Table 4 provides a summary of information that is associated with the authorisation requirements.

Table 4: Basic information for Section 21 (a) abstraction from the Diep River

Volume to be abstracted from the Diep River	1 219 932m³ per annum
Abstraction Point 1 Existing	The Remainder Farm of Mollenberg 953 in the Malmesbury RD 28.786820ºS 21.883255ºE.
Abstraction Method	Horizontal siphon from the Diep River to the pump sump and from there with a low lift, high volume pump to the Kloof Dam.

The applicant installed three leading pipes on the bed of the Diep River. These pipes gravitate raw water to the balancing sump situated outside the 1:100 year flood line (this flood line is indicated in the). The proposed abstraction and construction is being assessed in terms of NEMA and is also assessed in terms of Section 21 (c) and (i).

2 SECTION 21 (b) – STORING WATER

The purpose of the storing of raw water is to finally irrigate 300 hectares of grazing and to augment and increase the assured availability of irrigation water.
The technical data related to Classification according to the ñDam Safetyòregulations (RN 345 dated 12 Aug 2012). An Approved Professional Person (ñAPPò) in the person of mr R Kleynhans Pr Eng was approved on 12 May 2012 by the Dam Safety Office. Registration of the existing storage of 505 800m^3 ito of Sec. 24 of the NWA. All of these are detailed in Annexure 9

Table 5: Information requirements for the Section 21 (b) water use

Capacity of Kloof Dam	Existing - 508 000m^3 , Proposed ï 1 200 000m^3
Type of Structure	Off channel earth dam with an uncontrolled side channelled spillway. The enlarged structure will be designed according to the Dam Safety Regulations
Storage Structure	Is located within the Mollenberg Farm development footprint of 370 hectares. The Kloof Dam is not located in the Diep River 1:100 year flood line.

3 SECTION 21 (C) – IMPEDING AND DIVERTING THE FLOW OF WATER IN A WATERCOURSE / SECTION 21 (I) – ALTERING THE BED, BANK, COURSE OR CHARACTERISTICS OF A WATERCOURSE

The following structures were constructed within the extent of a watercourse as defined in the NWA ***and is Registered in terms of the General Authorisations, Section 39 of the National Water Act, Act 36 of 1998.***

- A horizontal siphon pipe leading to a balancing tank
- Concrete structure sump to receive the bulk water pipe from the river within the riparian zone of the Diep River
- An above ground pump station with high lift, high volume pipes for the pumping of water to be conveyed to the proposed current existing Kloof Dam. The structures and pipelines do not cross any Water Courses or wetlands on the property.

2.2 Technical information on the existing and increased pump station.

Table 5: Information on location and associated infrastructure for the pump station .

Location	Farm Mollenberg, Remainder, 28.78682º S 21.883255º E
Location	This is already built with the least impact.
Associated Infrastructure	• Anchored leading pipes on the river bed supplying flow of river to the perforated plate at the pumping sump. • Pumping sump with three low lift, high volume pumps • A combined pumping capacity of 450 m³/h + 450 m³/h + 162 m³/h = 1 026 m³/h (or 297 liter/s)

2.3 Information on the Concrete Pump Station.

The leading pipes where the sump is connected to the pump station to transport the water to the pump station. Photoôs in illustrate all activities already executed within the extent of the Diep River Water Course and 1:100 year flood line.

2.4 Sub surface 400mm diameter uPVC water pipeline.

The sub surface raw water uPVC pipeline does not cross any non-perennial drainage line that is located on the Farm Mollenberg. There is only one alternative available to this, being the shortest, and the pipe has already been placed between the abstraction and discharge pump according to and Figure 5 repeated below:.

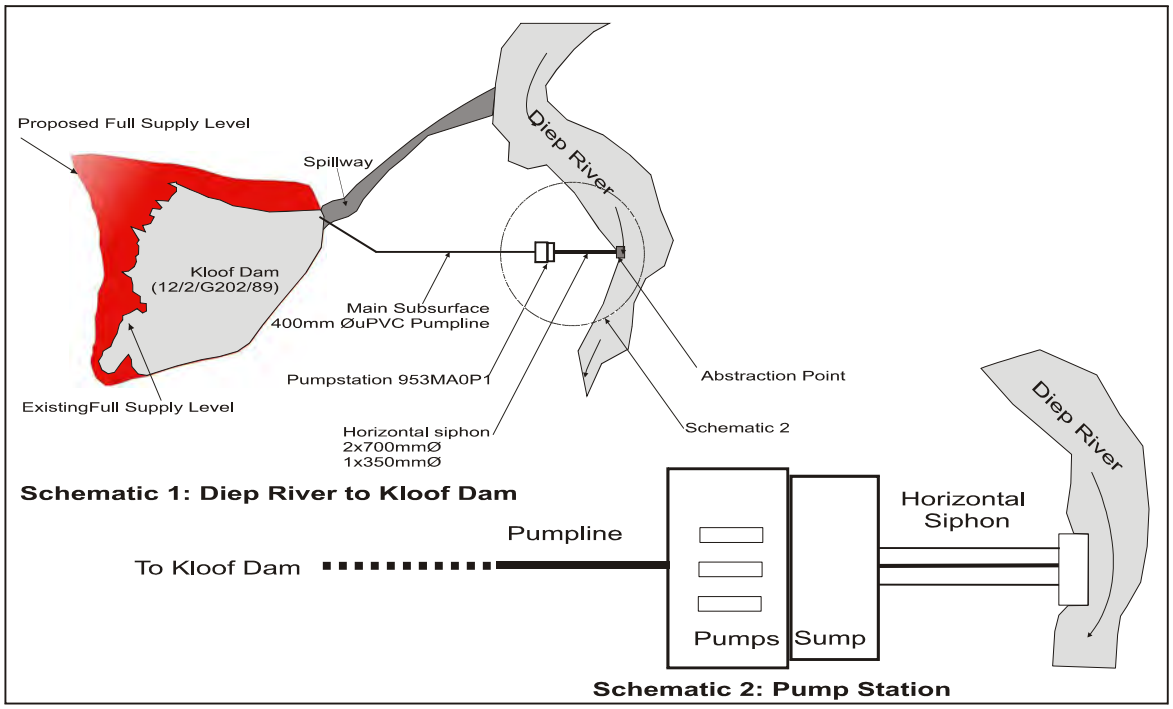

Figure 5: The existing pipeline route from the abstraction point to the discharge into the Kloof Dam.

Table 6: Basic information on watercourse crossings (if any) for the pipeline already placed from the existing abstraction point.

Number of Water Course/Wetland crossings.	None
uPVC Pipe Dimension	The pipeline length is approximately 534 meters. Inside diameter of pipe pipeline is 400mm.
Preference	The pipeline route alignment falls within the existing transformed land of the Mollenberg between the Dam and the Diep River
Abstraction Point	No Servitude is required as it is on the ownerôs own property and access to the watercourse of the Diep River is through a dirt road and the normal access to the Farm.

SECTION D: PHYSICAL AND SOCIAL ENVIRONMENT:

1 PHYSICAL ENVIRONMENT.

1,1 Climatic Conditions

The Farm Mollenberg is ***located in a winter rainfall area*** with mild temperatures during winter months and hot to very dry periods during the summer.. Summer months are characterised by extremely hot conditions with high temperatures, especially during November ï February. ***Due to the location in the winter rainfall area*** The opposite trend is seen during May, June ï August where wet periods characterised by temperatures dropping near to freezing point. Temperatures during winter can drop to below freezing point as recorded for June and July .

1.2. Precipitation and Evaporation Rates.

The Farm Mollenberg falls ***within a winter rainfall region***. According to the WRM2005 the area has an annual rainfall of 477mm whereby data indicates that the area receives a mean annual precipitation rate of 450mm . The Mollenberg irrigation area is in the District Municipality with an average evaporation rate of 1 455 mm per annum. Most precipitation occurrences are experienced during May ï September of each year.

1.3 Topography of the Area

The Farm Mollenberg is surrounded by typical sand dune landscape with wavy hills, sandy plains with cultivated lands interspersed along the river and outside the river.

Perennial water courses drain the landscape with limited small hills and mountains and 3.8 meter drops are common. The topography of the landscape reflects few elevation differences with the exception of the mountains in the North West. The Farm Mollenberg does not show any significant difference in topography from the surrounding landscape.

1.4 Fauna and Flora

Cape EAPRAC is attending to this matter through a Section 24G application as required ito NEMA.

1.5 Water Resource

1.5.1 Surface Water Resources

The Diep River is the main surface water resource in the district and for this farming community and provides some of the necessary resource to develop agricultural and economic activities along its banks. The river is a perennial river with a varied flow between 50 ï 1800 cubic meters per day depending on the season. The river flows

predominantly controlled in the upstream area with quite a few dams upstream of the abstraction point in terms of the WARMS data and Google Earth imagery of 2011.

The Farm Mollenberg straddles the Diep River on the eastern banks. There are a number of drainage lines, steams and rivers on the farm that flow towards the river. The northern portion of the farm is not located within a 1:100 year flood line. (Gorra Water 2011) and there are no significant wetlands, estuaries or other sensitive watercourse area located near the Mollenberg irrigation development. The riparian zone which is the zone that divides the Diep River and the terrestrial ecology is seen as the sensitive zone on the farm . The Riparian Zone has been directly changed in bio diversity in terms of animal and plant species due to the high saline content of water as well as the extensive agricultural activities

The most important ecological feature of the river and its associated riparian zone is the linear migration route for limited terrestrial animals.

It is noted that the water quality of the Diep River is categorised as Class D ï Largely Transformed due to existing agricultural activities along the river banks as well as some rural and urban developments like Riebeeck Kasteel , Malmesbury and Kalbaskraal. The major inflow of water is from imported water from the Berg River system and the Diep River is known for its high nutrient level and results in algal blooms from time to time. Rivers flow is high in flood seasons, but constant due to the importing of some 7 mega litres per day from the Berg River being discharged and treated by Riebeeck Kasteel and Malmesbury Municipalities upstream of the pump station.

The water flow rate is very low in summer but higher in winter, and siltation can be a problem at the pumps station. Therefore we will change the pump regime to protect the inflow to the pumps.

1.5.2 Ground Water Resources

The integrated Development plan for the Malmesbury District Municipality (2004) stated that groundwater resources are abundant due to the shallow water table It should be stated that the quality water that abstracted is normally brackish and the recharge rate for the water table is very intensive due to winter rainfall when there is substantial and where water logging may even occur.

According to a Hydro geological Study done on the farm Mollenberg a fractured type sand occurs in the area with a yield that ranges from 40 litres ï 70 litres per second. The farm is located near the Diep River and makes good use of ground water which is the predominant source for domestic livestock and irrigation water in the G21D Quaternary Catchment. It is stated that the annual recharge rate for the area is 18.0 million m^3 per annum over the entire sub-catchment.

The water quality of the groundwater resources indicated elevated levels of electric conductivity and dominant sodium, calcium, chloride and sulphates in the water samples.

The pH levels of the water samples ranged from 7.3 to 8.06 and the total dissolved solids ranged from 420 ï 490mg/ă

Due to extensive use of groundwater and the relative low quality of groundwater obtained from samples taken during the Hydrogeological survey of the Farm Mollenberg, the local aquifers are seen as major asset according to the Parsons Aquifer Classification System

The conclusion made by the Hydrogeological Study for the Farm Mollenberg stated that the potential impacts for groundwater resources have a low to moderate significance rating. Management principles should be imposed for leakages from subsurface tanks (if planned) as well as the related agricultural activities such as dairy farming and pollution with herbicides, insecticides and fertilizers. Timeous mitigation of all groundwater resources impacts that may be derived from the construction and operational activities is not important.

2 SOCIAL ENVIRONMENT

Refer to the detailed Social Environment and Impact information as stated in the report by MK and Associates, Annexure 7. Also addressed are :

2.1 Demographical Population.
2.2 Urban Area
2.3 Rural Areas

The majority of the G21D Quaternary is occupied by commercial farms and commonage land. Agricultural activities dominate the municipalityøs economical sector and are the main source of job creation for local citizens.

Livestock farming dominates the rural landscape and feed stock like mealies and other for dairy farming or meat production. The dominant crops are mealies, some vines and wheat. The Diep River provides enough water resources to sustain cultivation under irrigation up to a certain point.

2.4 Infrastructure.

The main roads in the Malmesbury Local Municipal area are the National (N7) linking Cape Town with Namibia as well as other towns. The majority of the roads in the municipality are tarred, and some gravel roads which are in a satisfactory condition.

Due to some of the gravel roads, storm water management is poor with the flooding of roads during rainy conditions occurring most frequently.

The water service infrastructure is dominated by the provision of water to municipal dwellings in Malmesbury and Kalbas Kraal, but only water on-site access on the Farm Mollenberg. Sanitation services are also equally divided between flush toilets, pit-latrines and no-infrastructure. Flush toilets and no-infrastructure have the highest usage on the farm and are intended to be upgraded and have already been upgraded.

It can be concluded from this report that:

1. Economic activity in the area is limited.
2. Unemployment in the area is high.
3. Problems related to unemployment and poverty exist.
4. The Water Use if authorised will benefit the community in general on various aspects ï quality of life, education, employment , sustainable growth and future growth..
5. The negative impact of the Water Use if authorised is insignificant on society and the environment.

SECTION E: SECTION 27 OF THE NATIONAL WATER ACT.

1. SECTION 27(1)(A) – EXISTING LAWFUL WATER USES.

The Berg River Water Management Area is situated in the drier Western Cape on the Western side of the Cape Province and the main river source at this stage is imported water from the Berg River. The Diep River which forms the study river in this case does provide socio-economic opportunities to the local area and associated municipal districts. However, the Diep River as a water resource is limited and, therefore, the import from the Berg River Water Management Area. No major irrigation is evident on the river banks and this phenomenon is clearly visible in the .

The Internal Strategic Perspective (ISP for the Berg River Management Area) Report indicated that agriculture is not a predominant water user sector in this quaternary catchment G21D on which the demand is required. In addition, the agricultural sector is limited and most of the economic activities are based in Cape Town and the surrounding areas. This is also borne out in the Registered Water Users attached in Annexure 2. These Registered Existing Water Users only came to a limited 420 hectares of surface water irrigation (of which Mollenberg is part) .Contrary to surface water the use of some 79 bore holes yielding 10.75mill m^3 per year (irrigation 9,8mill m^3 p.a., 0,25mill m^3 p.a. livestock, domestic 1,4mill m^3 p.a.), came to 648 hectares of irrigation. The 13 dams registered came to 404 000 m^3 (assessed as incorrect as Kloof Dam already stores an existing 508 000 m^3)

The overall water use of the Berg River Water Management is provided for in Chapter C on Water Resource Description. Supply of water to local farmers is, therefore, only limited to domestic drinking water and for the rest they are dependent on borehole water and limited surface water. The uses are second to the reserve and international obligations. However, the Reserve has not been applied for this Diep River and compulsory licensing ito of Sec. 35 onwards has not been done.

The management of the Berg River Water Management Area was consulted with regards to the availability of water in the water resource, as well as the impact of the proposed increased abstraction on the limited existing lawful water users. It was indicated that there is no water available in the drier summer months, but that they do not foresee any major issues during the winter months when there is an excess of water as well as discharge of the Malmesbury municipality of treated sewage effluent to standard into the Diep River. The overall impact of the water use on other water users in the system is, therefore, limited.

It should be noted that the Berg River Management Area is a controlled water management area. The Department of Water Affairs (DWA) regulate the releases of raw water from the various dams, also the Berg River Dam, upstream of the Diep River. However, the affected users in this case do not use this water and are dependent on mainly sub-surface water.

The MIA infrastructure associated with the abstraction from the Diep River is already in existence and a limited volume is allowed under historic use previously too irrigate 191,7ha.

The new upgraded structure now has the ability to increase the irrigation from 191,7 ha to 300ha once authorised. This will obviously only allow according to the Reserve and other studies to be made during the winter months from April to June and be stored in the existing but to be upgraded Kloof Dam which is also the subject of a Licence Application. As the existing lawful use to be increased to store the water available during the wetter winter months. Refer to the report in Annexure 3 by the me T. Boucher on behalf of DH Environmental Consulting.. The Applicant is taking all possible measures to avoid the possible pollution of the ground water sources and the practices to date show that this is not a problem. New measures will be taken and instituted to prevent this happening. The sandy character of the soil will assist in this matter.

Surface water is not a source of domestic users in this area and management measures such as ground water monitoring will be part of the management plan for this application and will ensure that the ground water resource is not polluted or degraded in quality during construction operation and decommissioning phases of the development.

2. SECTION 27 (1) (B) – THE NEED TO REDRESS THE RESULT OF PAST RACIAL AND GENDER DISCRIMINATION

MIA is committed to maximise local economic development opportunities for the implementation of the MIA Irrigation Project. It is further anticipated according to the ñ***Tweede Wysiging van Akte van Skenking***ò dated 17 September 2010 as stated that ñ***en Aangesien die Trust beoog om 'n aandeel in Saamstaan te koop***ò ownership is eventually planned for the benefit of beneficiaries of the Voorspoed Werknemerstrust. At the time of the submission of this WULA this process is still being planned to enable a considered decision.

It is important to take note of problems listed in the ward 7 remarks of the Malmesbury Municipality where it is explicitly stated that unemployment in the area is rife, and that economic growth is an emergency requirement. At this stage a lot of social problems are developed and exacerbated by the fact that males and females leave the area to work during the week and even longer in Cape Town and communities such as Kalbaskraal for sleep overs and weekend living.

The proposed **Social Impact Assessment Report** (dated 29 September 2011) prepared MA & Associates together with current Trust Documentation is included in Annexure 7 . Furthermore:

a) Ownership of water by HDIs

Granting the WULA will not impact on ownership of water by Historic Disadvantaged Individuals (ñHDIsò - persons not privileged to have voting power before 1994). They will not have any ownership of the farm for which this WULA is submitted. This will have long term impacts as water ownership will not be granted to previously advantaged individuals.

b) Racial and gender imbalances

Granting the WULA will have long term, permanent impact on a local, regional and national scale. The current explosive national situation around land redistribution and sustainable agricultural reform will be served positively by granting this WULA. Although the beneficiaries of the Voorspoed Workers will not acquire ownership of water through this WULA, racial and gender imbalances will be positively addressed through the benefits that will flow when this WULA is authorised.

3. SECTION 27 (1) (C) - EFFICIENT AND BENEFICIAL USE OF WATER IN THE PUBLIC INTEREST.

The main purpose of the proposed MIA project is to extend the current successful and viable feedstock production on Mollenberg from 191,7 hectares to 300 hectares, thereby enabling SMB to the gain the benefit of expansion of the beef herd.

This quaternary catchment area has a high level of unemployment and this extension will utilise water that is not earmarked for the Reserve or for other water users. The commercial value of additional job creation directly and indirectly is a benefit for the public interest.

As to the efficient use of water it must be borne in mind that apart from the Licence Application - currently more than 756 000m³ of water is sourced annually at an average depth of 45 meter from boreholes and with energy provided through electric pumps. Apart from this water is pumped also at a pumping height of 38 meters. The annual energy cost is calculated to be in excess of R2,3mill annually (VAT excluded) ï a 10% saving comes to at least R250 000 per year. This energy cost is in the form of electricity payable to ESCOM and the future proposed expansion under this licence will entail a substantial electrical account each month. It is, therefore, obvious that the applicant has put in place some very necessary and prudent water application saving measures such as neutron probes, satellite monitoring and micro or drip centre pivot irrigation application. This results in the application rate of irrigation water reduced from 6 000m³ per hectare annum to 4 200m³ per hectare per annum. A combined effort of these electricity and application methods will result in the further efficient use of water.

At this stage this water is lost through canal losses, seepage and evaporation with water above the Reserve requirements discharging into the sea. To date the Malmesbury Municipalityôs local economy is driven by small scale agriculture which is not really viable. The addition of this irrigation will enable value addition to the products already delivered. Food processing, meat processing and other value added items in this industry come to mind. By developing an industry such as this a new industrial sector is already formed in the local municipality area and has been observed to grow. It can be said that the irrigation of feed stocks directly benefits the surrounding communities with obvious gains to all without impacting on the water resource.

4. SECTION 27 (1) (D) – THE SOCIO ECONOMIC IMPACT OF THE WATER USE IF AUTHORISED OR UNAUTHORISED.

If Authorised

The socio economic impact for the Applicant, the SBT and the society is obvious. Apart from commercial opportunities, increased society wealth, education, return of economic resources, taxes and other markers of wealth (not only money) this investment is a win-win situation for all involved and will add to the benefits of scale to increased society.

If not Authorised

The loss to society if not authorised is not acceptable. Refer to the report attached in the Annexure 7 by the social impact assessors, MA & Associates in Annexure 11.

5 SECTION 27 (1) (E) – THE CATCHMENT MANAGEMENT STRATEGY APPLICABLE TO THE RELEVANT WATER RESOURCE

5.1 The Constitution of the Republic of South Africa, 1996

Chapter 2 of the Constitution of the Republic of South Africa, 1996 outlines the Bill of Rights. The chapter addresses all constitutional rights of the citizens of South Africa and confirms The democratic values of human dignity, equality and freedom. Section 24 of the chapter addresses the rights of the environment. The following is stated in Section 24:

ñ**Everyone has the right –**

- **a. To an environment that is not harmful to their health or well-being; and**
- **b. To have the environment protected, for the benefit of present and future generations, through reasonable legislative and other measures t**
  - **i Prevent pollution and ecological degradation;**
  - **ii Promote conservation; and**
  - **iii Secure ecologically sustainable development and use of natural resources while promoting justifiable economic and social development**.ò

(The constitution of South Africa, 1993)

Based on the above statement, each person has the right to natural resources including water. The Department of Water Affairs is the primary custodian of the water resources in the country. This right has been legally provided for in the National Water Act, 1998 (Act No 36 of 1998) [The Act]. The main objective and role of NWA is to manage and protect South Africaôs water resources in a sustainable and equitable manner. One of the key legislative management tools provided for in the Act is the water use authorisations.

The National Water Resource Strategy (2004) [NWRS1 and now NWRS 2] describes how the water resources of South Africa will be protected, used, developed, conserved, managed and controlled in accordance with the requirements of the policy and law. Chapter 3 of the NWRS addresses key strategies to be developed by the managing authority to achieve all goals for water resource management in South Africa.

5.2 The National Water Act.

The National Water Act, 1998 (Act No 36 of 1998) is derived directly from the fundamental principles and objectives for a new South African Water Law (NWRS, 24). The Act is the legal instrument relating to the management, conservation and use of the countryôs water resources.
The Act gives delegated powers to the Minister of Water Affairs and the Department of Water Affairs to achieve the desired fundamental principles of sustainability and water management in South Africa.

5.3 The National Water Resource Strategy.

The goal of the National Water Resource Strategy (NWRS2) describes the methods to protect, use, develop, conserve, manage and control South Africaôs freshwater resources in accordance with the requirements of the legislative frameworks of the country.

The fundamental principles to manage South Africaôs water resources are summarised as follows:

The objective of the NWRS2 is to ensure that water is used to support equitable and sustainable social and economic transformation and development. The NWRS2 provides for the aggregated estimates of the present availability and requirements for water in each of the water management areas and introduces adoption strategies and interventions for achieving balanced water availability and requirements.

The NWRS2 introduces a two approach strategy for the protection of South Africaôs National water resources, namely:

a) Resource-Directed Measures - The focus of the strategy is on the quality of water in a water resource, this is measured bys the Ecological Status of a resource system. The desired level of water resource quality is defined for each resource by the Department as well as bys the desired level of protection of the resource.

b) Source-Directed Controls ï The focus of this strategy is to introduce and define limits and constraints that must be imposed on the use of water in a water resource, to achieve the desired levels of protection. The source-directed controls are designed to control water use activities at the source of impact. The control is enforced by the implementation of conditions as part of authorisations granted by the Department.

Both Resource-Directed Measures and Source-Directed Controls form a fundamental part of the current water use licence application, details of which are outlined in Table 12.

Table 12: A summary of resource-directed measures and source-directed controls to be adopted by the water use licence application.

The Ecological Status of both alternative abstraction points and therefore the river section that will be directly affected by the application was identified as Largely Modified (Category D)	Based on the existing impacts as well as the Water Resource
According to the NWRS the Category D represents resource conditions that are Largely altered from the natural state of the resource.	According to the NWRS, source-directed User.

The Reserve has a higher priority over all other water uses in the country and it is

important that all requirements of the reserve must be followed before a water use licence is issued. Based on the above, all water use licence applications are conditional on a reserve determination being carried out before the licence is issued. There are two fundamental parts to the reserve namely the Ecological Reserve and the Basic Human Needs Reserve.

In determining the Basic Human Needs Reserve an allowance of 25ăper person supplied for a resource per day is made for basic human needs and is an equivalent to free basic water of six kiloliters per month for a household of seven to eight people.

5.4 The Internal Strategic Perspective of the Berg River Water Management Area

5.4.1 Surface Water Availability

85% of the natural runoff in the case of this augmentation is dependant on water being imported from the Berg River Water Management Area and the Berg River Scheme. The bulk of the surface water is, therefore, found in the streams after being used as domestic water at Malmesbury Municipality and discharged as treated water. The Diep River itself, without this augmentation is not able to sustain this, and borehole water plus this treated water to standard for irrigation is important.

5.4.2 Current Water Use Volume

Only 12% of the water is used by the urban, industrial, mining and rural sectors.

5.4.3 Water Quality

Water quality of the surface water in the Diep River is generally not that good with a high salinity and quality problems along the whole River. The water quality in the Diep River has however been severely impacted by urban development as well as agriculture. It is possible that the water quality problems in the Diep River can be detrimental to irrigation under normal operating conditions where very little water from the Diep River reaches the estuary at Milnerton. It is mainly under flood and winter conditions that large volumes of water from this system will enter the Diep River. Potential toxic cyanobacterial bloom events also occur along the full range of the Diep River. The water quality issues in the catchment on an over-arching level relates to the management of water which passes between WMAs and can therefore not be solved on a WMA basis along (DWA, 2004).

6. SECTION 27 (1) (F) – THE LIKELY EFFECT OF THE WATER USE TO BE AUTHORISED ON THE WATER RESOURCE AND ON OTHER WATER USERS.

6.1. The Effect of the Water Use on Downstream Water Abstractions

Information obtained from the Water Resource Strategy that the median annual flow of the Diep River is calculated as 7 million m³ per annum. The lowest flow of the Diep River is mostly during December, with an average flow of 2 million m³.

The impact on the water resource and other water users is limited as this application is for abstraction only in winter periods of winter rainfall resulting in an abundance of water ï this is supported by the report on the Reserve for the Diep River prepared by me T Boucher for the company DH Environmental Consultancy (relevant pages included in the Annexure).

The Taking of Water allowing for Reserve allocations is considered in the water balance and dam yield calculations attached in Annexure 2 and 3.

6.2. The Effect of the Water Use on Resource Availability.

The proposed augmentation programme and the associated infrastructure within the non-identified watercourse and the Diep River will have the following temporary effects on the watercourse and other water users:

- The water quality of the watercourse will be affected due to increased silt that will be collecting downstream.
- The water flow will be slightly affected due to the increased abstraction allowed ONLY in the wet winter periods
- The existing vegetation is already disturbed
- The augmentation will address the priorities identified in this development.

The above mentioned impacts are the main impacts associated with the proposed activities. Apart from the hidden impacts of the water resource which are mitigated in the Environmental Management Plan and Rehabilitation Plan and therefore will be reduced significantly during the construction phase of the project.

Secondly, the downstream water users include no to very limited abstraction and dams (refer to the registered WARMS water uses tabled in Annexure12). These impacts are mitigated by implementing silt traps at the abstraction point and blocking structures to prevent pollution incidents.

Lastly, it must be said that the strategic importance of the water use overshadows the localised temporary impacts of the water use.

7. SECTION 27 (1) (G) – THE CLASS AND RESOURCE QUALITY OBJECTIVES OF THE WATER RESOURCE.

This section is to addressed by the Department of Water Affairs during the review of the Water Use Licence Application

8. SECTION 27 (1) (H) – INVESTMENTS ALREADY MADE AND TO BE MADE BY THE WATER USER IN RESPECT OF THE WATER USE.

The irrigated area of **MIA** is already 63,5% (191,7ha of the proposed 300ha) complete and established as an operating venture. The boreholes, pump equipment, main pump lines , irrigation reticulation and dams in excess of R16 million are already built. The intention is, therefore, to use the current pump capacity of 1 028m³ per hour through the pump sump and pump station and high lift pump pipe to the Kloof Dam which would be raised by 3 meters to contain a volume of 1,2m³ million The final investment in irrigation related infrastructure will, therefore, be a further R6,3 million over three years. This is only the beginning of the process and further livestock, equipment, labour and other related economic investments will amount to a further R23 million. The capital budget for this is summarised in the table below, which indicates all the various investments.
It is interesting to try and relate this to water use and jobs created:

- 2012 Investment per cubic metre of water applied for **R13.40/m³**
- 2012 Investment per job created (45 direct jobs) **R27 800/opportunity**

Current investment already made at year 2012

1	Taking of Water Equipment		
	Main Pump Station	R1 200 000	
	Borehole Pumps	R540 000	
	Electricity reticulation	R188 000	
	Irrigation equipment	R5 400 000	R7 328 000
			R7 328 000
2	Storing of Water infrastructure		
	Kloof Dam	R4 500 000	
	Other Dams	R800 000	R5 300 000
			R12 628 000
3	Impeding and Diversion infrastructure		
	Main River Sump	R55 000	R55 000
			R12 683 000
4	Controlled Activity infrastructure		
	Kloof Dam	R250 000	R250 000
			R12 933 000
5	Altering the Banks of a Water Course		
	Concrete Sump	R55 000	R55 000
			R12 988 000
6	Other		
	Houses	R280 000	
	Fencing	R88 000	
	Sheds	R500 000	
	Roads	R45 000	
	Tractors and agri equipment	R2 300 000	R3 213 000
		Total	R16 201 000

9. SECTION 27 (1) (I) – THE STRATEGIC IMPORTANCE OF THE WATER USE TO BE AUTHORISED.

According to the NWRS (2004) and also NWRS2, strategic important water use is considered to be of critical importance to the nation and must be authorised by the Minister of Water Affairs rather than by a Catchment Management Agency. It is stated in the NWRS that continued supply of water throughout the country is essential for both social and economic development. Accordingly, water that is taken from a water resource for the purpose of irrigation was classified as important and should be authorised by the Minister of Water Affairs if proven that all requirements and conditions set in the NWA are met.

Lastly the NWRS (2004) and also NWRS2 indicated that the relevant authorities should be consulted prior to the submission of the water use licence application and only Section 21(a) and Section 21 (b) water uses, as defined by the NWA, are considered water use of strategic importance.

As stated above, the augmentation plans to utilise the available water being imported and wasted through the Berg River system to sustain a commercially viable enterprise, benefiting all the participants and water usres.

10. SECTION 27 (1)(J) – THE QUALITY OF THE WATER IN THE WATER RESOURCE WHICH MAY BE REQUIRED FOR THE RESERVE AND FOR MEETING INTERNATIONAL OBLIGATIONS.

10.1 Water Quality

Both the flow regime and water quality in the Diep River have been severely impacted upon by extensive upstream irrigation developments and domestic use. Salinity in the Diep River has increased due to the transfer of high quality water out of the Berg River and as a result of high salinity irrigation return flows from the Diep River and the insitu geology. Poor quality water which contains a high proportion of irrigation return flows as well as treated urban effluent, also enters the Diep River. Salinity is at present still classified as moderate along the main stem of the Diep River. Deterioration can be expected with increased upstream irrigation and the situation must be closely monitored.

There are algal blooms experienced in the main stem due to a combination of irrigation return flows, diffuse sources, and poor quality water from the upstream users. These algal blooms are potentially toxic and very dangerous to both aquatic and human health. DWA has instituted a monitoring programme, with communication and management protocols to handle toxic blooms. This remains a very serious risk. Studies and monitoring programmes are underway to understand the current algae behaviour.

Groundwater quality varies from good to unacceptable in terms of potable standards. The groundwater quality is one of the main factors affecting the development of available water resources.

Although there are numerous problems associated with water quality, some of which are easily corrected, total dissolved solids (TDS), nitrates (NO as N) and fluorides (F) represent the majority of serious water quality problems that occur. Water quality issues that need to be addressed include diffuse pollution sources from agriculture, management of local sanitation problems at small towns, and the algae problem on the Diep River.

10.2 Ecological Reserve Determination: (Berg River ISP)

According to the Internal Strategic Perspective for the Berg River Water Management Area (2004), the ecological requirements of the Diep River, including the estuary is currently not released from anywhere and should be approximately 2.788 million m^3/a or 20,63% of the cumulative Mean Annual Runoff. The ISP based the information on a preliminary desktop determination of the ecological requirements of the Diep River Study.

The Diep River , a preferred ecological classification of Class C (Moderately Modified) to a current ecological classification of Class D (Largely Modified) initial situation analysis indicates a high water requirement for communities to improve and sustain their river environment and the original study which states that the Reserve requirements is sufficient for the expected requirements from the system including this WULA.

11. SECTION 27 (1) (K) – THE PROBABLE DURATION OF ANY UNDERTAKING FOR WHICH A WATER USE IS TO BE AUTHORISED.

The applicant identified the following timeframes for the construction, operation and decommissioning of the proposed MIA project.

Table 7: Probable duration of the proposed Augmentation Project and associated Water Uses.

Construction Phase	24 months
Operational Phase	40 years
Decommissioning Phase	3 years

SECTION F: PUBLIC PARTICIPATION INFORMATION

The Environmental Assessment Practitioner. Cape-EPrac , conducted a Public Participation Period in terms of the requirements of the Environmental Impact Assessment Regulation R 385. The proposed requirements were discussed with the Department of Water Affairs: Western Cape Region, during the Pre-Application Meeting to be held.

The applicant strived to achieve the following aims during the Public Consultation Period for the Water Use Licence Application.

Table 8: The primary aims of the public participation period.

- To inform Interested & Affected Parties of the proposed development and application process
- To identify issues, comments and concerns raised by I & APs regarding the proposed project and application process
- To promote transparency and an understanding of the project and its consequences
- To serve as a structure for liaison and communication with the I & APs
- To provide local knowledge and input in identifying potential water use impacts associated with the social nature of the water use.

1. ADVERTISING OF THE PROJECT AND PROCESS

The water use licence application was advertised with the NEMA Application in the local **Swartland Gazette** on 22 November 2011. A Copy of this advertisement is attached in the .

The primary aim of the advertisement was to ensure that the entire demographic population that may be affected by the proposed project are informed of the project during the Public Participation Period

2. IDENTIFICATION OF KEY STAKEHOLDERS, GOVERNMENT DEPARTMENTS, LANDOWNERS AND I&APs.

The first step of the public consultation process was to identify the key stakeholder that should be notified and consulted throughout the consultation process. Table 15 lists the stakeholders who were notified:

Table 9: They key stakeholders and Government departments who were consulted during the public consultation process.

- National Department of Agriculture
- National Department of Environmental Affairs
- Western Cape Department of Agriculture, Land Reform and Rural Development
- Western Cape Department of Cooperative Governance, Human Settlement and Traditional Affairs
- Western Cape Department of Education
- Western Cape Department of Environmental Affairs and Nature Conservation
- Western Cape Department of Finance, Economic Development and Tourism
- Western Cape Department of Roads and Public Works
- Western Cape Department of Social Development
- Western Cape Department of Transport, Safety and Liaison
- Malmesbury Local Municipality
- Berg River CMA
- ESCOM Holdings
- Transnet.

The key stakeholders and governmental departments were consulted and informed in a letter as to the first, and associated application process. The advertisement also notified the stakeholders and Departments on how to register as an I&AP on the project.

The stakeholders and departments were all notified, via a letter, of the proposed Water Use Licence Application and the later availability of the WULA once submitted . All parties were informed to review and comment on the document once available within the given timeframe. All the comments that were received based on the NEMA and NWA advertisement were documented..

Possible affected existing lawful water users include the local farming community which will be consulted by means of the local Farmer and Irrigation Unions.

All public participation recordings will be attached in . The information is not part of the draft report as final public consultations have not been undertaken at the time of the commencement of the public review of the draft WULA documentation.

3. BRIEFING PAPER

A briefing paper document is distributed to local communities in the Malmesbury Municipal Area. The Briefing Paper was compiled in the dominant local language, Afrikaans, and provided information of the project and the consultation period.

SECTION G: MANAGEMENT AND REHABILITATION PLAN

To be completed and attached as a separate document upon completion of this WULA.

SECTION H: SENSITIVE INFORMATION

None Available to Date.

DECLARATION OF THE PROFESSIONAL ENGINEER

I hereby declare that the information submitted in this Water Use Licence Application Document is, to the best of my knowledge, correct.

SIGNED:

DESIGNATION:
APPLICANTS REFERENCE NUMBER:
DATE:

REFERENCES.

DH Environmental 2011 , T Boucher. Freshwater comment on impact of proposed abstraction, Farm 853 Malmesbury ï December 2011

MA & Associates , M. Kleynhans 2012. Saamstaan Beleggings Trust ï Water Use License Application ï Socio-Economic Impact Assessment and Adherence to Section 27 of the National Water Act, Act 36 of 1998.

Malmesbury Municipality, 2005. Integrated Development Plan for the Malmesbury Municipality.

Department of Water Affairs and Forestry, 2003. Berg River Water Management Area: Overview of Water Resource Availability and Utilisation.

Department of Water Affairs and Forestry, 2004[1]. Internal Strategic Perspective Berg River System: Overarching. Directorate: National Water Resource Planning.

Department of Water Affairs and Forestry, 2004[2] Internal Strategic Perspective: Berg River Water Management Area. Directorate: National Water Resource Planning.

Department of Water Affairs and Forestry, 2004[2] River Health Programme: Berg River Water Management Area. Directorate: Diep River

West Coast District Municipality.2004. Integrated Development Plan for the West Coast District Municipality 2nd Review.

West Coast District Municipality.2012-2016. Integrated Development Plan for the West Coast District Municipality

Swartland Municipality Municipality.2012-2017. Integrated Development Plan for the Swartland Municipality .

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