Department of Water and Sanitation

NATIONAL WATER RESOURCE INFRASTRUCTURE (NWRI)

Resource Management Plan

BERG RIVER DAM

REPORT – Volume 4 of 5

December 2016

WATER IS LIFE - SANITATION IS DIGNITY

water & sanitation

Department:
Water and Sanitation
REPUBLIC OF SOUTH AFRICA

2030 NDP

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- Department of Water and Sanitation;
- Department of Environmental Affairs;
- Department of Public Works;
- Department of Transport;
- Department of Economic Development, Finance and Tourism;
- Department of Agriculture Forestry and Fisheries;
- South African Heritage Resource Agency;
- Department of Rural Development and Land Reform;
- Stellenbosch Local Municipality;
- Cape Winelands District Municipality;
- Trans-Caledon Tunnel Authority;
- Cape Nature;
- Franschhoek Tourism;
- Adjacent Land Owners;
- Cape Wineland Biosphere Reserve;
- Energy Events;
- Franschhoek Rural Development Forum;
- Franschhoek Small Business Association;
- Franschhoek Empowerment and Conservation Trust;
- Natural Healers Cooperation (NHC);
- Khoi-san Organisation; and
- The Community members of La Motte, Groendal, Wemmershoek and Franschhoek.

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Review Period	Month	Year				
Annual Review of Business Plan	December	2018[1]	2019	2020	2021	2022
Five (5) Yearly Review of RMP	December	2022				

[1] The implementation of the RMP and BP requires a year budget planning prior to operationalisation.

AMENDMENTS PAGE

Revision No	Description	Date
1	Draft RMP for DWS Review	08/10/2015
2	Draft RMP for Public Review	09/11/2015
3	Final Draft RMP for DWS Review	11/04/2016
4	Final RMP for DWS Approval	16/08/2016
5	Final RMP for DWS Approval	30/11/2016
6	Final RMP for DWS Approval	14/12/2016

LIST OF ACRONYMS

ADU	Animal Demography Unit
AtoN	Aid(s) to Navigation
BID	Background Information Document
BP	Business Plan
BWP	Berg Water Project
CATHSSETA	Culture, Arts, Tourism, Hospitality, Sport Sector, Education and Training Authority
CD: IO MANCO	Chief Director: Infrastructure Operations Management Committee
CIWSP	Co-operative Inland Waterways Safety Programme
CoGTA	Department of Corporative Governance and Traditional Affairs
CPSI	Centre for Public Service Innovation
CWDM	Cape Winelands District Municipality
DAFF	Department of Agriculture, Forestry and Fisheries
DEA	Department of Environmental Affairs
DHS	Department of Human Settlements
DoT	Department of Transport
DPW	Department of Public Works
DRDLR	Department of Rural Development and Land Reform
DSR	Department of Sports and Recreation
DWAF	Department of Water Affairs and Forestry
DWS	Department of Water and Sanitation
ECC	Effective Carrying Capacity
EMF	Environmental Management Framework
FSL	Full Supply Level
GIAMA	Government Immovable Asset Management Act
GP	Guideline Program
GPS	Global Positioning System
GVD	Gross Value Added
GWWs	Government Waterworks
I&APs	Interested and Affected Parties
IA	Implementing Agency
IALA	International Association of Marine Aids to Navigation and Lighthouse Authorities
IDP	Integrated Development Plan
IEE	Integrated Environmental Engineering
IRMP	Integrated Resource Management Plan
KPA	Key Performance Area
LAAP	Local Accountable AtoN Parties
LED	Local Economic Development
MOA	Memorandum of Agreement
NDT	National Department of Tourism
NEMA	National Environment Management Act
NEMPAA	National Environmental Management: Protected Areas Act
NPSC	National Project Steering Committee
NT	National Treasury
NWA	National Water Act
NWRI	National Water Resource Infrastructure

NWRS	National Water Resource Strategy
OMC	Operations Management Committee
OP	Policy Program
PCC	Physical Carrying Capacity
PP	Public Participation
PPP	Public Private Partnership
PSP	Professional Service Provider
QDS	Quarter Degree Square
RCC	Real Carrying Capacity
RF	Rotation Factor
RMP	Resource Management Plan
ROD	Record of Decision
SAMSA	South African Maritime Safety Authority
SAPS	South African Police Service
SASCOC	South African Sports Confederation and Olympic Committee
SDF	Spatial Development Framework
SLM	Stellenbosch Local Municipality
SUP	Sustainable Utilisation Plan
SWOT	Strengths, Weaknesses, Opportunities, Threats
TCTA	Trans-Caledon Tunnel Authority
TP	Tourism Potential
WCWSS	Western Cape Water Supply System
WEPWP	Western Cape Expanded Public Works Programme
WfW	Working for Water

EXECUTIVE SUMMARY

Mandate: The Department of Water and Sanitation (DWS), through the National Water Act, 1998 (Act No. 36 of 1998), is mandated to protect aquatic and associated ecosystems and their biological diversity. The Minister of Water and Sanitation, as the custodian of the nation's water resources must ensure that the Government Waterworks (GWWs), including Berg River Dam, are protected, used, developed, managed and controlled in a sustainable manner, for the benefit of all. To assist the Minister in attaining the mandate, and to ensure that access to, and use of, the dam is equitable, the DWS initiated and commissioned the development of the Resource Management Plan (RMP) for Berg River Dam.

Purpose of the RMP: The RMP is a plan which aims to regulate access and the recreational utilisation of a water resource and the surrounding state land, in ways which promote community participation and beneficiation, environmental conservation and unlock socio-economic potential of the water resource.

According to DWAF (2006), the use and management of the GWWs for recreation purpose needs to be based on Integrated Resource Management Plan (IRMP) included within the RMP.

Location of the dam: Berg River Dam is a rockfill and reinforced concrete face type of dam which impounds Berg River and the Wolwekloof River. It falls under Wards 1 and 3 within the jurisdiction of the Stellenbosch Local Municipality (SLM), which forms part of the Cape Winelands District Municipality (CWDM) in the Western Cape Province, South Africa. Its GPS coordinates are: **33°55'05.60"S**; **19°03'32.85"E**.

Purpose of the dam: The primary purpose of Berg River Dam is to provide raw water for irrigation, and domestic use.

The dam also currently offers recreational activities such as hiking, trail running, mountain biking, etc. Several organised events are held at the dam including triathlon competition, energy events competition, etc.

Dam ownership and management: Berg River Dam is owned and operated by the DWS. There are two (2) official access areas at the dam, where one is located next to the dam wall and the other one is at the Bells Lodge.

There is currently no institutional structure to manage the recreational use of the dam. However, the structure has been proposed in the RMP. The recreational institutional structure is necessary for the effective management of the Berg River Dam for recreational purposes.

Stakeholder engagement: The success of the development and implementation of the RMP depends on the role players and their level of participation. It is thus recognized that different roles and responsibilities of the stakeholders [Authorities and Interested and Affected Parties (I&APs)], their relationship towards each other and the steps in the planning procedure are imperative in the successful development of the RMP. As such, proper consultation with the public was done in order to help in producing a credible RMP.

DWAF's Guidelines for Public Participation (2001) outlines three (3) broad phases for public participation namely the **Planning, Participation** and **Exit phase**.

During the **Planning phase** a site inspection was conducted and literature reviewed in order to gather baseline information about the dam. A process was also established to get into contact with the I&APs and relevant authorities to

ensure co-operative interests and support in the RMP project.

The **Participation phase** entailed three (3) important aspects, namely:

- Informing stakeholders about the RMP project;
- Meeting the stakeholders to present the RMP process; and
- Giving Feedback in the form of meeting minutes, follow-up emails, telephonic and direct communication.

During the **Exit phase**, a draft RMP was presented to the stakeholders for comment and inputs. The Exit phase entailed two (2) important aspects, namely:

- Ensuring that all goals, challenges, concerns, objectives and the vision of the dam are identified and documented in the RMP; and
- Officially ending the public participation process.

Identified objectives and vision: During the Authority and Public Meetings issues of concerns were raised from which common objectives were identified and a vision for the dam, for a period of 20 years, were formulated by the stakeholders.

The identified key common objectives are:

- To have the dam catchment free of Alien Invasive Vegetation in order to support the proposed recreational activities and to maintain the native ecological aspect of the area;
- To prevent and mitigate soil erosion and visual pollution at the dam;
- To preserve and maintain the high standard of water quality of the dam;
- To identify, acknowledge and conserve resources of archaeological significance within the dam basin, and below the dam wall;
- To identify, acknowledge and conserve resources of archaeological significance within the dam basin, and below the dam wall;
- To compile a Zoning Plan which will integrate conservation, recreation and development whilst not retarding the primary functions of the dam;
- To promote, accommodate and manage a variety of activities and facilities within the dam basin in a manner that enhances the user's experience and minimizes the impact on the resource;
- To provide equitable, compactable and safe access control at the dam;
- To ensure that the organized events are well planned and managed, to meets the participant's expectations as well as to ensure compliance with Biodiversity Conservation Legislations;
- To uplift the Local Economy and increase Benefit Flows to the surrounding communities through community empowerment and job creation; and
- To establish an effective Institutional Structure that can manage the use of water for recreational purpose in an acceptable manner, which is also representative of all the relevant stakeholders.

A vision for the dam, for a period of 20 years, was formulated by stakeholders to be as follows:

"To promote the sustainable utilisation of Berg River Dam, unlock the economic and tourism potential for the dam, promote community participation and beneficiation, maintain high standard of water quality as well as to have the dam catchment free of Alien Invasive Vegetation".

The aforementioned objectives and vision are aimed at supporting the attainment of DWS's vision, mission and objectives.

Tourism Potential: The following were identified as some of the potential recreational developments at the Berg River Dam that could enhance tourist attraction:

- Establishment of a heritage site at the Driefontein Farmhouse.
- Development of suitable trails that will be effectively managed and monitored.
- Provision of suitable day visit areas.
- Establishment of a Yatch Club.

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CHAPTER 1: INTRODUCTION

1.1 BACKGROUND OF BERG RIVER DAM

Berg River Dam is a rockfill and reinforced concrete face type of dam, which impounds Berg River and the Wolwekloof River. It falls under Wards 1 and 3 within the jurisdiction of the Stellenbosch Local Municipality (SLM), which forms part of the Cape Winelands District Municipality (CWDM) in the Western Cape Province, South Africa. Its GPS coordinates are: **33°55'05.60"**S and **19°03'32.85"**E. It was the first dam in South Africa to be designed, constructed and operated in accordance with the guidelines of the World Commission on Dams (DWS, 2008), and it is owned and operated by DWS.

The dam falls within G10A quaternary catchment area, which is the smallest quaternary within Berg River Catchment Area. The dam was completed in 2007 and its primary purpose is to provide water for domestic and agricultural use.

The dam is the key feature of the Berg Water Project (BWP) which was designed to capture the winter rainfall and store it for supply to Cape Town during the dry summer months (DWA, 2007).

The dam was designed to maintain the ecological integrity of the Berg River through the release of specific volumes of water for this purpose. The outlet works of the dam have been designed for a peak release of up to 200 m^3 per second, making it the first dam in South Africa where provision is made for flood releases for environmental purposes (DWA, 2007). **Table 1** summarizes the dam profile.

The study area for the RMP of the Berg River Dam encompasses the State land as illustrated on the attached Berg River Dam purchased boundary map in **Figure 2**.

Table 1: Berg River Dam Profile

Berg River Dam Profile	
Location	South Africa
Province	Western Cape
District Municipality	Cape Winelands District Municipality
Local Municipality	Stellenbosch Local Municipality
Nearest Town	Franschhoek
Completion Year	2007
Coordinates	33°55'05.60"S; 19°03'32.85"E
Purpose	Irrigation and Domestic Use
Owner	DWS
Water Management Area	Berg River Catchment Area
Quaternary Catchment	G10A
Catchment Area (km^2)	172
River	Berg River and Wolwekloof River
Capacity (m^3)	130 000 000
Surface Area (ha)	537
Wall type	Rockfill and Reinforced Concrete Face
Wall Height (m)	68
Length (m)	929

Source: Department of Water Affairs (List of registered dams; March 2013)

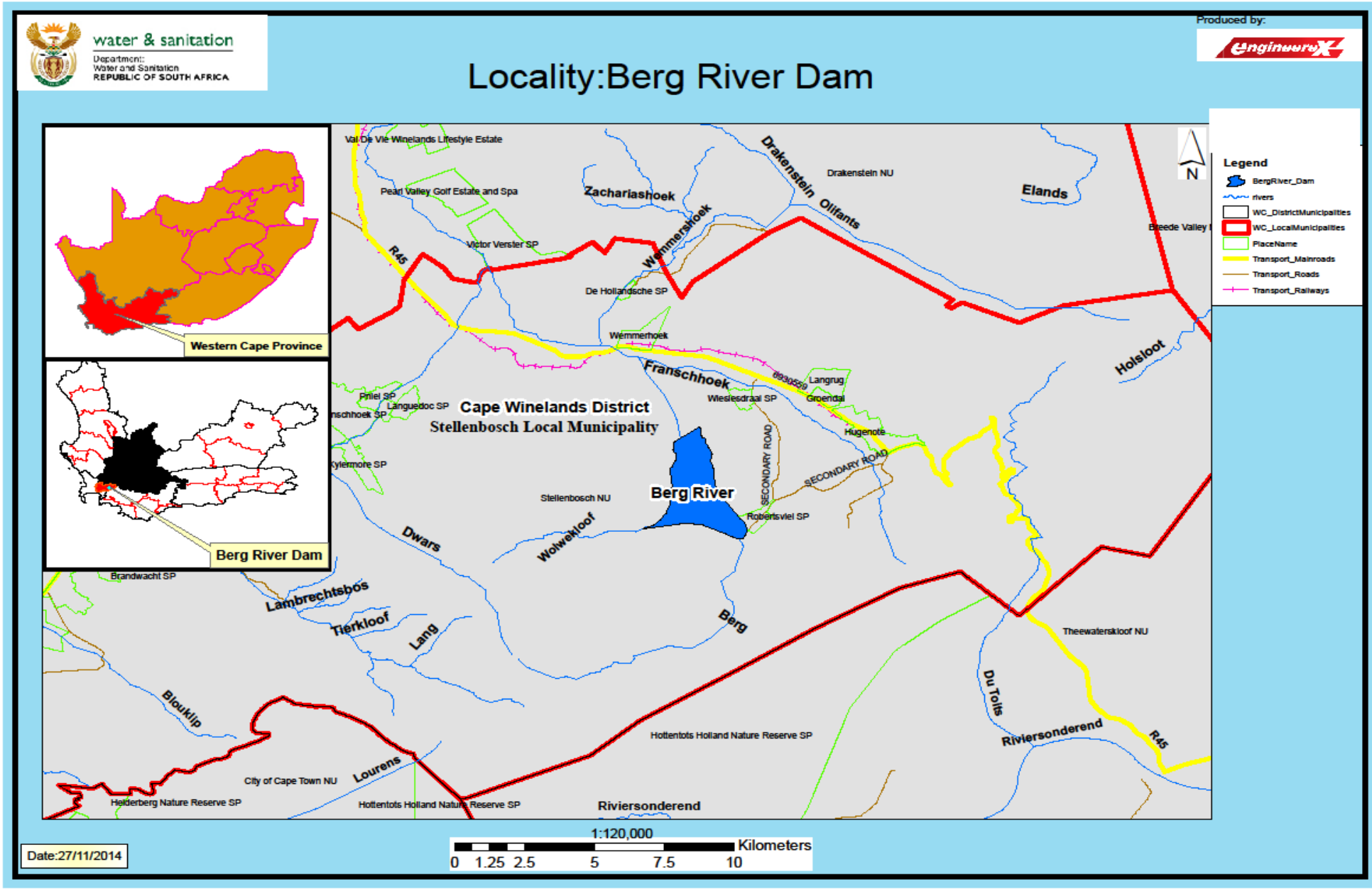

Figure 1: Locality Map for Berg River Dam

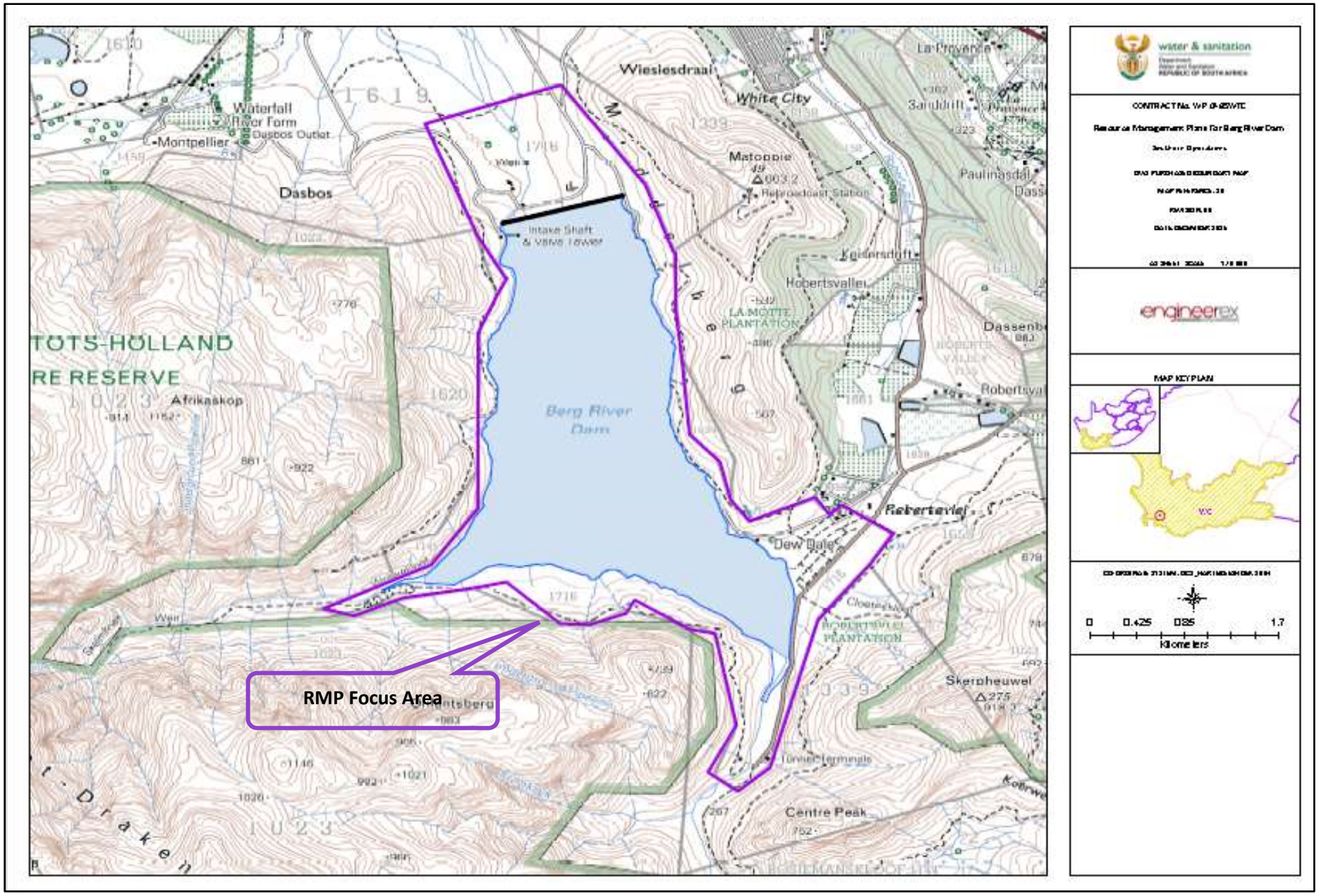

Figure 2: Purchased Boundary Map for Berg River Dam (NWIR: SO, Survey Services, August 2014)

1.2 BIOPHYSICAL ENVIRONMENT

1.2.1 Climate

The Berg River Dam falls within the winter rainfall region of the South-Western Cape and it has an annual precipitation level of 1914 mm and mean annual runoff of 139 X 106 m^3 (Mucina and Rutherford, 2006). According to Clark (2007), precipitation is generally in the form of frontal rain wherein little rain falls during summer and with the rainy season extending from April through to October.

The mean annual temperature ranges between approximately 16°C in the east central to about 18°C towards the west coast. Maximum temperatures within the area are experienced in January and minimum temperatures usually occur in July. According to Berg River Dam Sustainable Utilisation Plan (SUP) (2007), the relative humidity ranges from 82 percent to 90 percent throughout the year, with the lowest humidity experienced in January/February, and the highest during June/July.

1.2.2 Flora

1.2.2.1 Terrestrial Alien Vegetation

Alien species were either intentionally or unintentionally introduced to South Africa. Some plants have been introduced with the intent of aesthetically improving public recreation areas or private properties, whilst others are introduced for ornamental or timber uses.

Berg River Dam is infested with Terrestrial Alien Plant Species such as Pompom Weeds (Campuloclinium macrocephalum) which displaces native species, thereby reducing the biological diversity around the dam.

According to the Berg River Dam SUP (2008), the area is dominated by Mountain Fynbos with Alien Invasion varying between 1% and 80%. Areas that are densely invaded include the southern section east of Wolwekloof and large parts of the western fringe, often on very steep rocky slopes. No rare or locally endemic species were recorded in any of the areas. The area was also highly modified for forestry purposes such as pine plantation, and this resulted in little Indigenous Vegetation left within the area.

Much of the pine plantations were cleared to make way for the Berg River Dam. Commercial forestry ceased to exist and was stopped in the area. Parallel to the dam's construction, Alien Vegetation was removed from the upper river catchment, significantly increasing the amount of water available for storage and for indigenous plant species (DWA, 2004). (See the attached land cover in **Figure 3**).

There are different control methods that can be applied to control the existing Terrestrial Alien Plant Species at the dam, however further studies need to be undertaken in order to determine other control methods that will be feasible for Berg River Dam.

1.2.2.2 Aquatic Alien Plant Species

According to Invasive Species South Africa there are twenty (20) Invasive Aquatic Plants in South Africa e.g. Water Hyacinth, Azolla, Parrots feather, etc. Aquatic Alien Plants Species tends to have impact on the dam as well as the recreational activities. E.g. they Interfere with or prohibit recreational activities such as swimming, fishing, and boating; give water bad taste and odor; interfere with a balanced fish population

During the study of Berg River Dam RMP, no Aquatic Alien Plant Species were identified.

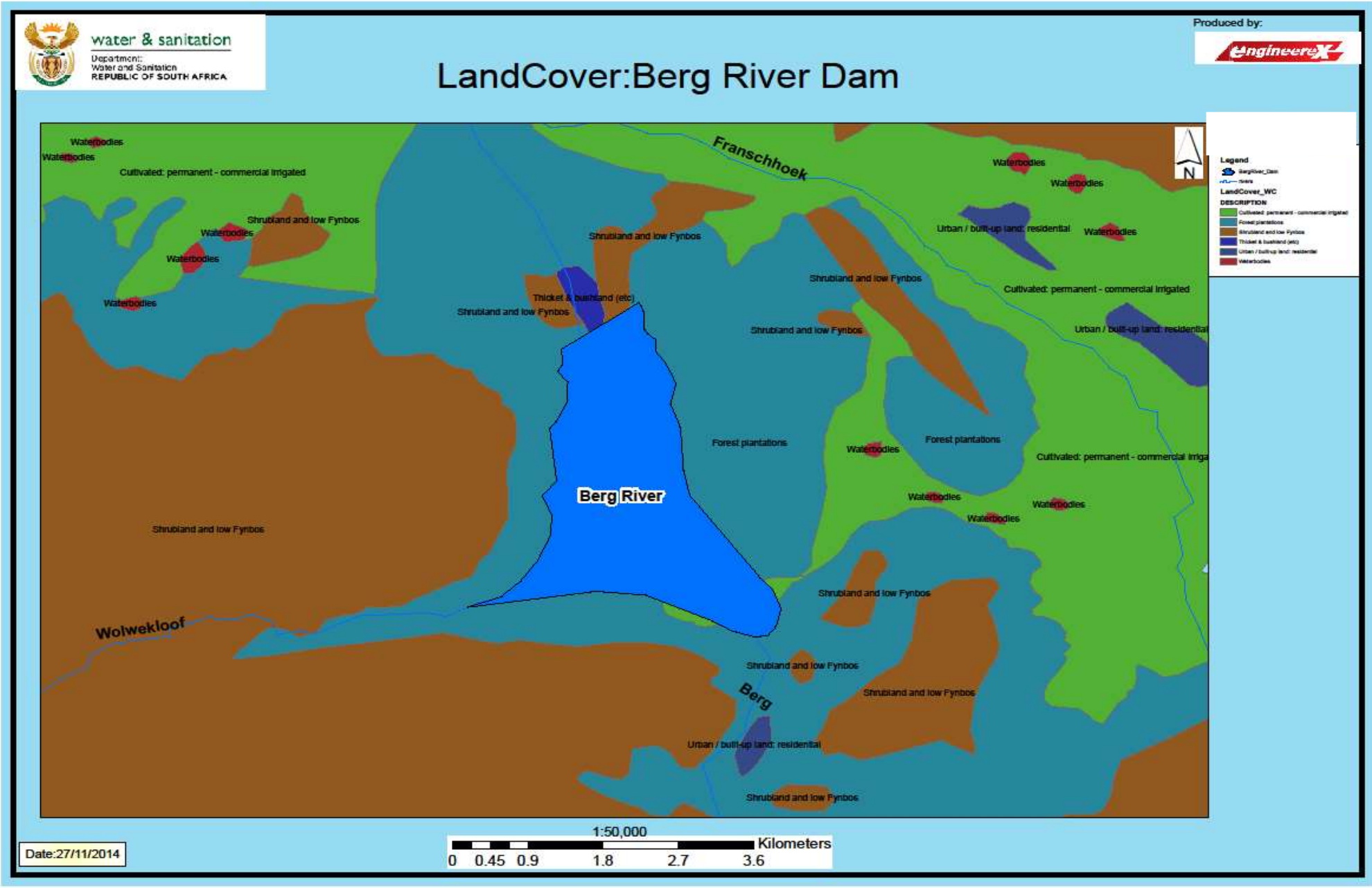

Figure 3: Land Cover Map for Berg River Dam

1.2.3 Fauna

Amphibians

According to the Avian Demography Unit (ADU), 2015 Frogmap Atlas , Fourteen (14) protected species were found in the 3319CC Quarter Degree Square (QDS) including the two (2) Near Threatened species (Marsh and Landroskop Moss frog). Refer to **Appendix A** for the identified frog list.

Reptiles

According to the (ADU, 2015), Forty seven (47) reptile species were found in the 3319CC QDS including the two (2) Near Threatened species (Hawequa Flat Gecko and Oelofsen's Girdled Lizard) and Vulnerable (Cape Dwarf Chameleon). Refer to **Appendix B** for the identified reptile list.

Fish Species

The catchment area contain some of the Endangered Endemic Fish Species such as the Cape galaxias (Galaxias zebratus) and the Berg-breede River Whitefish (Barbus andrewi). However, they have been adversely affected by unsustainable human use of the water, but mainly by expanding stocks of exotic fishes, which were originally introduced to establish a European-type fishery. Most problematic among these is the predatory Smallmouth Bass (Micropterus dolomieu).

Alien Fish

According to DWAF (2004), "Rainbow trout (Oncorhynchus mykiss) and brown trout (Salmo trutta) were introduced into the Berg River mainstream during the early 1900's by anglers.

Other Invasive Alien Fish Species stocked into the river later were largemouth bass (Micropterus salmoides), smallmouth bass (M. dolomieu), carp (Cyprinus carpio), banded tilapia (Tilapia sparrmanii), Mozambique tilapia (Oreochromis mossambicus) and bluegill sunfish (Lepomis macrochirus). During recent years, anglers illegally stocked sharptooth catfish (Clarias gariepinus) into the river. Alien Fish impact on indigenous fish in three ways; they prey on them (e.g. smallmouth bass), compete with them for food (e.g. banded and Mozambique tilapia), or degrade their habitat (e.g. carp).

Mammals

There are forty nine (49) mammal species were recorded within 3319CC QDS (ADU, 2015) including Four (4) Near Threatened species (Fynbos Golden Mole, Honey Badger, Cape Horseshoe Bat, Geoffroy's Horseshoe Bat) and Two (2) Vulnerable (Bontebok and Cape Mountain Zebra). Refer to **Appendix C** for the identified Mammal list.

According to DWAF (2004), Grey Squirrel is one of the Invasive Mammals that was introduced to the Western Cape around 1900 via England by Cecil John Rhodes. They are considered to be more dominant in Alien Tree plantations and urban areas. The squirrel is, however, not considered a serious ecological or agricultural problem.

1.2.4 Topography

According to Mucina et al (2006), the study area is classified within Boland Granite Region and is characterized by moderately undulating plains and hills, varying from extensive deep soils, to localized deep soils between large granite domes and sheets (see **Figure 4**).

Figure 4: Topography of the area

The dam consists of steep cliffs which is underlain almost entirely by strata of Table Mountain Group, Cape Supergroup, sandstone and interbedded siltstone. The slope map is attached in **Figure 5**.

1.2.5 Geology and Soil

The area is underlain by Cape granite suite rocks (Paardeberg, Paarl, Stellenbosch and Wellington Plutons) and it is characterized by soils with minimal development, usually shallow, on hard or weathering rock with or without intermittent diverse soils. The soil is classified as freely drained and structureless soils and may have restricted soil depth, excessive drainage, high erodibility and low base structure (Mucina, et al. 2006).

According to Berg Water Project (2007), the dam is underlain almost entirely by strata of Table Mountain Group, Cape Supergroup, sandstone and interbedded siltstone, which overlie unconformable on the older Cape Granites. Geology map is attached in **Figure 6**.

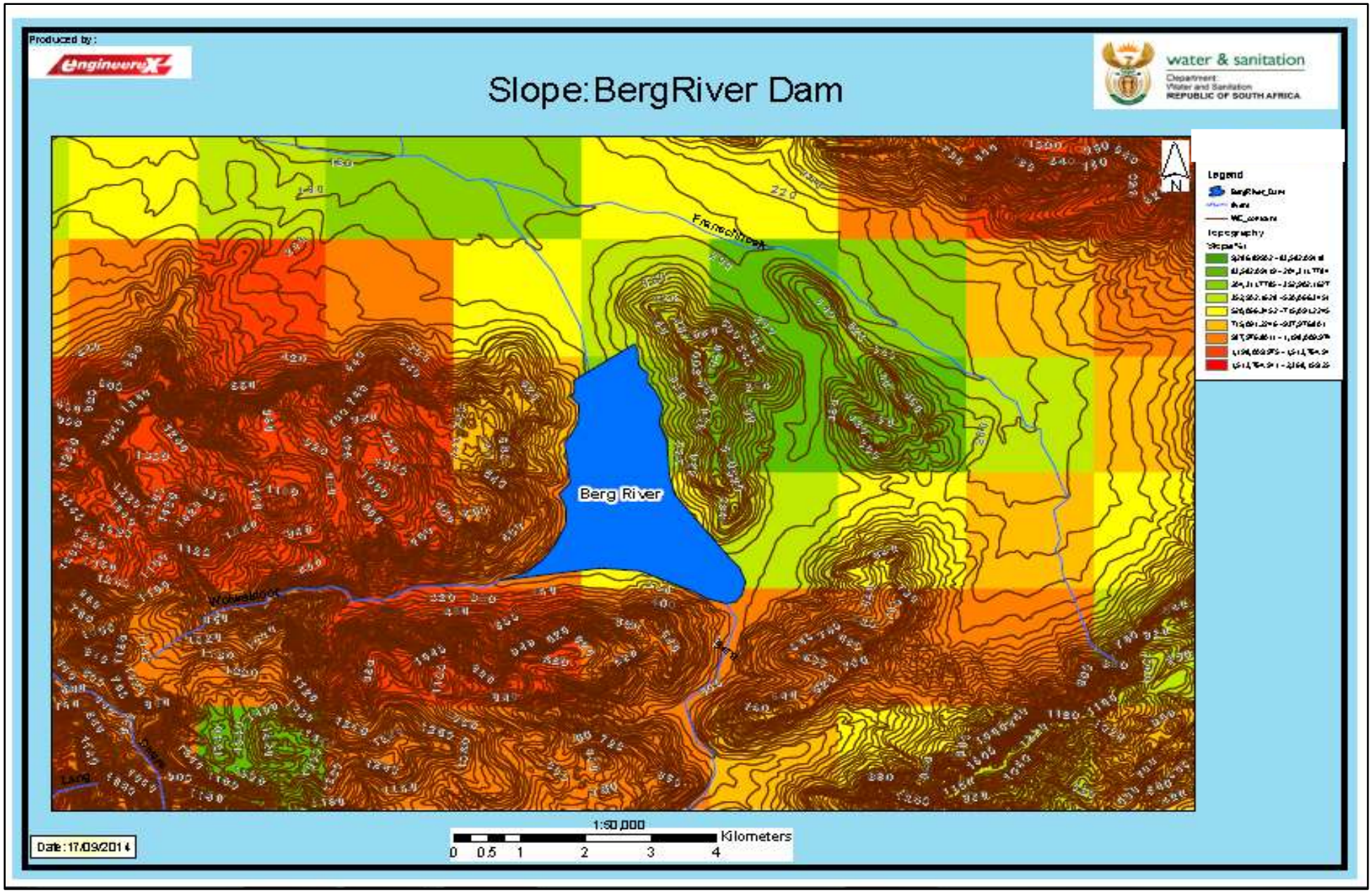

Figure 5: Slope map of Berg River Dam

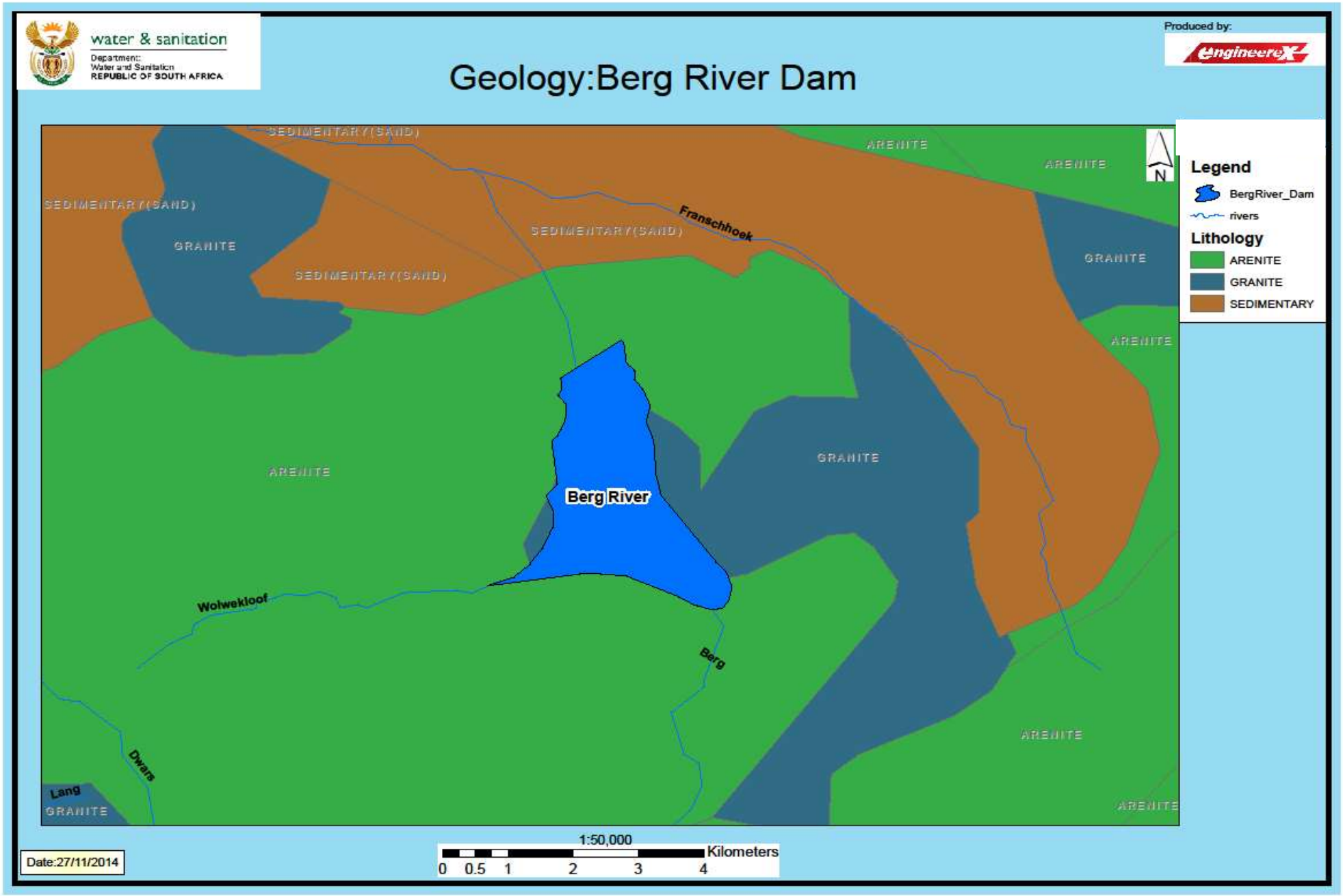

Figure 6: Geology Map for Berg River Dam

1.2.6 Historical, Archaeological and Cultural Resources

According to the Vernacular Architecture Society of South Africa (VASS) 2006, the dam is situated in an area with culturally significant artefacts. The Driefontein Farmhouse is situated below the dam wall and it is defined by the following geographical coordinates: 33°54.423'S and 19° 03.519 E.

Driefontein is the oldest of three (3) farms (Skuifraam and Bergriviershoek) situated along this stretch of the Berg River. It is an example of a late 18th century farm situated in the Berg River Valley which represents a cultural landscape and a life style associated with stock farming. Although only the foundations of the dwelling were recovered, these remains were relatively well preserved, and are an example of a longhouse consisting of a wine cellar and a stable wagon house. Refer to **Appendix D** for the floor plan of Driefontein longhouse.

1.2.7 Hydrology

1.2.7.1 Surface Water

The dam lies within the Berg River Dam Catchment Area and it impounds the Berg and Wolwekloof River. According to the SUP (2008), the dam consists of two water levels namely the Full Supply Level (FSL) which the dam can reach at the end of an average winter rainfall period and the median level which is the water level that the dam can reach at the end of an average summer season.

Figure 7 illustrates the fluctuations of the dam's water level over a year (DWS, Western Cape Province State of Dams).

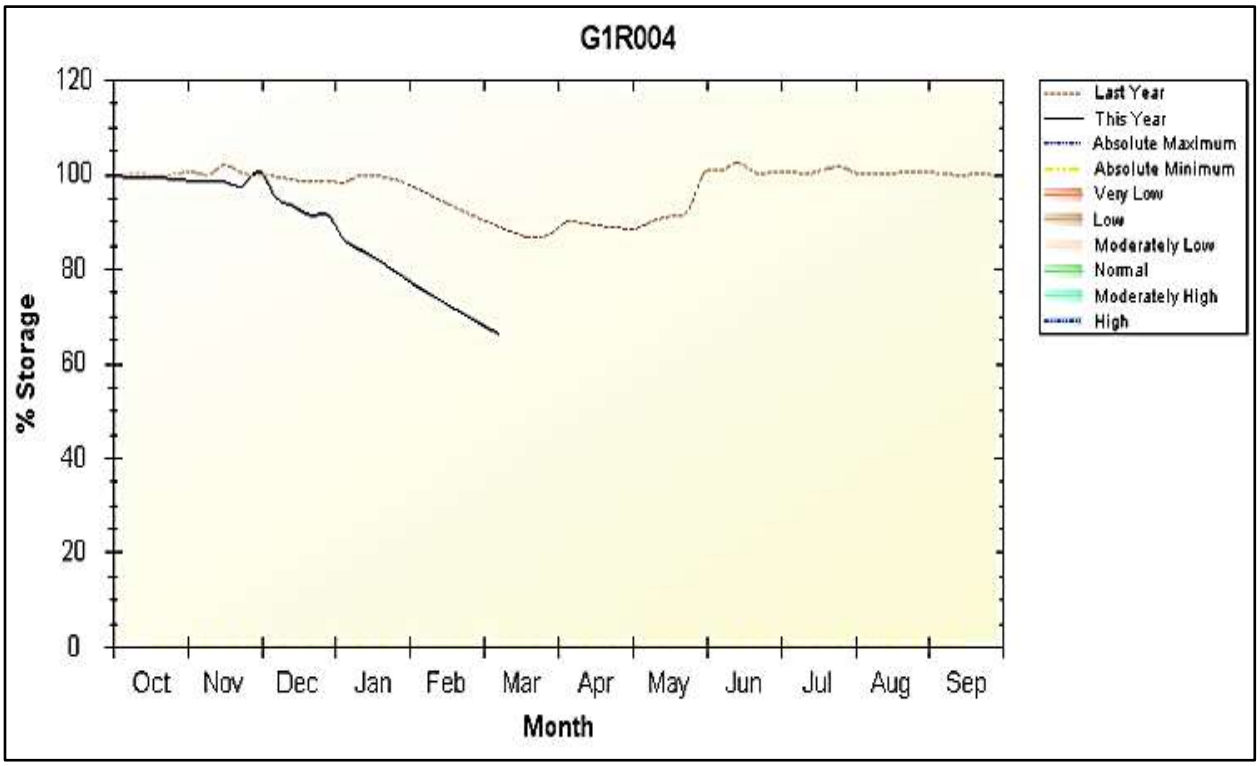

Figure 7: Fluctuations of the dam's water level over a year (DWS, 2015)

1.2.7.2 Water Quality

The term water quality is used to describe the physical, chemical, biological and aesthetic properties of water, all of which determine its fitness for use and its ability to maintain the health of aquatic organisms (DWAF, 1996). Water quality therefore expresses the suitability of water to sustain various uses or processes. Any particular use will have certain requirements for the physical, chemical or biological characteristics of water. Consequently, water quality can be defined by a range of variables which limit water use. Human health is directly affected by the proximity, availability and quality of water resources.

According to DWAF (2004), the dam is located in an area with naturally good water quality. The water quality data for the dam was obtained from DWS (Resource Quality Services) and the results concluded that the water quality of Berg River Dam is pristine and is suitable for recreational purposes as stipulated in **Table 2**.

Table 2: Water Quality variables at Berg River Dam (DWS RQS, 2014)

Characteristics	Tests Results	Water Quality Target Range (Recreational Purposes)	Description
Clarity (Secchi disc, m)	-	3.0	No information available.
pH (pH units)	7.2	6.5 - 8.5	Minimal eye irritation occurs. The pH of water is well within Quality Range and the buffering capacity of the lachrymal fluid of the human eye. Skin, ear and mucous membrane irritation absent.
Algae (Chlorophyll-a method, µg/chl-a)	N/A	0 - 15	No information available.
Ammonia (mg/L)	0.001	0 – 1.0	No health and or aesthetic effects can occur.
Magnesium (mg/L)	1.3	0 - 30	No health effects.
Potassium (mg/L)	1.2	0 - 50	No aesthetic or health effects.
Sulphate (mg/l)	4.8	0 - 200	No health or aesthetic effects are Experienced.
Electrical Conductivity (mS/m)	12.7	0 - 70	No health effects associated with electrical conductivity of water are expected < 45 mS/m

1.3 BUILT ENVIRONMENT

1.3.1 Infrastructure

The main infrastructures at the dam includes:

- Housing (Bells Lodge) and Offices for DWS;
- Operators Offices; and
- Amphitheatre.

1.3.2 Transport Networks

The dam can be accessed by taking the N1 road from Cape Town towards Paarl. Refer to **Figure 8** below for road networks around the dam.

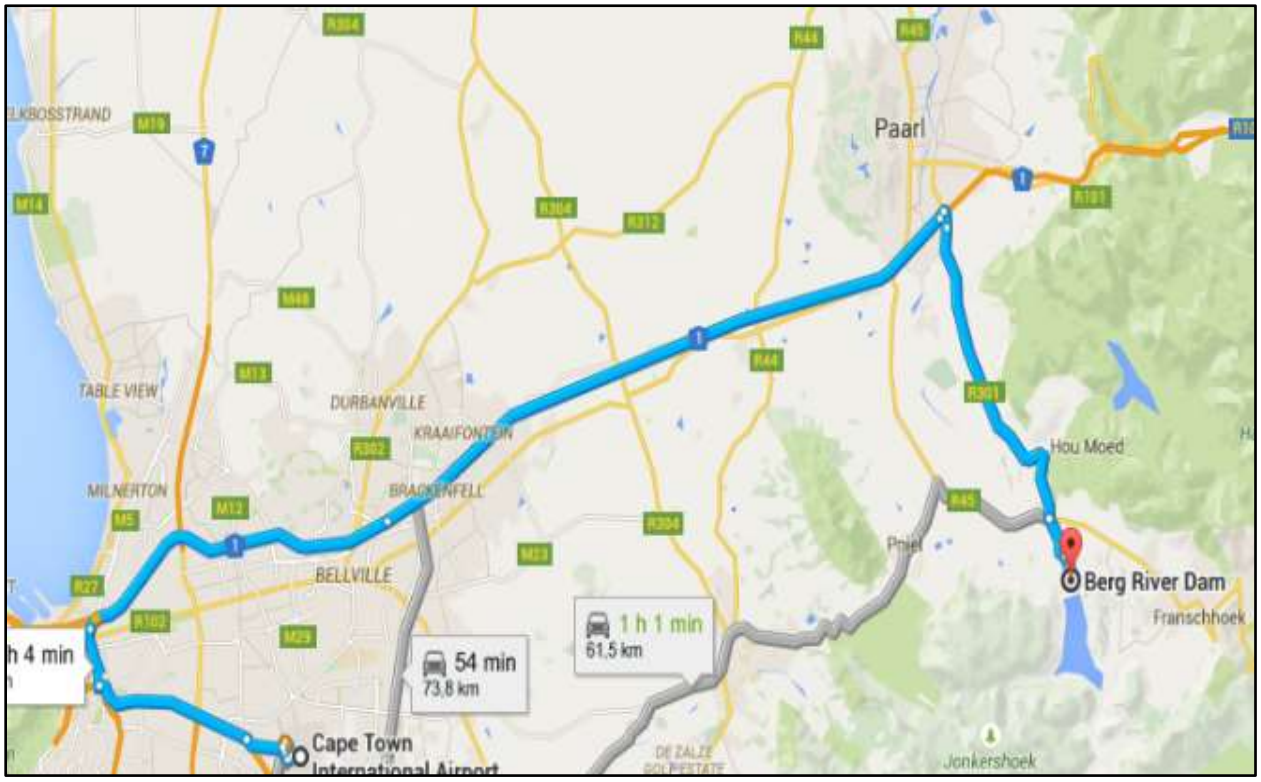

Figure 8: Road Networks around the dam

1.4 USES AND USERS OF THE DAM

1.4.1 Primary Function of the Dam

1.4.1.1 Domestic Use

The dam was designed to capture the winter rainfall and store it for supply to Cape Town during the dry summer months. It is the key feature of the Berg Water Project (BWP) which forms an important part of the Western Cape Water Supply System (WCWSS), a bulk water infrastructure that provides water to more than 3 million people (DWA, 2007).

1.4.1.2 Irrigation Use

Land-use within the Berg River catchment comprises mainly of dryland wheat farming, livestock farming, forestry (pine) plantations, industry, fruit farming and nature conservation. However, Cultivation of grapes and deciduous fruit is the backbone of the economy in the Berg River catchment. The dam provides irrigation water to majority of agricultural based activities within the area.

1.4.2 Secondary Use of the Dam

1.4.2.1 Recreational Use

There are different recreational activities that are currently taking place at the dam. However, some of them are being undertaken illegally which pose a threat to the dam and its users. The following recreational activities take place at the dam:

- Swimming;
- Hiking;
- Cycling; and
- Trail running.

A number of organised events are held at the dam including triathlon competition, energy events competition, etc. which involves swimming, trail running and mountain bike riding.

1.5 RECREATIONAL INSTITUTIONAL STRUCTURE

There is currently no institutional structure that is managing recreational use of the dam. However, there is an Institutional structure that was established so that it can assist in terms of implementing the SUP and managing the Berg River Dam Catchment area, but it was not formalised.

A new recreational Institutional Structure will be established in accordance to the DWS Institutional Arrangements for Managing Use of Water for Recreational Purposes, in order to ensure that it is representative of all users.

1.5.1 Management of Water Surface

The management of the surface water in terms of operation of the Dam is done by DWS.

In addition to the DWS, Local Accountable AtoN Parties (LAAP) and other Bodies providing access to Government waterways and watercourses have a responsibility to ensure that the required fixed and/or floating AtoN are provided after obtaining the necessary support from DWS and thereafter the permission by SAMSA.

1.5.2 Access

There are two (2) official access gates at the dam, where one (1) is located next to the dam wall and the second one is at the Bells Lodge. However, the fence next to the dam wall has been vandalized and this has led to illegal fishing, swimming and dumping by Local Communities.

1.5.3 Event Management

Permits are currently issued by DWS prior to any event undertaken at the dam.

1.6 SAFETY

The fence surrounding the dam has been vandalized and this has led to illegal fishing, swimming and dumping by Local Communities, this is due to lack of adequate safety system in place at the dam and most concern is that the no go areas or conservation areas are not yet demarcated.

According to the SLM IDP (2015/16), an increase in crime has an influence on various aspects, such as; Investor decisions, Business and industry profits, Morale of upcoming youth, Government spending and Quality of life. It also has a negative impact on both socially and economically. **Figure 9** illustrates the Total serious crimes per police stations within the SLM (2011). It further indicates that the nearest police station to the dam (Franschhoek) has a crime rate of 5%, as a result adequate security systems are required at the dam in order to protect the dam and its users.

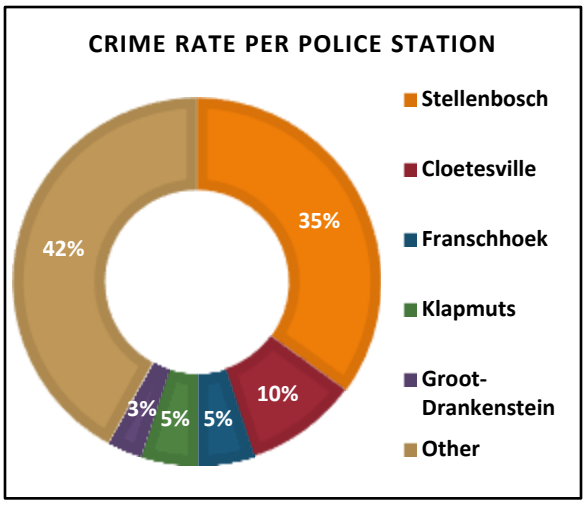

Figure 9: Total serious crimes per police stations within the SLM

1.6.1 Safety of Navigation

There is currently no adequate, standardised and harmonised fixed and floating Aids to Navigation (AtoN) [2] and Demarcation Markers in place.

[2] A marine Aid to Navigation (AtoN) is defined by the International Association of Marine Aids to Navigation and Lighthouse Authorities (IALA) as "A device or system external to vessels that is designed and operated to enhance the safe and efficient navigation of vessels and/or vessel traffic".

1.6.2 Incident Management

There is no specific incident management system in place to ensure that incidents are responded to in a co-ordinated manner.

1.7 SOCIO-ECONOMIC ENVIRONMENT

1.7.1 Social Audit

The main purpose of social audit is to examine the general status of the study area and to determine issues that need to be addressed when developing the RMP in order to overcome potential difficulties in an area. The study area falls within Ward 1 and 3 of the SLM as shown in **Figure 10**. An understanding of socio-economic conditions of Ward 1 and 3 can be used at a later stage to determine the impact of a RMP in the area in terms of changed socio-economic conditions. The socio economic status of Ward 2 was also considered as it is also situated close to the dam.

A social Audit which focused on the population composition of the ward, Education level, employment status and monthly income was undertaken and is presented in section 1.7.1.1 to 1.7.1.4, respectively.

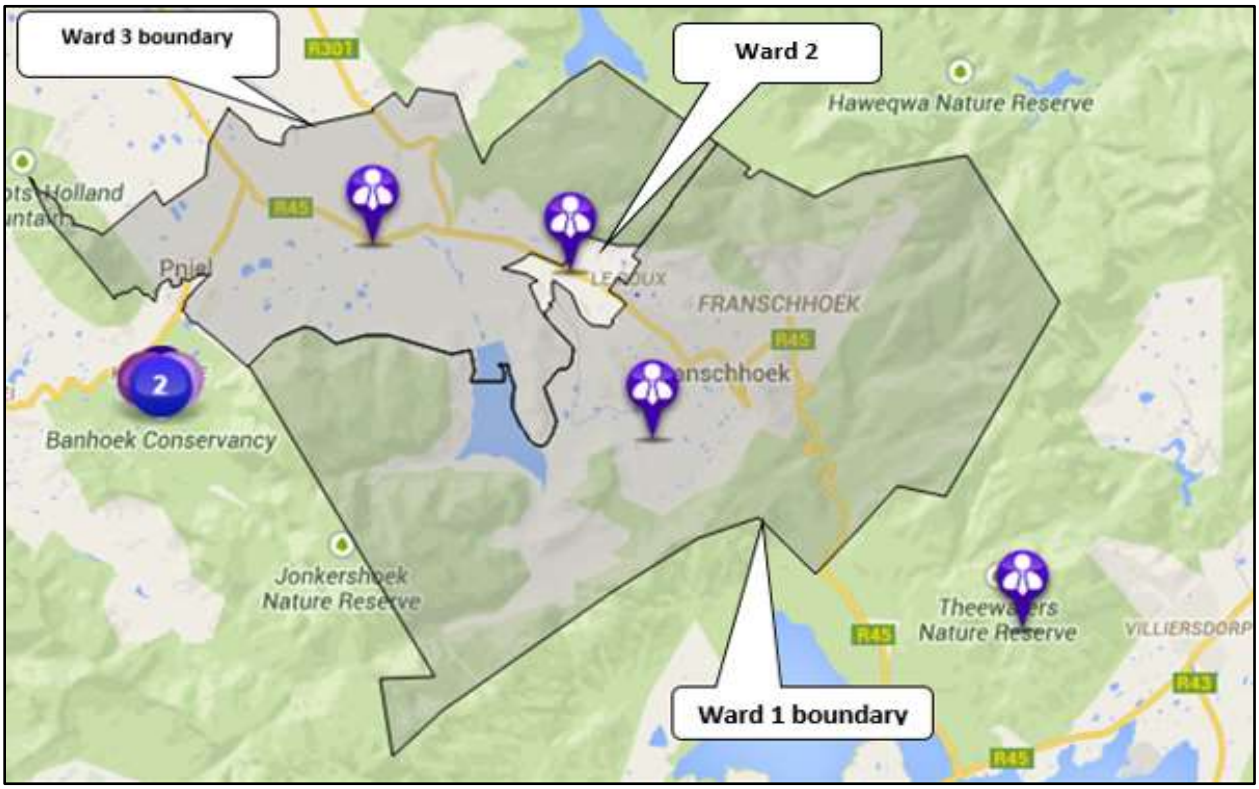

Figure 10: Stellenbosch Local Municipality Ward 1, 2 and 3

1.7.1.1 Population dynamics

According to Census (2011), SLM has a total population of 155 733, where a portion of Ward 1 contains 7%, 4% for Ward 2 and 5% for Ward 3. Job opportunities can be generated easily since Ward 1 and 3 of SLM only contains less percentage of the population size as shown in **Figure 11**.

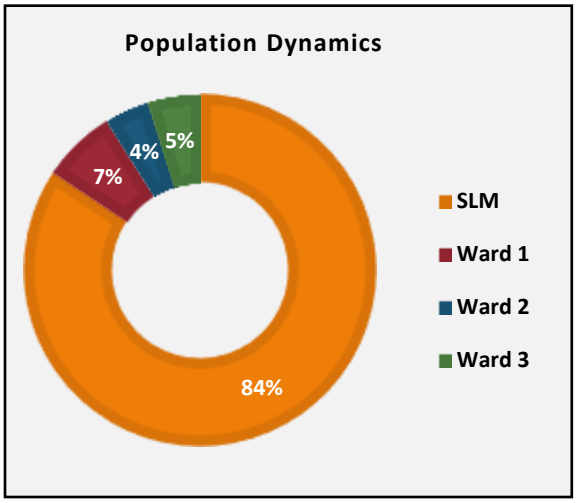

Figure 11: Population Dynamics of Ward 1, 2 and 3

1.7.1.2 Education level

The Census (2011) breaks down educational levels into each year of study. For the purpose of this report, the educational levels are grouped into key schooling, higher educational and no schooling categories.

As illustrated by the table and chart below, only 3% of the population has furthered their studies in higher institutions.

Table 3: Education level of Ward 1, 2 and 3 (2011)

Description	Ward 1 (2011)	Ward 2 (2011)	Ward 3 (2011)
Primary level	3,596	2,343	2,491
Secondary level	6,243	3,841	4,434
Higher education level	500	161	180
No schooling	387	1,171	321

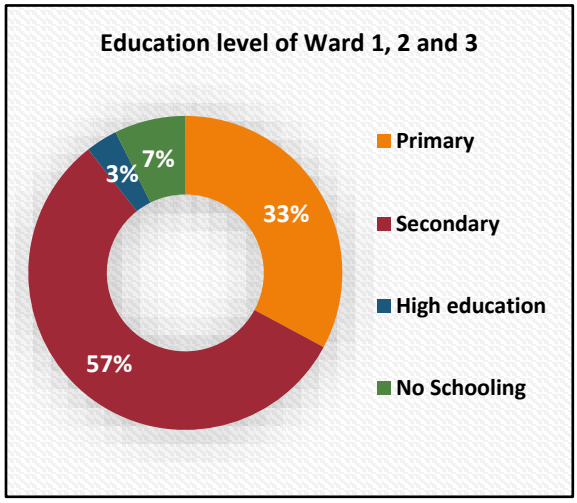

Figure 12: Ward 1, 2 and 3 educational level

1.7.1.3 Employment status

In terms of employment levels within Ward 1, 2 and 3, majority of residents are employed and only 9% of residents are unemployed. However, 21% of the residents are not economically active whereas 2% of them are discouraged work-seekers suggesting that they no longer seek to become employed (Census, 2011). Refer to **Table 4** and **Figure 13**.

Table 4: Employment status of Ward 1, 2 and 3 (2011)

Description	Ward 1 (2011)	Ward 2 (2011)	Ward 3 (2011)
Employed	4,550	2,778	3,542
Unemployed	1,070	1,083	331
Discouraged work-seekers	344	220	92
Not economically active	2,469	1,257	2,297
Age less than 15	3,956	2,183	2,689

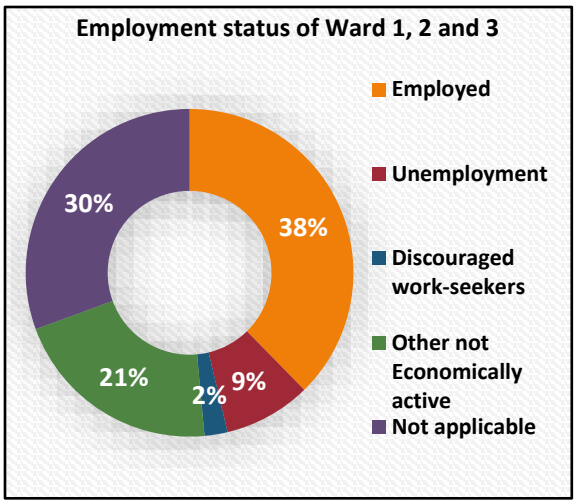

Figure 13: Employment Status of Ward 1, 2 and 3

1.7.1.4 Monthly Income

The table below show that 8869 individuals within Ward 1, 2 and 3 do not have any source of income (Census, 2011). This then requires concerted and integrated efforts by the Municipality to create decent work and sustainable livelihoods for the people. See **Figure 14**.

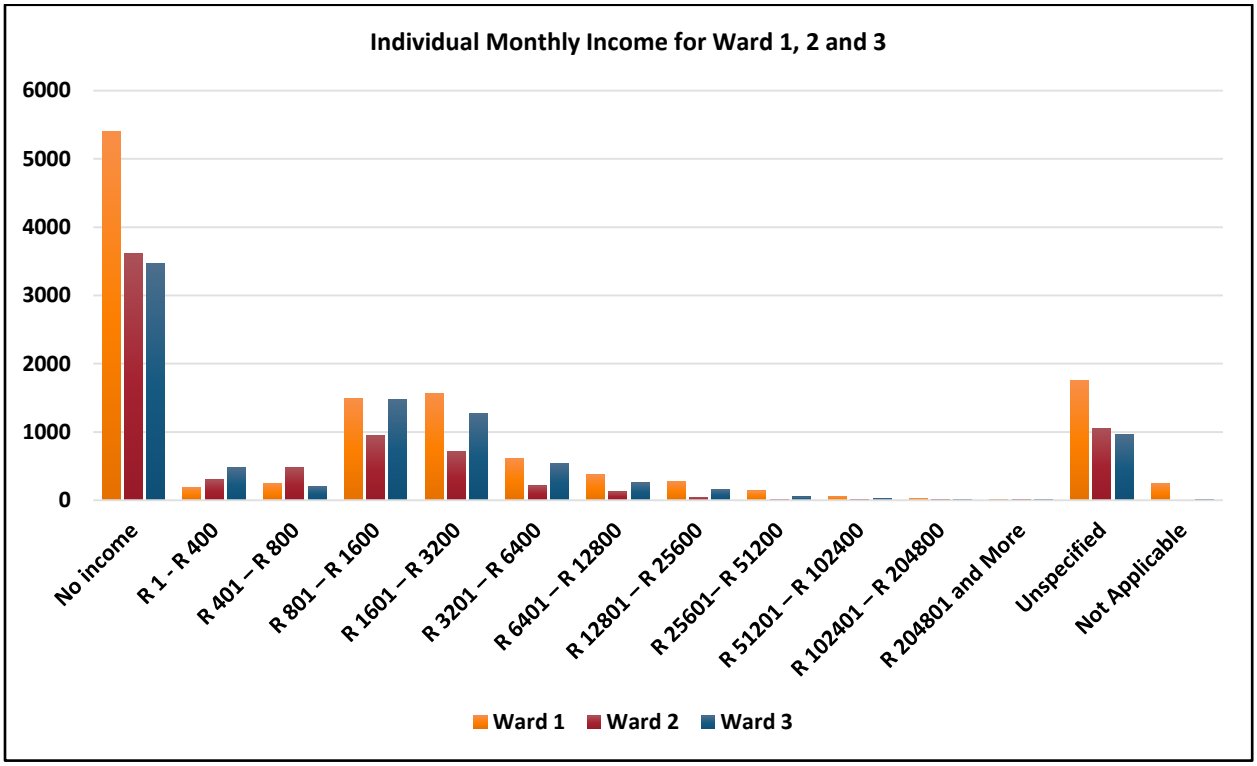

Figure 14: Individual Monthly Income within Ward 1, 2 and 3

Appendix E summarises Ward 1, 2 and 3 Versus SLM Socio-Economic profiles in a nutshell.

1.7.2 Gross Value Added

Gross Value Added (GVA) is defined as the total value of all the goods produced in a specified area during a specific period. Quantec Research classified the major sectors within the SLM into Primary sector which involves direct use of natural resources, Secondary sector involving manufacturing and Tertiary sectors, which comprises of services.

Figure 15 illustrate the SLM GVA per sector for 2013 and it shows that the greatest contribution is from Tertiary sector (Finance, insurance, real estates and business services), it further shows that there is no mining and quarrying activities within the Municipality. This data was taken from the SLM LED (2013) and the variables are explained below:

Primary Sector:

- Agriculture, forestry and fishing;
- Mining and Quarrying.

Secondary Sector:

- Manufacturing;
- Electricity; and
- Construction.

Tertiary Sector:

- Wholesale and retail, catering and accommodation;
- Transport, storage and communication;
- Finance, insurance, real estates and business services;
- Community, social and personal services; and
- General Government.

The RMP for Berg River Dam can contribute to the growth of the Municipal economic sectors, and this can be in the form of fishing, Finance, business services, catering and accommodation, Transport, and communication.

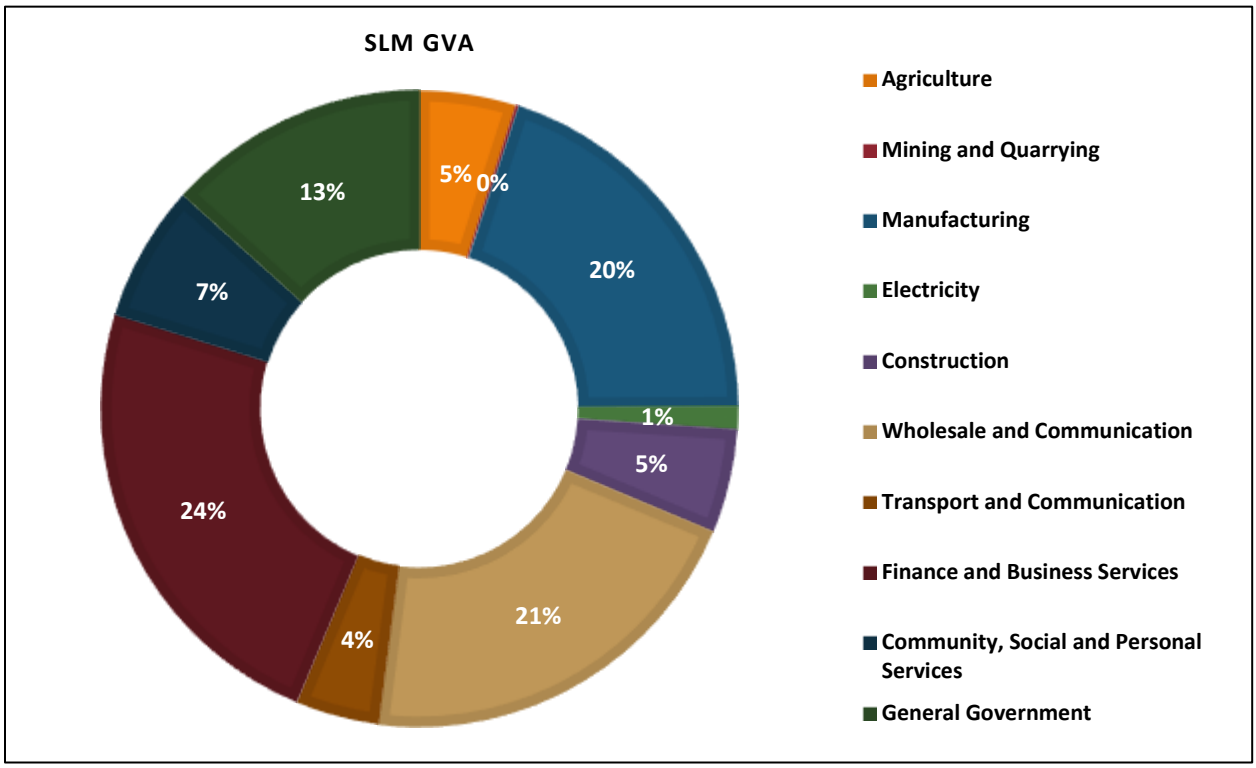

Figure 15: GVA for SLM in R million at 2013 constant prices

1.7.4 Community Beneficiation

It is DWS's belief that Local Communities should equally share the benefits emanating from the utilisation of the dam for recreational purposes, by ensuring that they have both physical access to the resource, as well as access to the water-based recreation economy.

According to DWAF (2006), by ensuring that the Local Communities move beyond merely being affected by or living close to a water resource, but rather undertaking the transition to become participants will ensure that water resources can and will be protected by the people closest to and most affected by the dam.

The community will benefit in amongst others the following ways:

- By having equitable access to the dam;
- The community needs will be addressed in an appropriate and equitable manner;
- By being safe while accessing and using the dam;
- By being given first preference when there are employment opportunities and skills development;
- Through the PPP; and
- By participating in decision-making with respect to major developments planned or proposed for the dam (through the Dam Management Committee).

CHAPTER 2: LEGISLATIVE FRAMEWORK

The RMP forms the overarching framework for the management of Berg River Dam. It is informed by relevant policy, legislation and planning documents administered by other government departments. Similarly, these government departments are required to use the RMP to inform the development of future policy, legislation and planning documents.

I. **The Constitution of the Republic of South Africa, 1996 (Act No. 108 of 1996), Section 24:** Provides that, everyone has a right to an environment that is not harmful to their health or well-being.

II. **Conservation of Agricultural Resource Act, 1983 (Act No. 43 of 1983):** Provides for control over the utilization of the natural agricultural resources of the Republic in order to promote the conservation of the soil, the water sources and the vegetation and the combating of weeds and invader plants; and for matters connected therewith. Regulation 7 and 8 within the same Act deals with the protection of wetlands and water courses, while regulations 15 and 16 deals with Alien Invasive Plant Species and bush encroachment**.**

III. **Consideration on Institutional Arrangement for Managing Use of Water for Recreational Purposes (DWAF, 2003):** It outlines some of the institutional issues at a local level and makes recommendations about the conditions under which different Institution Management arrangements may be considered.

IV. **General Public Participation Guidelines (DWAF, 2001):** Public Participation refers to the ongoing interaction between Role Players and all stakeholders that is aimed at improving decision making during planning, design, implementation and evaluation of all projects within the state, this includes the proposed development of the RMP.

V. **Government Immovable Asset Management Act, 2007 (Act No. 19 of 2007):** To provide for a uniform framework for the management of an immovable asset that is held or used by a national or provincial department; to ensure the coordination of the use of an immovable asset with the service delivery objectives of a national or provincial department; to provide for issuing of guidelines and minimum standards in respect of immovable asset management by a national or provincial department; and to provide for matters incidental thereto.

VI. **Government Notice R654 dated 1 May 1964, in terms of the Water Act, 1956 (Act No. 54 of 1956):** Regulates access and use of government waterworks for recreational purposes.

VII. **Guidelines for Compilation of Resource Management Plans (DWAF, 2006):** Directs and guides the development of RMPs by providing insight into the purpose and objectives of these plans, the procedure for its compilation and structure of such documents.

VIII. **Merchant Shipping (National Small Vessel Safety) Regulations (2007):** These Regulations provide *inter alia* for:

- Requirements for vessel safety;
- Crewing requirements and responsibilities;
- Controlled events such as competitions and regattas; and
- Responsibilities of authorised agencies (governing

boards/clubs/organisations and regulating authorities).

These Regulations apply to the Department of Water and Sanitation as they are applicable to all inland and sheltered waters and as the Department and its agencies are allowing access to government waterworks for recreational boating vessels.

IX. **Methodology for Carrying Capacity Assessment for the Use of Water for Recreational Purposes (DWAF, 2003):** The carrying capacity of a water resource represents the maximum level of visitor/recreational use and related infrastructure that the water resource and surrounding area can accommodate, without diminishing user satisfaction or adverse impacts upon the local or host community, the economy and culture of the area.

X. **National Environmental Management Act, 1998 (Act No. 107 of 1998):** NEMA serves as South Africa's Environmental Framework Legislation. It was designed to provide for co-operative and Integrated Environmental Governance by establishing a general framework for decision-making on matters affecting the environment.

XI. **National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004) and Related Regulations:** This Act aims to provide the framework, norms and standards for the conservation, sustainable use and equitable benefit-sharing of South Africa's biological resources.

The Alien and Invasive Species Regulations for this Act came into effect 01 October 2014. NEMBA together with these Regulations aim to prevent the introduction and spread of alien and invasive species across South Africa.

XII. **National Environmental Management: Protected Area Act, 2003 (Act No. 57 of 2003):** The aim of this Act is to provide for the protection and conservation of ecologically viable areas, which are representative of South Africa's Biodiversity, as well as natural landscapes and seascapes.

XIII. **National Treasury Public Private Partnership (PPP) Toolkit for Tourism, 2005:** This toolkit assist the process of development of tourism-based businesses on State-owned Land. The Toolkit make it easier for Institutions and the Private Sector to enter into tourism related partnerships on State Property managed by National and Provincial Government Institutions.

XIV. **National Water Act, 1998 (Act No. 36 of 1998):** The purpose of the Act is to ensure that the nation's water resources are protected, used, developed, conserved, managed and controlled in a sustainable and appropriate manner, for the benefit of all. Furthermore Section 113 of the Act states that the water of a government waterworks and surrounding state owned land may be made available for recreational purposes, subject to controls determined by the Minister and regulations made by the Minister.

Using water for recreational purposes is a water use under Section 21K and can be exercised as permissible use of water under Schedule 1 of the Act. However, this provision does not cater for commercial use hence the RMP should be implemented in line with General Strategic Plan for commercialisation of Tourism Public Private Partnerships at Government Waterworks, 2009 and PFMA Treasury Regulation 16.

Once the RMP has been approved, the RMP will regulate access and use of the dam. It is important to note that users will need to comply with other relevant legislation.

XV. **Operational Policy: Using Water for Recreational Purposes (DWAF, 2004):** This policy is the main guideline in support of the RMP process with regards to the basic principles, policies, strategies and actions for regulating the use of water for recreational purposes.

XVI. **Public Finance Management Act (PFMA) (Act No. 29 of 1999**): Section 76 of the Act secures transparency, accountability and sound management of the revenue, expenditure, assets and liabilities of government departments. The Act promotes the objective of good financial management in order to maximise service delivery. The Act allows DWS to enter into PPP agreements with the private sector for the commercial use of state assets.

XVII. **Safety at Sport and Recreational Events Act, 2010 (Act No. 2 of 2010):** Events management is addressed by Safety at Sport and Recreational Events Act (Act No. 2 of 2010). This act deals with ensuring responsibility for safety and security at events. The act deals with among other things,

- Responsibility for safety and security at the events;
- Risk categorization of events; and
- Safety certificates.

XVIII. **South African Maritime Safety Authority Act, 1998 (Act No. 5 of 1998):** One of SAMSA's three legislative mandates is "to ensure safety of life and property at sea". The Act enables SAMSA to administer and execute the relevant maritime legislation.

XIX. **Water Services Act (Act No. 108 of 1997):** The Act outlines the roles and responsibilities for the supply of water and sanitation to citizens. It also recognises the rights of all humans to basic water supply and sanitation services.

The RMP process also takes cognizance of the following Legislations, Policies, Programmes and Reports:

- Broad-based Black Economic Empowerment Act, 2003 (Act No. 53 of 2003).
- Communal Land Rights Act, 2004 (Act No.11 of 2004).
- Development Facilitation Act, 1995 (Act No. 67 of 1995).
- Disaster Management Act, 2002 (Act No. 57 of 2002).Draft Local Economic Development Strategy of SLM (2012).
- Draft Management Policy for Stellenbosch Local Municipality (SLM) (November 2005).
- Environmental Management Framework: Cape Winelands District Municipality (May 2011).
- Integrated Development Plan of SLM (2015/2016).
- Intergovernmental Relations Framework Act, 2005 (Act No.13 of 2005).
- Land Administration Act, 1995 (Act No. 2 of 1995).
- Local Economic Development Plan of SLM (2013).
- Local Government: Municipal Systems Act, 2000 (Act No. 32 of 2000).
- National Heritage Resources Act, 1999 (No. 25 of 1999).
- Occupation Health and Safety Act, 1993 (Act No. 85 of 1993).
- Restitution of Land Rights Act, 1994 (Act No. 22 of 1994).
- Spatial Development Framework Revision and Urban Edge determination for SLM (2007).

- State Land Disposal Act, 1961 (Act No. 48 of 1961).
- The Mountain Catchment Areas Act, 1970 (Act No. 63 of 1970.
- Western Cape Nature Conservation Board Act, 1998 (Act No. 15 of 1998).
- Western Cape Nature Conservation Laws Amendment Act, 2000 (Act No. 3 of 2000):
- Western Cape Provincial Development Framework (2005).
- **Safety of Navigation:** In addition to its common-law responsibility, DWS is, in terms of the requirements described in the National Water Act, Act No 36 of 1998, amongst others, responsible for the safety of GWWs. DWS, its delegated public sector partner, or a delegated water management institution, has therefore the responsibility to provide the required fixed and/or floating AtoN for general navigation.

  In addition to the DWS, Local Accountable AtoN Parties (LAAP) and other Bodies providing access to Government waterways and watercourses have a responsibility to ensure that the required fixed and/or floating AtoN are provided after obtaining the necessary support from DWS and thereafter the permission by SAMSA. In order to demarcate specific zones/areas, standardised demarcation markers are to be used in conjunction with the relevant AtoN.
- SAMSA Marine Notices and its Directive on the Standardisation of fixed and floating AtoN and Demarcation Markers on all navigable Inland Waterways in the Republic of South Africa.

The aim is to enhance the development of a best practice model to ensure a safe and structured inland maritime environment and culture, whilst protecting the country's precious water resources.Not only do these Acts, Regulations and Frameworks guide specific decisions and actions, they also provide the framework for monitoring performance and compliance, and provide guidelines regarding contravention, offences and penalties. This list is not extensive, other legislation could be applicable.

CHAPTER 3: WHAT IS A RESOURCE MANAGEMENT PLAN

3.1 DEFINITION OF A RMP

A Resource Management Plan (RMP) is a plan which aims to regulate access and the recreational utilisation of a water resource and the surrounding state land, in ways which promote community participation and beneficiation, environmental conservation and unlock socio-economic potential of the water resource.

Recreational use includes activities ranging from leisure, sport to culture and religion. Although recreational use does not involve consumption of water, it is still a major water use and needs to be managed effectively with minimal environmental impacts and to ensure communities have access to water based economy.

3.2 PURPOSE OF THE RMP

The main aim of RMPs will be to attain the objectives underlying sustainability and to compile functional, workable sustainable access and utilisation plans for water resources.

Without approved management plans relating to water resources utilized for recreational purposes, it is difficult for informed decisions to be made necessitating a precautionary approach to access, utilisation and development proposals.

One of the components of the RMP process is to implement an Institutional Plan for effective management of GWWs. The focus on the Institutional Plan is accompanied by a Zoning Plan which is influenced by current and potential recreational uses. The RMP also outlines the Strategic Plan for all the identified objectives for the dam. In addition, a Financial Plan is incorporated into the Business Plan (BP) and provides guidance on funding requirements and funding options to implement the potential recreational activities at the dam.

3.3 PROCESS TRIGGERS

Triggers Factors are factors that have encouraged DWS to initiate and commission the development of RMPs.

A number of generic factors have been identified by DWS for the development of RMPs, however, the Process Facilitator identified site specific trigger factors for Berg River Dam, as illustrated in **Table 5**.

Table 5: Trigger Factors for the Development of Berg River Dam RMP

Trigger Factors	Description
Resource Management	**Alien Invasive Plant species:** • Berg River Dam is infested with Alien Invasive Plant Species such as Pompom Weeds (*Campuloclinium macrocephalum*) which displaces native species, thereby reducing the biological diversity around the dam. **Protected Area:** • The dam is situated in an area with significant cultural artefacts. The Driefontein Farmhouse is situated below the dam wall and it is an example of the late 18th century farm, which represents a cultural landscape and life style that is associated with stock farming. As a result, it must be conserved and preserved in accordance with the National Heritage Resources Act, 1999 (No. 25 of 1999) as it can attract more tourists to the dam.

Trigger Factors	Description
Community Participation and Beneficiation	**Access Control:** • The fence next to the dam wall has been vandalized and this has led to illegal fishing, swimming and dumping by Local Communities. This needs to be prevented going forward by providing adequate access control at the dam. **Community Beneficiation** • Previously disadvantaged Local Communities still have a challenge in terms of the physical access to the water resource as well as commercial access to water-based recreational activities. **Community Participation** • There is mistrust within the Local Communities against Trans-Caledon Tunnel Authority (TCTA) and DWS due to failure of TCTA to fulfil the promises made to the community during the development of Berg River Dam Sustainable Utilisation Plan (SUP).
Public Policy	**Local Planning Initiatives** • The Berg River Dam should be integrated in other local planning initiatives and decision support tools such as the Stellenbosch Local Municipality (SLM) IDP, SDF and Local Economic Development (LED) plan as well as the Cape Winelands District Municipality (CWDM) Environmental Management Framework (EMF).

3.4 DEVELOPMENT OF RMP

The RMP is developed in accordance with the RMP guideline procedure (DWAF, 2006) as illustrated in **Figure 16**.

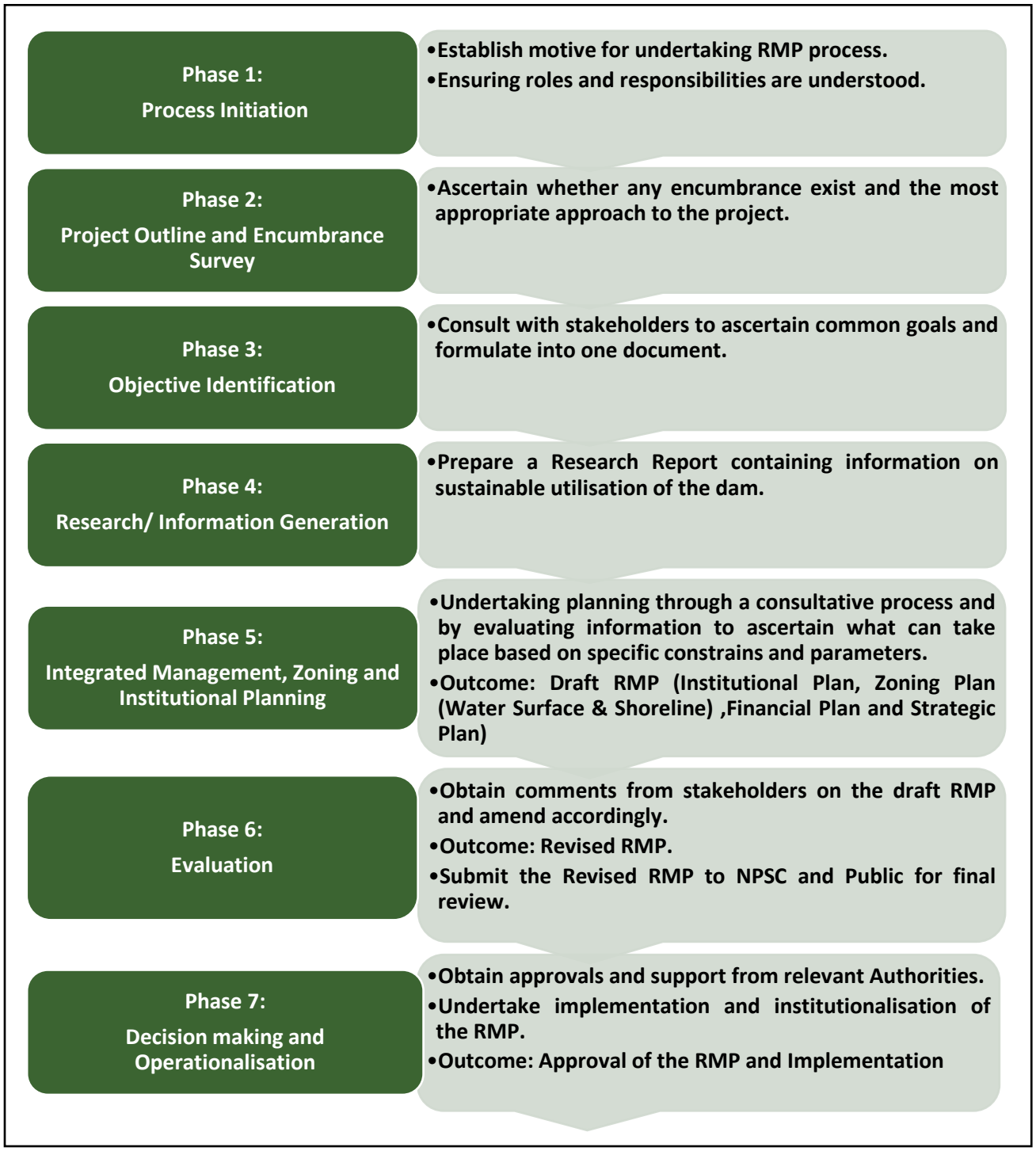

Figure 16: RMP Procedure

3.5 RMP PLANNING STAGES

3.5.1 Desktop Study

The desktop study was conducted with the aim of acquiring background information about the Berg River Dam. This was done through literature review. This study provided information such as the location of the dam, user groups, current activities, previous studies conducted for the dam.

3.5.2 Site Inspection

A site inspection was conducted at Berg River Dam on **6 June 2014** to gather baseline information using a checklist questionnaire. The site inspection was undertaken with the DWS delegates (DWS IEE, Southern Operations Manager, Dam Manager and Southern Operations Champion). Photos of the study area were also taken during site inspection.

3.5.3 Public Participation

Public Participation process (PP) is a process in which potential Interested and Affected Parties (I&APs) are given an opportunity to comment on or raise issues relevant to specific matters. The three (3) fundamental and theoretical objectives of PP process as stipulated in the DWAF's Guideline for Public Participation (2001) are:

- To improve decision-making;
- To bring about sustainable development; and
- To normalise the attitudes of Stakeholders (Authorities and I&Aps).

A Public Participation was conducted in order to acquire information for **Phase 2 (Encumbrance Survey)**, **Phase 3 (Objective Identification)** and **Phase 4 (Research/ Information Gathering)** from stakeholders, which was used to complete **Phase 5 (Integrated Management, Zoning and Institutional Planning)**. In order to successfully complete the RMP, it is essential that the information obtained in the previous phases is utilised as planning input.

The public participation process for this project was formulated to include the following objectives:

- The identification of role players;
- The introduction of the RMP project to role players and inform them about their roles and responsibilities;
- The engaging of the Stakeholders (Authorities and I&APs) in the planning process;
- The answering of questions and noting of concerns;
- The identification of important issues, problems, conflicts and alternatives;
- Identification of the overall vision of the dam;
- The elimination of false expectations and preconceptions; and
- The creation of awareness amongst users.

DWAF's Guidelines for Public Participation (2001) outlines three (3) broad phases for public participation namely the **Planning**, **Participation** and **Exit** phase. Summarized below are the aspects of each phase and the approach for this project.

3.5.3.1 **The Planning Phase**

The Planning Phase entails three (3) important aspects namely;

- Decision analysis;
- Participation planning; and
- Implementation planning.

During the **Planning Phase** a site inspection and literature review was conducted to gather baseline information about the dam. A process was also established to get into contact with the I&APs and relevant Authorities to ensure co-operative interests and support in the RMP project.

3.5.3.1.1 The Role Players

It is recognized that different roles and responsibilities of the stakeholders (Authorities and I&APs), and their relationship towards each other and the steps in the planning procedure

are imperative in the successful development of the RMP. It is also important that proper consultation with the public is done in order to produce a credible RMP. As such, the success of the RMP is dependent on the level of involvement of the various stakeholders. Various stakeholders were identified and invited to participate in an open and consultative process. (See attached **Appendix F)**. The stakeholder list is updated on a continuous basis throughout the RMP process.

3.5.3.2 **Participation Phase**

The **Participation Phase** entails three (3) important aspects:

- Informing stakeholders – explained briefly under **3.5.3.4 Advertising Process.**
- Meeting the stakeholders – explained briefly under **3.5.3.5 Direct Communication.**
- Feedback – it is of utmost importance that feedback is directed to and from stakeholders. In this project feedback thus far has been given in a form of minutes of the meetings and follow up e-mails.

3.5.3.3 **Exit Phase**

The **Exit Phase** entails two (2) important aspects namely:

- Ensuring that all goals, challenges, concerns, objectives and the vision for the dam have been identified and documented in the RMP.
- Officially ending the public participation process for the RMP process.

During this phase, a draft RMP will be presented to the stakeholders so that they can comment and give inputs.

3.5.3.4 **The Advertising Process**

3.5.3.4.1 Distribution of the Background Information Document (BID)

The purpose of this document was to provide Stakeholders (Authorities and I&APs) with the background information about the proposed RMP project and to introduce the processes to be followed in developing the plan. It also aimed to inform authorities and I&APs on how to fully participate in the process and to encourage active attendance in Stakeholder engagement meetings. The BID was compiled from the information collated through the desktop study and site inspection (See attached **Appendix G**).

3.5.3.4.2 Newspaper Advert

A Newspaper advert regarding the RMP project was placed in the **Paarl Post** Newspaper. The advert invited the public to attend the Public Participation Meeting. The advert was published in English on **24 July 2014**. Furthermore, an advert for the draft RMP was advertised on Eikestadnuus newspaper on **19 November 2015**. (See attached **Appendix H**).

3.5.3.4.3 Flyers Compilation Distribution

Flyers were also used as a form of notification, they aimed at informing the I&APs about the public consultative meetings. The flyer detailed a brief description of the RMP, meeting date, time, venue and relevant contact details. The flyers were compiled in English and were distributed on **24 July 2014** and **04 November 2014**.

The flyers for the draft RMP were distributed on **09 November 2015** (See attached **Appendix I**).

3.5.3.5 **Direct Communication**

3.5.3.5.1 E-mails

Meeting invitations were sent out to authorities and I&APs notifying them about the scheduled consultative meetings. The invitation entailed the BID, meeting venue and time. The email notification was sent out on **25 July 2014**. Moreover, the meeting invites for the draft RMP were sent out on **12 November 2015** (**See attached Appendix E**).

3.5.3.5.2 Authority Meeting

The initial authority meeting was held on **06 August 2014** at **Franschhoek Town Hall**.

The purpose of the meeting was:

- To present the RMP, its goal and the objectives of the project to the authorities; and
- To allow the authorities an opportunity to participate in the project by sharing information on their respective mandates.

A follow-up authorities meeting was held on **19 November 2014** at **Franschhoek Town Hall**.

The draft RMP was presented to the authorities on **02 December 2015**.

3.5.3.5.3 Public Meeting

The initial public meeting was held on **06 August 2014** at **Franschhoek Town Hall**. A platform was also given to I&APs to identify encumbrances/ challenges that might hinder the progress of the RMP as well as to identify objectives and vision for the Berg River Dam.

Due to the diversity of the I&APs, a follow-up public meeting was scheduled for **19 November 2014** at Franschhoek Town Hall.

The draft RMP was presented to the Public on **02 December 2015**.

3.5.3.6 **Comments and Responses Register**

A copy was circulated on **09 December 2015** (See attached **Appendix K**).

3.5.4 Planning Partners

RMPs are developed through a process of cooperative governance and Stakeholder participation. The distinctly different roles and responsibilities of the stakeholders, and their relationship towards each other and the steps in the planning procedure are imperative in the success compilation of the RMP.

The RMP provides for coordination between different governments and agencies to ensure that not only the objectives of DWS are attained, but also the objectives of other relevant Government Departments are attained. Such Departments includes among others as outlined in **Table 6.**

Table 6: RMP Planning Partners and their Respective Mandates

Department/ Agency	Mandate
Stellenbosch Local Municipality (SLM)	The dam is within the jurisdiction of the Municipality.
Cape Nature	Cape Nature is the public institution mandated to promote and ensure biodiversity conservation within the Western Cape Province.
Department of Agriculture, Forestry and Fisheries (DAFF)	The purpose of DAFF includes sustainable development and management of resources to maximizing the economic potential of the fisheries sector while protecting the integrity and quality of the country's aquatic ecosystems. Operation Phakisa expansion to inland dams is one of DAFF initiative aimed at unlocking economic potential of fisheries sector within the inland water. The latter programme will be used as benchmark for implementation of conservation policies while implementing job creation within fishery and fish processing market.

Department/ Agency	Mandate
Department of Rural Development and Land Reform (DRDLR)	The department will assist in terms of Land Claims/Ownership issues.
Department of Environmental Affairs (DEA)	Responsible for Biodiversity Management within the dam including Invasive Alien Species.
Department of Public Works (DPW)	Has the power to regulate and control the use of state land outside the GWWs. In this regard, lease agreements or permits will be required from the department as some of the recreational activities will overlap into the state land.
Department of Transport (DoT)	Responsible for legislation, policy and regulations for all transportation in South Africa, including shipping and other transport by water or sea also inland waterways.
National Treasury (NT)	The use of State assets is governed by National Treasury Regulations, requiring DWS to plan concessions in compliance or association with National Treasury, guided by the Tourism Public Private Partnership (PPP) Toolkit of 2005.
South African Maritime Safety Authority (SAMSA)	One of SAMSA's three legislative mandates is "to ensure safety of life and property at sea". The Act enables SAMSA to administer and execute the relevant maritime legislation.

3.6 RMP DATA ANALYSIS

3.6.1 Encumbrance Survey (Phase 2)

The purpose of the Encumbrance Survey is to investigate/ ascertain whether any encumbrances exist around the dam and other factors that may influence the development and implementation of the RMP. The survey also identifies the information that is required for effective decision-making regarding the RMP (DWAF, 2006).

The identified encumbrances will assist DWS to identify hindrances and other factors that may influence the development and implementation of the RMP. The identified encumbrances are broken down into **Biophysical and Social.**

Tables 7 - 8 outline the summary of limitations that might affect the development or implementation of the RMP for the dam.

Table 7: Summary of Biophysical Encumbrances

Item	Description
Climate	• The lowest water level of the dam normally occurs during the main tourist and recreation times (the summer season), whereas high level of water occurs during winter season. This will affect some of the recreational activities that are more prevalent in summer such as swimming.
Vegetation	• The presence of Alien Invasive Plant Species will hinder some of the proposed recreational activities such as trail hiking and running. They also consume large quantities of water which will impact the water quantity of the dam. • Dead pine wood may harm terrestrial fauna species and human beings during movements on or around the dam.
Topography	• Berg River Dam is surrounded by mountains (which are protected in terms of NEMPAA), this limits development within the area since the dam will only be limited to low intensity activities such as hiking, picnicking, non-motorized activities, etc.
Geology and Soil	• Freely drained soils can hamper the development as it consists of high erodibility and low base structure. This means that only minimal development can occur within the dam.

Item	Description
Surface Water	• According to Berg River Dam SUP (2007), the dam contains low level of water during the dry summer seasons, which is the tourism season. This will affect some of the recreational activities at the dam such as swimming as it is more prevalent in summer. • Furthermore, no motorised activities will be allowed on the dam (e.g boating). This is because boaters cannot safely boat when there is insufficient water depth within the dam.

Table 8: Summary of Social Encumbrances

Item	Description
Social Audit	• It is unlikely that the unemployed community members in this region have the necessary skills to enter the tourism market since majority of them did not receive any kind of training to equip themselves to become active participants in the tourism sector.
Expectations	• The majority of the community members are more interested in the agricultural activities that were covered in the SUP and this is not relevant to the scope of RMP.

Upon identifying the encumbrances, objectives needed to be identified in order to facilitate a planning procedure aimed at the compilation of a RMP. It is essential to clarify objectives to be met by the planning procedure (DWAF 2006).

3.6.2 SWOT Analysis and Objective Identification

The SWOT Analysis was conducted to gather **Strengths** and **Opportunities** that define the potential of the dam whereas the challenges regarding the dam where identified through **Weaknesses** and **Threats**. The common key objectives were formulated and identified from the **Strengths** and **Opportunities** of the dam. Moreover, the vision for the dam for a period of 20 years was formulated by stakeholders from the identified objectives.

3.6.2.1 SWOT Analysis Approach

There were issues of concerns that were raised in the stakeholder engagement meetings prior to conducting the SWOT Analysis. Other challenges or encumbrances that may hinder the progress of the dam's RMP process were identified by the stakeholders following the SWOT analysis approach as illustrated in **Table 16.**

Table 9: SWOT Analysis for Berg River Dam

Strengths	Weaknesses
• Water quality within the dam is pristine and it is suitable for both domestic as well as for recreational purposes. • The serenity and beauty of the dam and its surrounding. • The dam is free of dangerous animals such as crocodiles and hippopotamus. • The dam is located within the state forest (La Motte State Forest) which is protected in terms of NEMPAA. • It is suitable for organised recreational events. • There is high tourism potential in the area.	• The dam is infested by alien invasive plants species such as Pompom weeds. • The dam is characterised by freely drained soils which can obstruct the development as it consist of high erodibility and low base structure. This means that only minimal development can occur within the dam e.g. chalets. • There is vandalism of fence surrounding the dam which has led to illegal fishing, swimming and littering by Local Communities. • The dam will be limited to only low intensity activities such as hiking, fishing, picnicking, non-motorized activities, etc. due to its steep slopes. • Majority of residents in the area will not have received any kind of training to equip themselves

	to become active participants in the tourism sector due to the low percentage of the population that have furthered their studies in higher education. This can also affect the level of community participation in the development of the RMP. • Lack of security and access control to the dam. • There is lack of communication structure to engage with Local Communities. • The dam is not integrated in any of the local planning initiatives and decision support tools such as the IDP, LED, etc.
Opportunities	**Threats**
• The dam is situated in an area with culturally significant artefacts (Driefontein Farmhouse). This can attract more tourists to the dam if conserved and preserved well. • There are job opportunities that can be created from recreational activities such as hiking, mountain running, swimming, etc. • There is an opportunity for a day visit area on the south eastern side of the dam as there is currently none in place. • There is an opportunity for community participation, beneficiation, education and sharing of information so that community understands the importance of the dam.	• There is a mistrust within the Local Communities against Trans-Caledon Tunnel Authority (TCTA) and DWS due to failure to fulfil the promises made by TCTA to the community during the development of Berg River Dam Sustainable Utilisation Plan (SUP). • The dam contains low level of water during the dry summer seasons, which is the tourism season. This will affect some of the recreational activities at the dam such as swimming as it is more prevalent in summer. • Dead pine wood still need to be removed as they may harm terrestrial fauna species and human beings during movements on the dam. • Only few areas within the dam have high tourism potential, where as other areas have low tourism potential due to draw-down of the water level of the dam. • There is soil erosion/ visual pollution due to motor biking. Furthermore, the motor bikes scares away big birds form the dam. • Lack of interest by Local Communities due to expensiveness of other recreational activities. • There is no clear rules or signage for recreational users. • The area is prone to wild fires due to vast plantations around the dam. • Trails that are not properly marked results in incidents (e.g. injuries) to participants.

3.6.2.2 **Objective Identification (Phase 3)**

Objectives were identified by all the stakeholders in order to ascertain common goals. These objectives address the following questions:

- What do we want?
- How are we going to achieve this?
- Who will be involved?
- By when would we like to achieve our goals?
- Why would we want to achieve our goals?

The set common key objectives were derived from the SWOT Analysis for the Berg River Dam and have been categorized into three (3) Key Performance Areas (KPAs) as illustrated below:

KPA 1: Resource Management

- To have the dam catchment free of Alien Invasive Vegetation in order to support the proposed recreational activities and to maintain the native ecological aspect of the area;
- To prevent and mitigate soil erosion and visual pollution at the dam;
- To preserve and maintain the high standard of water quality of the dam;
- To identify, acknowledge and conserve resources of archaeological significance within the dam basin, and below the dam wall; and
- To compile a Zoning Plan which will integrate conservation, recreation and development whilst not retarding the primary functions of the dam.

KPA 2: Resource Utilisation

- To promote, accommodate and manage a variety of activities and facilities within the dam basin in a manner that enhances the user's experience and minimizes the impact on the resource;
- To provide equitable, compactable and safe access control at the dam; and
- To ensure that the organized events are well planned and managed in order to meets the participant's expectations as well as to ensure compliance with Biodiversity conservation legislations.

KPA 3: Benefit Flow Management

- Uplift the Local Economy and increase Benefit Flows to the surrounding communities through community empowerment; and
- To establish an effective Institutional Structure that can manage the use of water for recreational purpose in an acceptable manner, which is also representative of all the relevant Stakeholders.

Action projects required to achieve these objectives are provided in detail in **Section 4.3** (**The Strategic Plan**).

A vision for the dam for a period of 20 years was formulated from the key common objectives identified by the stakeholders and stands as follows:

"To continue promoting the sustainable utilisation of Berg River Dam, unlock the economic and tourism potential for the dam, promote community participation and beneficiation, maintain high standard of water quality as well as to have the dam catchment free of Alien Invasive Vegetation".

After setting both the dam's specific objectives, a research was conducted in order to provide relevant information to decision – makers regarding the sustainable utilisation of the water resource and where applicable the State Land.

3.6.3 Research/ Information Generation (Phase 4)

The aim of undertaking the research process was to collect the relevant data about the dam. This will serve as a decision-making guideline tool, guided by the objectives set for the dam and any limitations due to encumbrances. The report documents the following data as illustrated in **Figure 17**.

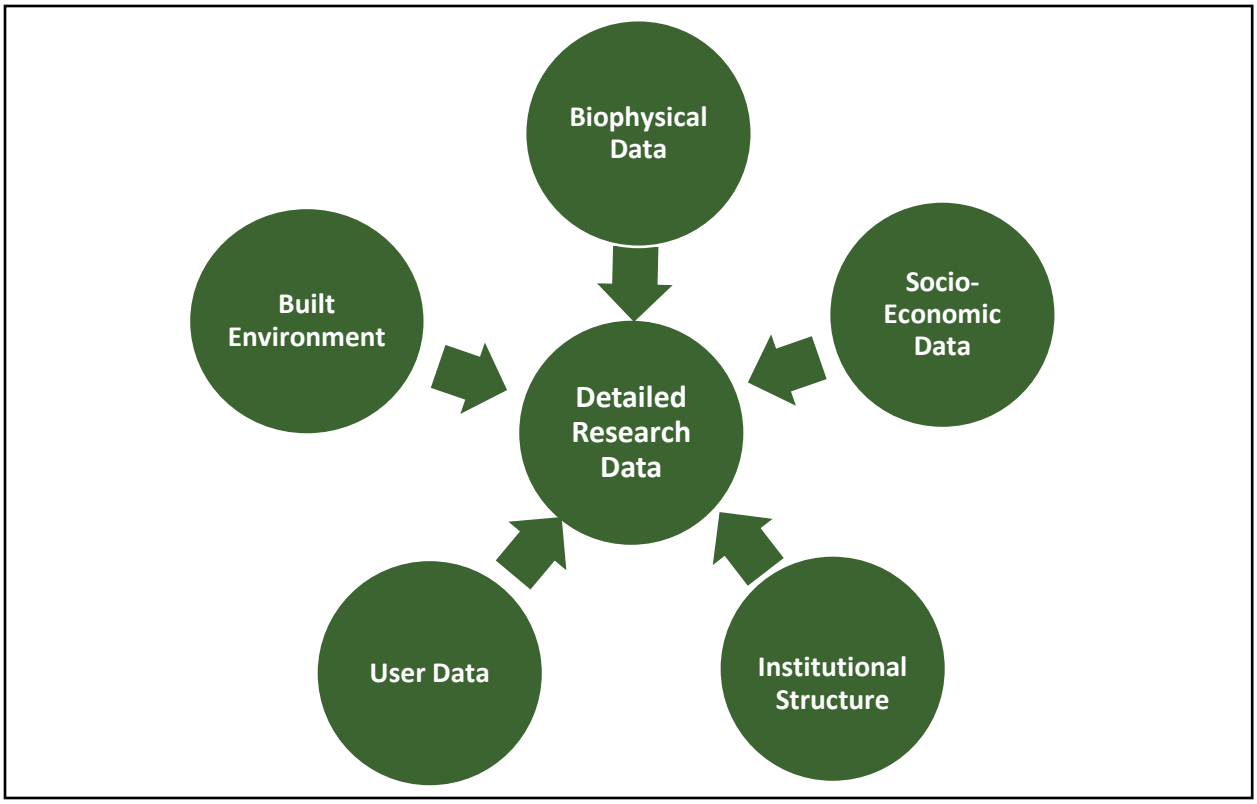

Figure 17: Research Data

The main aim of the research was to identify the dam tourism development potential and also to evaluate the practicability/feasibility of the potential objectives identified.

3.6.3.1 **Tourism Development Potential**

According to Berg River Dam Trail Management Plan (2013), the area has the potential to be a world class venue for Local and International tourists. It could also be a significant leisure asset for the Local Community and Visitors to the Winelands thereby enhancing socio-economic development in the area. Currently there are few trails in the Franschhoek Valley.

The Franschhoek Valley offers a variety of outdoor activities ranging from hiking, trail running, walking, cycling and horse-riding to fly fishing and golf. According to SUP (2007), The Berg River SUP area provides the opportunity to attract a new range of tourist market segments through the potential development of a new range of tourism products in the SUP area.

It also provides the opportunity for previously disadvantaged communities to become economically active in local Franschhoek tourism economy in the form of tourism related jobs, entrepreneurial opportunities and access to land at subsidised rates (i.e. not the current extremely high market related value of property in Franschhoek). Refer to **Figure 18** for the Tourism Potential map for Berg River Dam Catchment Management Area.

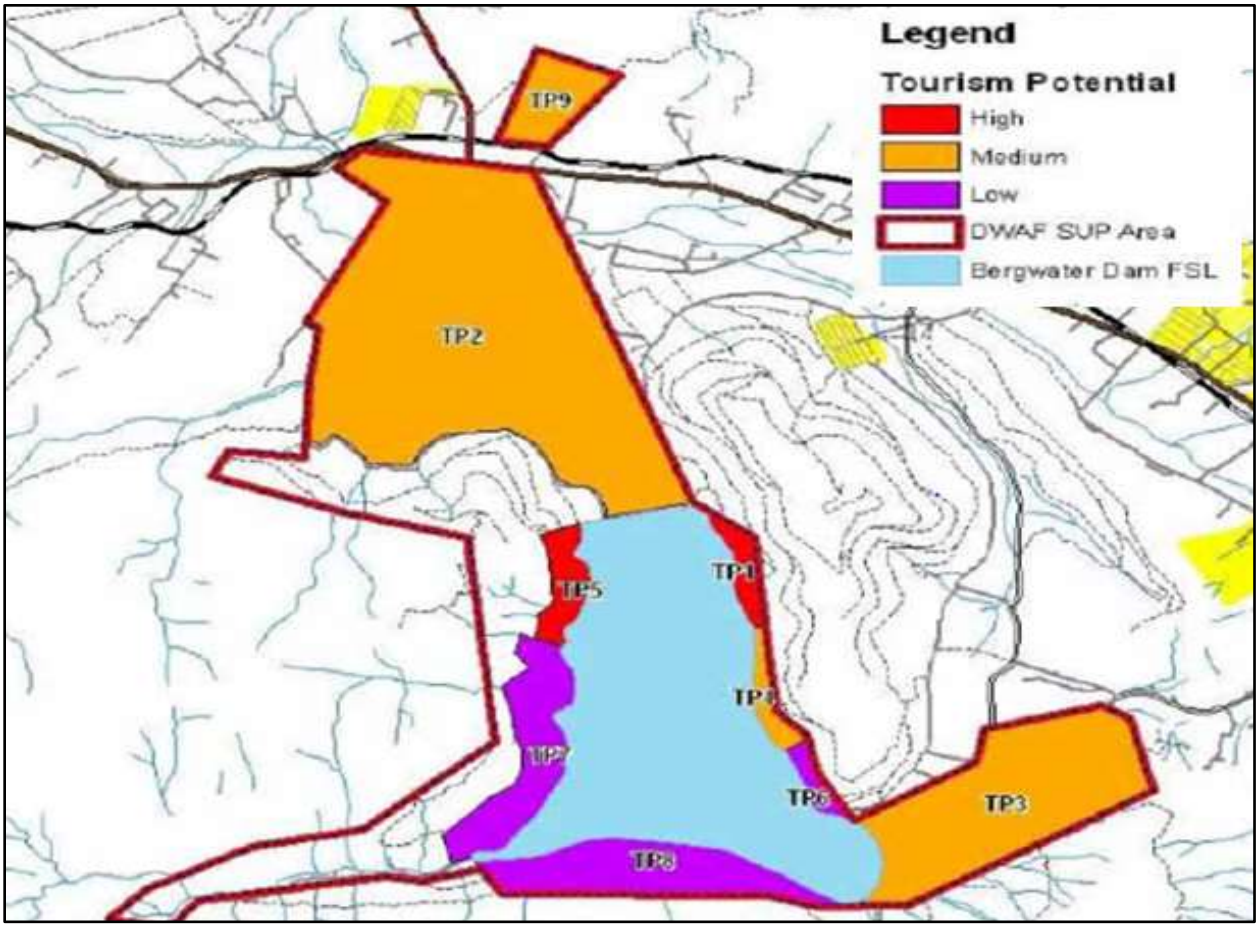

Figure 18: Areas with Tourism Potential in the Berg River Dam Catchment Area (SUP, 2007)

According to SUP (2007), **TP1 and TP5** were assessed as areas with high tourism development potential due to the following:

- Both areas are close to the dam wall and provide a pleasant view over the water body to the other side of the dam;
- They also contain steep slope banks which minimise unsightly mud banks that occur when the water level draws down in drier periods; and
- Area TP1 is located close to the access road and provide panoramic views over the permanent water body towards the distant mountains.

Area **TP4** is considered to have medium tourism development potential due to:

- Medium level of water during summer months which leave the area unsightly muddy;
- The views over the water body from TP4 to the mountains beyond during winter and spring is likely to be extremely attractive to visitors and recreationists to the area; and
- However, the area is likely to have high level of water during winter which could have tourism potential for recreation activities that can be done during those seasons.

Areas **TP6, TP7** and **TP8** were assessed as areas with low tourism development potential.

- TP6 and TP8 will be adversely affected by the draw-down of the water level of the dam;
- These two areas will border onto a visually unpleasant dusty bottom of the dam devoid of most vegetation for those

times when the dam is less than 90% full; and

- Area TP7 will be impacted less by the draw-down of the water level of the dam than areas TP6 and TP8. However, any tourism development in area TP7 would have a negative impact on the views of natural beauty from the eastern shores of the dam.

Area **TP2, TP3** and **TP9** were considered to have medium tourism development potential. However, the three areas won't be considered in the development of RMP as they are outside the DWS's purchased boundary.

3.6.3.2 Feasibility of Identified Potential Objectives

According to DWAF (2006), the feasibility of the proposed objectives needs to be determined in light of the local environmental conditions.**Table 10** shows the practicability of all proposed recreational objectives.

Table 10: Feasibility of Potential Recreational Objectives

KPA 1: Resource Management		
Objective	**Status Quo**	**Practicability**
• To have the dam catchment free of Alien Invasive Vegetation in order to support the proposed recreational activities and to maintain the native ecological aspect of the area.	• The dam is infested with Alien Invasive Plant Species such as Pompom Weeds which displaces native species, thereby reducing the biological diversity around the dam.	• Working for Water (WFW) and Western Cape Expanded Public Works Programme (WEPWP) as well as compliance of all users to all relevant Legislations, Regulations and dam rules can assist to minimise the Alien Invasive Plants Species at the dam. • The use of appropriate cleaning mechanism, zoning, along with the deployment of AtoN and demarcation markers can assist to prevent the introduction of Aquatic Alien Invasive Plant Species, however this should be established in accordance with the CIWSP best practice model.
• To prevent and mitigate soil erosion and aesthetic pollution at the dam.	• Motor biking is one of the activities that usually takes place at the dam illegally. However, this has resulted in soil erosion and aesthetic pollution since there are no proper trails on site and no effective enforcement of environmental laws.	• Soil erosion can be mitigated through the Erosion Control Monitoring Programme, establishment of sustainable trails, and implementation of Storm Water Reduction System to avoid excess soil erosion during heavy rains, as well as the enforcement of all relevant cycling regulations, e.g. Constitution of Cycling South Africa (14 July 2012). • No motor biking should be allowed at the dam in order to prevent migration of big birds.
• Establishment of proper trails.	• There is currently no proper trails developed at the dam, as a result different people from different discipline are creating trails simply because “if you don’t take the opportunities, someone else will”.	• Trails have been marked at the dam, however they should be established as per the Western Cape Guideline (planning and managing sustainable off-road routes). • Trails should be accompanied by clear communication signage in order to inform recreational users regarding the dam rules as this will promote safety at the dam.
• To preserve and maintain the high standard of water quality of the dam.	• The dam is located in an area with naturally good water quality. The water analysis data received from DWS (Resource Quality Services) indicated	• Enforcement of all relevant environmental legislations (e.g. NWA and NEMA) at the dam can always keep the dam’s water quality pristine.

	that the water quality of the Berg River Dam is currently pristine.	• The components of Cooperative Inland Water Safety Programme (CIWSP) such as Unique Position Number (UPN), should be implemented at the dam to achieve this objectives. • No boats are allowed on the dam.
• To conserve resources of archaeological significance within the dam that can attract tourists to the dam.	• The dam is situated in an area with culturally significant artefacts. The Driefontein Farmhouse is situated below the dam wall.	• The Driefontein Farmhouse can be conserved by classifying it as a conservation Zone on the Zoning Map.
KPA 2: Resource Utilisation		
Objective	**Status Quo**	**Practicability**
• To have a Zoning Plan for the dam.	• There is currently no effective Zoning Plan at the dam.	• The Zoning Plan will be compiled as part of the RMP process in terms of DWAF's Guidelines for Compilation of Zoning Plans for Government Waterworks (DWAF, 1999).
• To provide equitable, compactable and safe access control at the dam.	• There is poor security and access control to the dam. • The fence next to the dam wall has been vandalized and this has led to illegal fishing, swimming and dumping by Local Communities.	• The dam rules relating to the dam access, fees payable for access, safety measures, speed limit applicable to the dam and the time in which the dam will be open to the public should be established in terms of DWAF Regulation R654. • The appointment of safety and enforcement personnel is imperative to ensure compliance with the dam rules and other relevant legislations. • The Business Plan will incorporate the objective and will include a cost structure that is market related and will be affordable to local visitors and tourists.
• To ensure well planned and managed organized events.	• A number of organised events are held at the dam e.g. swim festival cross triathlon, hills challenge, trail run, etc.	• There should be an enforcement of all relevant events legislations in order to ensure sustainable utilization of the dam. • The BP will detail how the Local Communities can benefit from participating in the events.
KPA 3: Benefit Flow Management		
Objective	**Status Quo**	**Practicability**
• Uplift the Local Economy and increase Benefit Flows to the surrounding communities	• Majority of the Local Communities are currently not benefiting from recreational activities conducted at the dam.	• Establishment of functional and effective Institutional Structure that should have enough

through community empowerment and job creation.		power to ensure that the Local Communities are getting benefits emanated from the dam use. • The BP will detail how the previously disadvantaged communities will economically benefit from recreational opportunities.
• To establish an effective Institutional Structure.	• There is currently no institutional structure that is managing recreational use of the dam.	• The Institutional Structure will be established in accordance to the DWS Institutional Arrangements for Managing Use of Water for Recreational Purposes Guideline, in order to ensure that it is representative of all users.

CHAPTER 4: INTEGRATED MANAGEMENT, ZONING AND INSTITUTIONAL PLANNING (PHASE 5)

The purpose of this phase is to evaluate the information obtained from previous stages to ascertain what could be achieved based on specific constraints and parameters of the various input factors such as biophysical, cultural and socio-economic, current institutional and needs of the dam users. The Integrated Resource Management Plan (IRMP) will take into account the following:

- Biophysical, cultural and socio-economic and User needs constraints;
- Development Potential and requirements;
- Site planning and Zonation;
- Programmes and Plans that will unlock the potential of the water resource; and
- Institution options and legal aspects required to create these programmes and plans.

The IRMP is broken down into four (4) main plans namely the **Institutional Plan**, **Zoning Plan, Strategic Plan** and **Financial Plan** as illustrated by **Figure 19.**

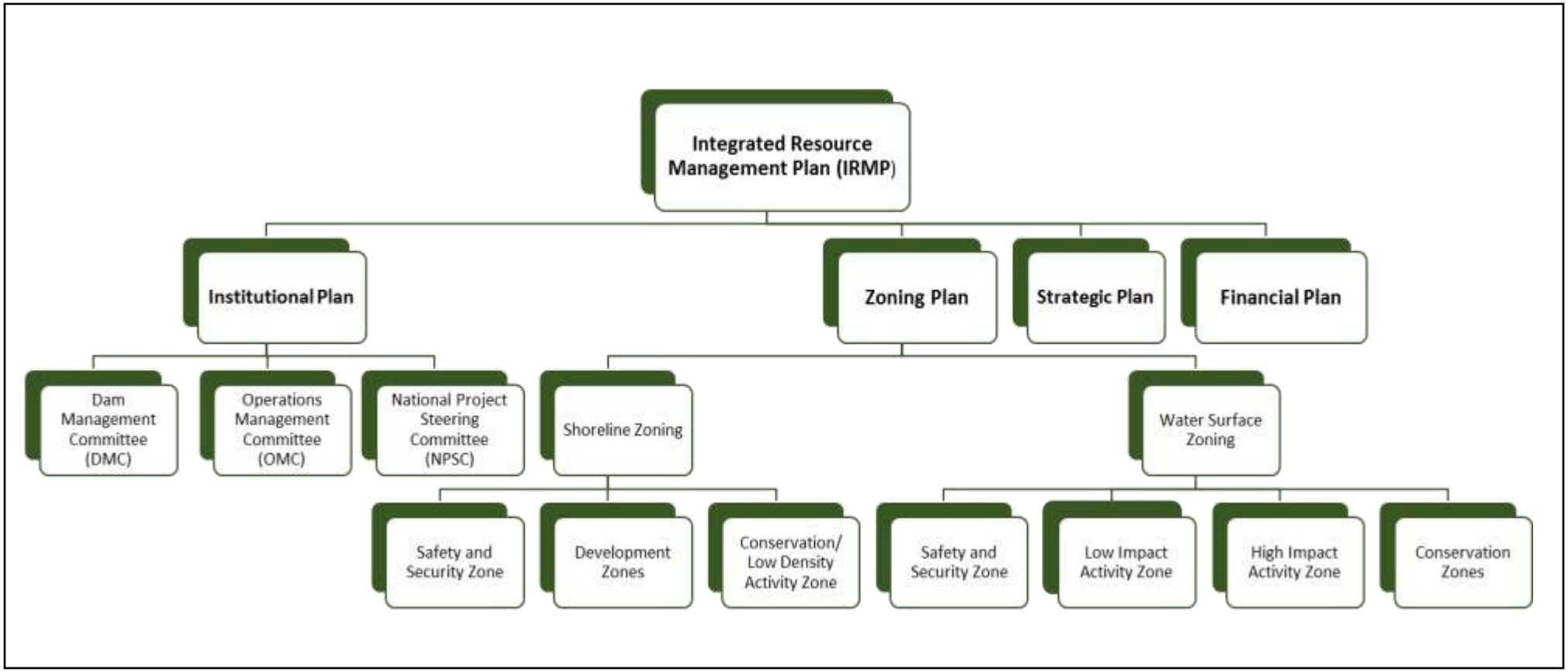

Figure 19: Integrated Resource Management Plan

4.1 INSTITUTIONAL PLAN

The Institutional Plan provides a framework for the institutional arrangements at the dam. The proposed management systems includes three (3) committees namely; The Dam Management Committee (DMC), Operations Management Committee (OMC) and National Project Steering Committee (NPSC). The appointed management authorities by DWS at the dams, also form part of the institutional structure.

4.1.1 Dam Management Committee (DMC)

DMC refers to any party that is interested or affected by the dam and will assist in raising and addressing issues relating to the dam.

One of the main functions of the DMC is to give support to Implementing Agency (IA) in the management of the dam for recreational purposes. Moreover, to assess commercial opportunities at the dam. As such, an agenda item related to the Strategic Plan for commercialization is required. In addition, changes in water quality, developments in the area, status of Aquatic Invasive Species and education and information programmes should be discussed. The DMC must meet quarterly.

The functions of the DMC include the following (amongst others):

- Seeking resolution for general management issues;
- Monitoring the practical implementation of the RMP and BP;
- Reviewing the feedback received from I&APs;
- Operational management of recreational activities such as ensuring the floating AtoN and demarcation markers are in place and setting times for use of the dam (no recreational activities can take place between sunset and sunrise);
- Conveying the Management Objectives and decisions pertaining to the dam to the relevant stakeholders; and
- Management of the incident management system and washbays.

Figure 20 illustrates the proposed user groups that will form part of the DMC.

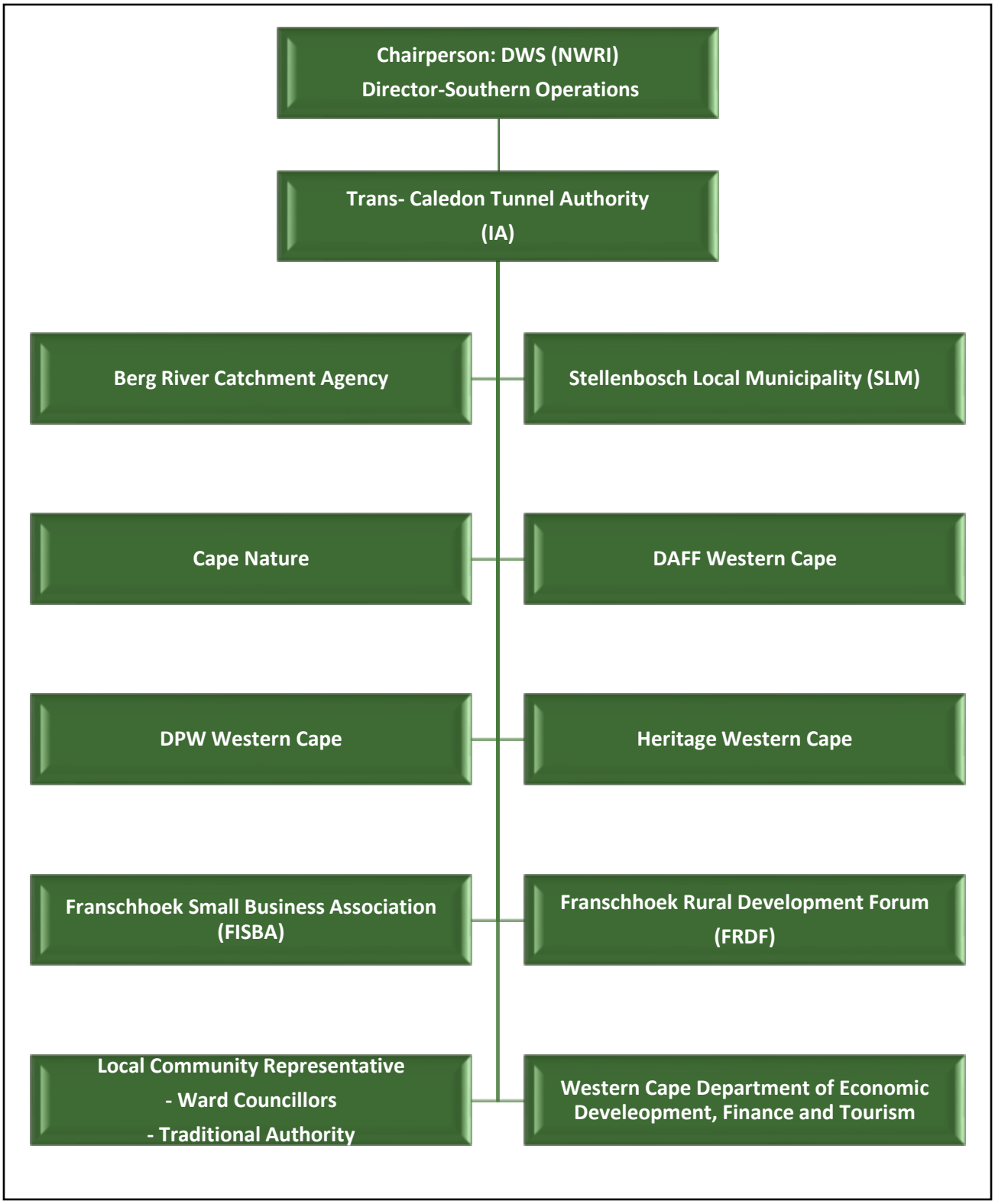

Figure 20: Proposed DMC

The DMC will have a number of management tools which will enable proper management of the dam in line with existing Legislations and Regulations requirements.

4.1.1.1 Management Tools

Terms of Reference

The DMC and NPSC will be guided by Terms of Reference (ToR) regarding roles and responsibilities. ToR are not required for **OMC**. The ToR provide guidance on the following management aspects:

- Roles and responsibility of chairperson;
- Roles and responsibilities of an IA;
- Roles and responsibilities of members;
- Minutes and attendance requirements;
- Reporting requirements;
- Management of agreements;
- Management of access objectives;
- Management of development targets;
- Management of water quality monitoring;
- Management of the control of aquatic invasive species;
- Management of development pressure;
- Management of incident management system and wash bays; and
- Management of AtoN and demarcation markers.

Agreements

One of the main management tool available is the use of agreements to ensure proper use of the dam in line with the RMP vision and objectives.

Agreements between DWS and Implementing Agency

TCTA will be appointed as an Implementing Agency (IA) for the RMP of Berg River Dam. TCTA and DWS will sign a Memorandum of Agreement (MOA), which is a legal binding document which will outline the roles and responsibilities and conditions to be followed by both parties in terms of managing the water resource for recreational use.

The minimum requirements of an IA include the following:

- An Implementing Agency can be a government entity or public-sector body identified by DWS;
- Must have the best interest of a water resource and the community at large; and
- Must be willing to work with the Department and other users of the water resource.

The IA is appointed to manage commercial and recreational use of the dam. This would include the following:

- Management of public access area;
- Management of incident management system;
- Management of community skills and training programmes;
- Management of commercial activities (in line with Treasury Requirements); and
- Management of AtoN and demarcation markers.

Regardless, all agreements should be in line with the RMP requirements and relevant Legislations and Regulations.

Safety of Navigation Agreements

In addition to its common-law responsibility, DWS is, in terms of the requirements described in the National Water Act, 1998 (Act No. 36 of 1998), amongst others, responsible for the safety of GWWs and watercourses, including its dams. DWS, its delegated public sector partner, or a delegated water management institution, has therefore the responsibility to provide the required fixed and/or floating AtoN[3] for general navigation.

[3] AtoN refers to any sort of marker which aids the traveler in navigation; the term is most commonly used to refer to nautical or aviation travel, common types of such aids include lighthouses, buoys, fog signals and day beacons.

Agreements between SAMSA and DWS/ other relevant Parties/ Bodies are to be concluded to allow them to:

- Exhibit the relevant AtoN; and
- Establish or deploy the relevant fixed and/or floating AtoN.

Access Agreements

All surface water and shoreline access must be formalised. The conditions for such access must be written into the agreement. All illegal practices must be addressed. Appropriate action must be taken to ensure that all parties comply with the requirements of the RMP.

All adjacent landowners must be made aware that access to the surface water as well as shoreline should only be through authorised access points. Accessing the surface water through unauthorised access points is an illegal activity unless they enter into a formal agreement with IA.

Event Applications

Different events that involves recreational activities such as mountain biking, trail running, hiking, etc are more popular due to steep slope of the dam. The events application will be submitted to the IA for approval and to DWS for commenting. These applications must follow a specific template and will include the following:

These applications must follow a specific template and will include the following:

- Number of participants;
- Emergency Response Plan; and
- Advertising and branding (will need to be in line with DWS communication requirements).
- Access points to be used.

Furthermore, all Events must meet the requirements of the Safety at Sports and Recreation Act, 2010 (Act No. 2 of 2010).

4.1.2 Operations Management Committee (OMC)

There is an existing Chief Director: Infrastructure Operations Management Committee (CD: IO MANCO) within Infrastructure Operations which comprises of all directors of four (4) operations (Northern, Southern, Eastern and Central) and is chaired by the Chief Director: Infrastructure Operations within NWRI as illustrated in **Figure 21**.

The committee should meet quarterly discussing matters relating to operations and maintenance of all GWWs. RMP must be a standard agenda item. Any matters relating to the RMP that are outside the scope of DWS will be escalated to the NPSC.

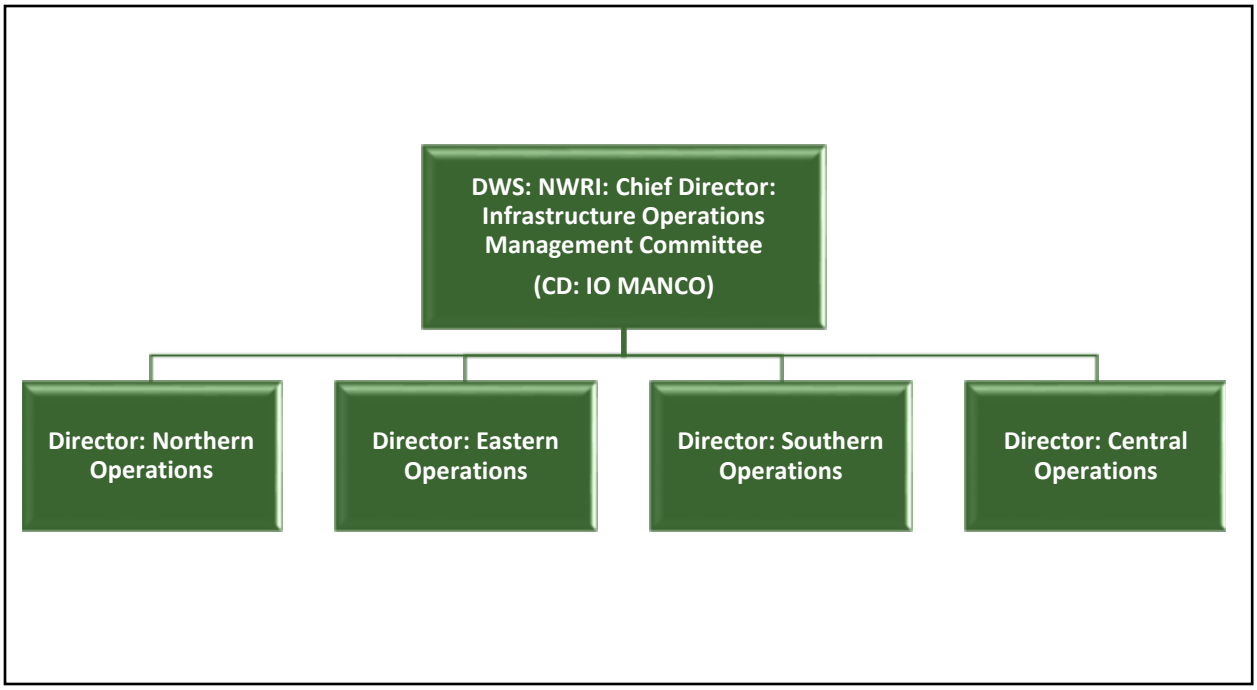

Figure 21: Existing CD: IO MANCO

4.1.3 National Project Steering Committee (NPSC)

NPSC is formed by DWS and is made up of representatives from National Government Departments and Implementing Agencies that are relevant in terms of managing the water resource.

The primary function of the NPSC is to provide guidance on recreational water use in terms of their respective mandates as well as to ensure that continuous support by different Government Sectors is provided to the dam with the aim of achieving sustainable utilisation of the dam for recreational purposes. The NPSC should meet twice a year. **Figure 22** illustrates a typical example of Governmental Departments that will form part of the NPSC:

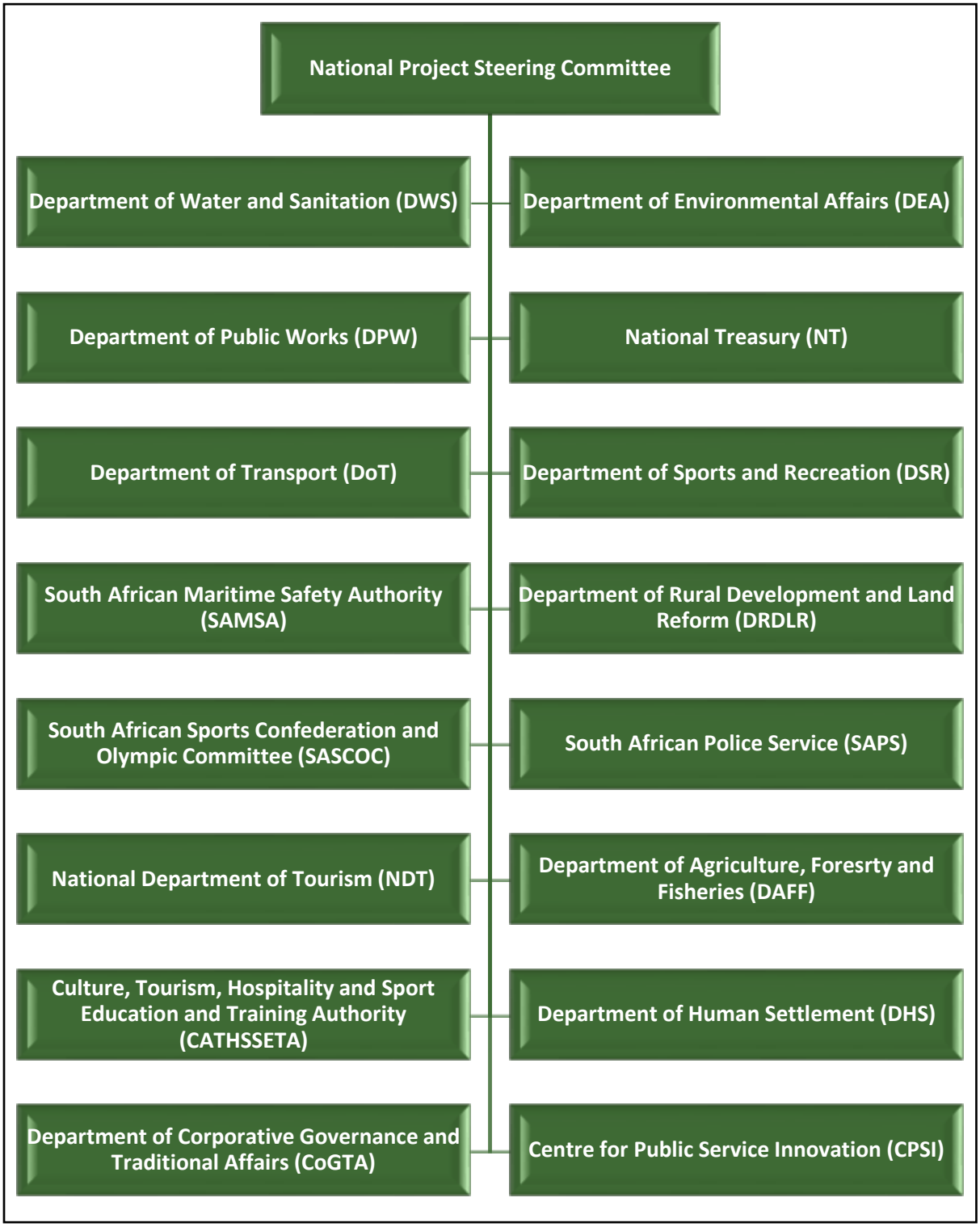

Figure 22: Proposed NPSC

The role of the relevant departments forming part of the NPSC is listed below:

Centre for Public Service Innovation (CPSI):
The CPSI is supporting a multi-departmental working group that is developing an innovative approach to inland water and safety integrity. The project, was initiated out of the need to find an innovative, practical and cost-effective way to implement SAMSA' vessel safety regulations on inland waterways and to implement responsible water use within the broader socio-economic context of the country.

The CIWSP is a project piloted by CPSI that is a partnership between multiple Government entities and between the Government and communities. The main aim of the project is to enhance the development of a best practice model to ensure safe and structured inland maritime environment and culture, whilst protecting the country's precious water resource.

Culture, Arts, Tourism, Hospitality, Sport Sector, Education and Training Authority (CATHSSETA):
CATHSSETA deals with the approval and financing of training relating to culture, hospitality, tourism and sport sectors.

Department of Agriculture, Forestry and Fisheries (DAFF):
The purpose of DAFF includes sustainable development and management of resources to maximizing the economic potential of the fisheries sector while protecting the integrity and quality of the country's aquatic ecosystems.

Operation Phakisa expansion to inland dams is one of DAFF initiative aimed at unlocking economic potential of fisheries sector within the inland water. The latter programme will be used as benchmark for implementation of conservation policies while implementing job creation within fishery and fish processing market.

Department of Corporative Governance and Traditional Affairs (CoGTA):
Its function is to develop national policies and legislation with regard to Provinces and Local government, and to monitor their implementation. Other function of the Department is to support Provinces and Local Government in fulfilling their constitutional and legal obligations.

Department of Environmental Affairs (DEA):
DEA is mandated to give effect to the right of citizens to an environment that is not harmful to their health or wellbeing, and to have the environment protected for the benefit of present and future generations. In relation to the RMP, the Department should ensure that Environmental Impact Assessments is undertaken for all activities that triggers EIA Regulations at the dam. Furthermore, DEA through WfW programme can assist to eradicate alien invasive plants species (Blue Gums and Parrot Furthers) and alien invasive fish species at the dam.

Department of Public Works (DPW):
DPW has the power to regulate and control the use of state land outside the GWWs. In this regard, lease agreements or permits will be required from the Department as some of the recreational activities will overlap into the State Land, e.g. trail running, biking and running.

Department of Rural Development and Land Reform (DRDLR):
The Department is tasked with the facilitation of land claims within the country. They are also involved in rural development by improving both economic infrastructure (such as roads, etc.) and social infrastructure (e.g. communal sanitation and non-farming activities).

Department of Sports and Recreation (DSR):
The Department is mandated to promote and develop sport and recreation activities and also in co-ordination of the relationships between the Sports Commission, national and recreation federations and other agencies.

Department of Tourism (NDT):
The Department is mandated to create conditions for the sustainable growth and development of tourism in South Africa. The Tourism Act makes provision for the promotion of tourism to and in the Republic and for regulation and rationalisation of the tourism sector, including measures aimed at the enhancement and maintenance of the standards of facilities and services utilised by tourists; and the co-ordination and rationalisation of the activities of those who are active in the tourism sector.

Department of Transport (DoT):
Responsible for legislation, policy and regulations for all transportation in South Africa, including shipping and other transport by water or sea, including small vessels and inland waterways.

Department of Water and Sanitation (DWS):
DWS through the National Water Act, 1998 (Act No. 36 of 1998) is mandated to protect aquatic and associated ecosystems and their biological diversity as well as to reduce degradation of the water resources. As part of its mandate, DWS initiated the development of RMPs together with the supporting BPs with the aim of ensuring sustainable and equitable development, utilisation and management of GWWs.

National Treasury (NT):
The Department is mandated to support the optimal allocation and utilisation of financial resources in all spheres of government. As part of the RMP, The National Treasury Public Private Partnership (PPP) Toolkit for Tourism (2005), will assist the process of tourism-based businesses development on State-owned Land. The Toolkit make it easier for Institutions and the Private Sector to enter into tourism related partnerships on State Property managed by National, Provincial and Local Government Institutions.

South African Maritime Safety Authority (SAMSA):
Administers and executes maritime related legislation and regulations, including the National Small Vessel Safety Regulations and ensures standardisation, harmonisation and compliance of all AtoN in South African waters.

South African Police Service (SAPS):
The South African Police Service have been entrusted with the responsibility of creating a safe and secure environment for all people in South Africa as well as to prevent anything that may threaten the safety or security of any community.

South African Sports Confederation and Olympic Committee (SASCOC):
SASCOC is mandated to promote and develop high performance of sports as well as to act as a controlling body for sports in South Africa. It can also assist to coordinate organise events at the dam.

4.2 ZONING PLAN

According to DWAF (2006), a site-specific master planning and zoning which describes a framework for the allocation of zones needs to be undertaken based on the results of the Encumbrance Survey and basic Research regarding the Bio-physical, Social and Cultural environment as well as the objectives set by the Stakeholders (refer to section **3.6)**.

The proposed Zoning Plan will integrate conservation, recreation and development whilst not retarding the primary functions of the dam.

4.2.1 Water Surface Zoning

The water surface zoning provides guidance on permissible and non-permissible recreational activities on the water surface taking into account the biophysical factors of the dam. The Water Surface is zoned as follows:

Safety and Security Zone:

It covers a minimum of 100m area from the wall and outlet works indicated by demarcation markers and AtoN. This area is reserved for DWS management purposes.

Management of this zone is aimed at protecting the dam wall and outlet works, as well as to ensure the safety of the public. This is a no-go zone to the public unless authorised.

Conservation Zones:

The aim of this zone is to conserve and protect sensitive aquatic habitation at the inlet(s) of the dam. According to Section 12 and 26 of NWA, the existence of these zones is thus not negotiable as it is imperative to protect the water resource for the purposes relating to basic human needs, environmental sustainability and water quality requirements. Access to these areas is generally not allowed due to the following:

- The areas intercept sediments and nutrients/ pollutants which pose safety risks to the public due to muddy clay, and
- They are used by aquatic birds and fish species as habitat, refuge and breeding areas.

Low Impact Activity Zone:

This zone act as a buffer between High Impact Activity Zones and Conservation Zones. Low Impact Activity Zone allows for low intensity activities, i.e. activities associated with little or no wake such as wind surfing, kayaking, swimming, rowing, sailing, paddle boating, float tubes, canoeing, angling, yachting, aquaculture and small scale fisheries.

High Impact Activity Zone:

This zone has the largest water surface area and is located where the reservoir is at its deepest. It caters for high impact activities associated with high speed, wake and noise activities such as motorised boating, house boating, water skiing, and para-sailing.

The water surface zoning colour coding means the following:

Colour	Zone Description
Red	Safety and Security Zone
Green	Conservation Zone
Sky Blue	Low Impact Activity Zone
Dark Blue	High Impact Activity Zone

Table 11: Proposed Water Surface Zoning Description

Zone Name	Permissible Activities	Non Permissible Activities	Recommendation
• Safety and Security Zone.	• Management of dam infrastructure • Management and maintenance activities by DWS and authorised personnel	• Public access	• Area should be demarcated by dermacation makers and AtoN.
• Conservation Zones.	• None	• Public activities (prevent aquatic habitats disturbance).	• Area should be demarcated by demarcation makers and AtoN. • Strict management and control of these areas, especially with regards to illegal fishing and dumping.
• Low Impact Activity Zone.	• Activities associated with no or little wakes, such as: ○ Angling ○ Swimming ○ Canoeing ○ Rowing ○ Paddle boating ○ Kayaks ○ Float tubes ○ Rafting ○ Sailing	• Motorised boating • Water Skiing • House boats • Para-sailing • Jet skis	• Area should be demarcated by demarcation makers and AtoN. • Access to Low Impact Activity Zone will be through the Medium Density Activity Zone.

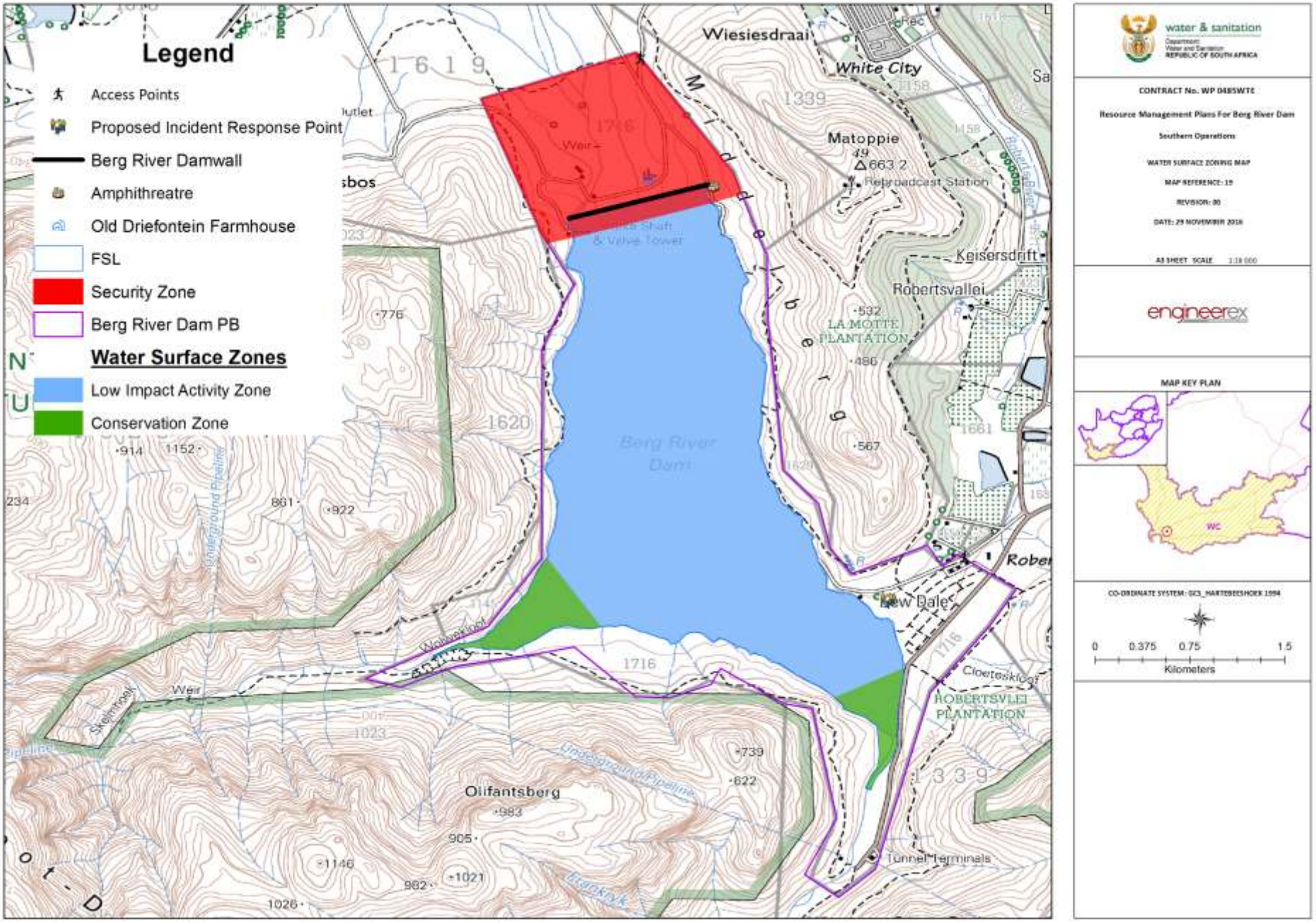

Figure 23: Proposed Water Surface Zoning Map

4.2.2 Shoreline Zoning[4]

In addition to the water surface zoning, an integral part of the RMP is also shoreline zoning, which provides guidance on what recreational activities (if any) are permissible and not permissible on the land adjacent to the dam (DWS purchased boundary). The management zones include:

Safety and Security Zone (dam wall and associated DWS infrastructure):

It is applicable to the area surrounding the dam wall and the outlet works. The extent of this zone is determined by DWS and shall not be less than 100m from the dam wall and downstream. This area is reserved for DWS management purposes.

Management of this zone is aimed at protecting the dam wall and outlet works, as well as to ensure the safety of the public and surrounding areas. This is a no-go zone to the public unless authorised.

Conservation/ Low Density Activity Zone:

This zone consists of ecologically sensitive areas and areas with high biodiversity. It also includes the area around the inlets of the dam. Access to this area is limited to low impact activities such as hiking, bird watching, etc. This area is reserved to prevent ecological damage due to development activities hence high impact development not permitted.

Medium Density Activity Zone:

This area is reserved for small scale activities such as day visitors, picnic areas, shoreline fishing, camping (tent and caravan), braai facilities, swimming pools, ablution facilities and infrastructure for services.

High Density Activity Zone:

This area is reserved for large scale activities including chalets, recreational club houses, infrastructure for services, and Land Based Aquaculture.

Community Resource Zone:

This zone is for the sole beneficiation of the local communities in ensuring that their livelihood is maintained and improved. Activities include subsistence fishing, livestock watering points, small scale community gardens, etc.

The shoreline zoning colour coding means the following:

Colour	Zone Description
Red	Safety and Security Zone
Green	Conservation/ Low Density Activity Zone
Yellow	Medium Density Activity Zone
Orange	High Density Activity Zone
Brown	Community Resource Zone

[4] Permanent structures within the purchase line are not allowed. All developments should be outside 1:100 year floodline.

Table 12: Proposed Shoreline Zoning Description

Zone Name	Permissible Activities	Non-permissible Activities	Recommendation
• Safety and Security Zone.	• Fire management • Alien invasive species clearing • Management of dam infrastructure • Management and maintenance activities by DWS and authorised personnel • Dam wall viewing as well as Heritage Tourism from the Amphitheatre and around the Driefontein Farmhouse	• Unauthorised public access	• A minimum area of 100m wide downstream the dam wall should be demarcated preventing public access and use.
• Conservation/ Low Density Activity Zone.	Conservation management activities: • Bird watching • Hiking	• Development	• Permissible activities may only be permitted provided that they are approved by relevant Authorities and they are conduct as per the relevant Legislations or Regulations, such as National Hiking Way Rules.
• Medium Density Activity Zone.	• Day visitors • Picnic • Infrastructure for Services Currently there is an existing DWS house which is normally referred to as the "Bells Lodge" which is usually used as a start/ finish point for events.	• Accommodation facilities such as ○ Chalets ○ Recreational club houses • Permanent Structures	• The management of this area should follow PPP process in terms of the National Treasury. • Requirements of NWA and NEMA must be taken into account in all recreational activities. • Provision of sufficient sanitary facilities during events in order to protect the environment as well as to promote human hygiene.

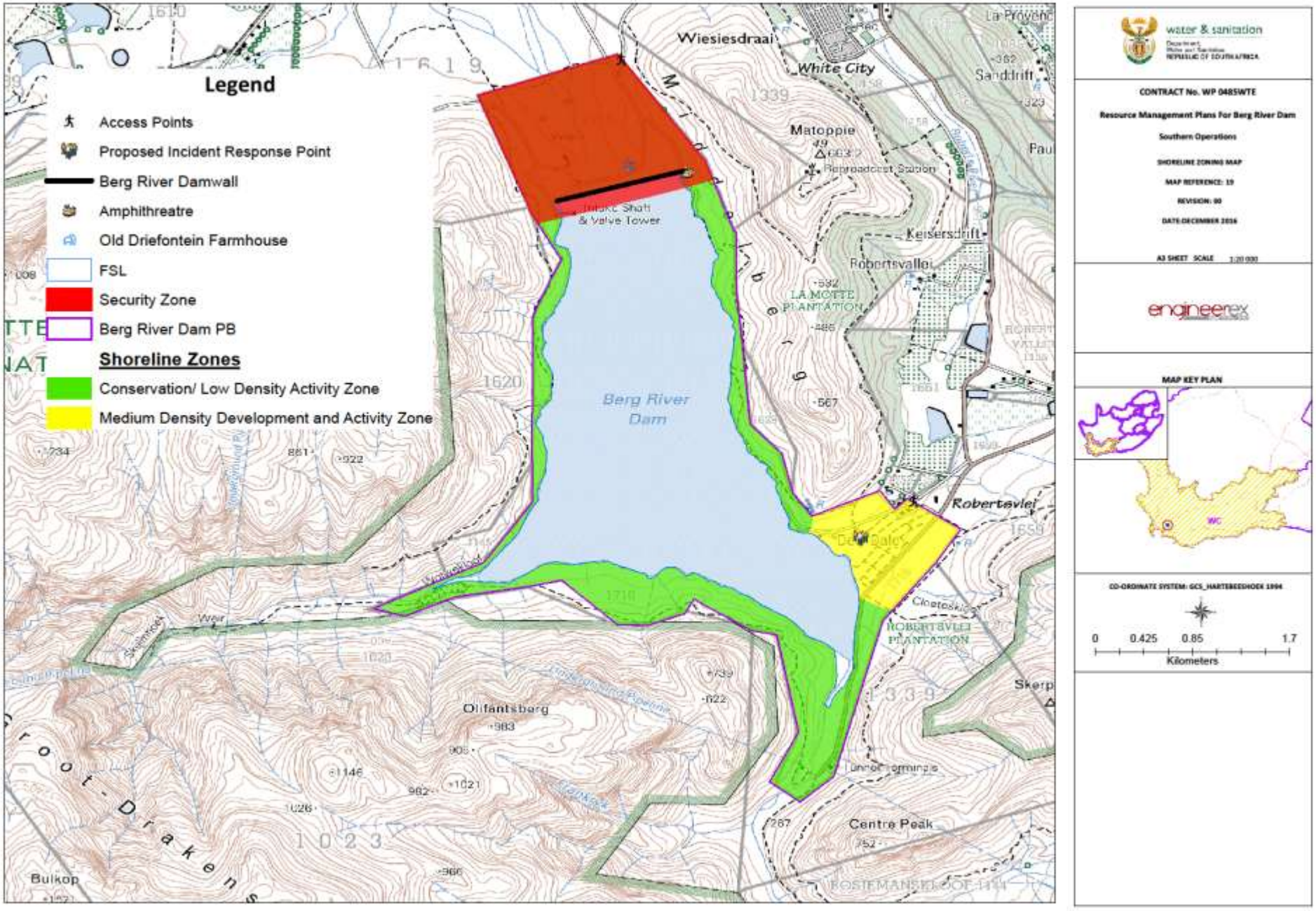

Figure 24: Proposed Shoreline Zoning Map

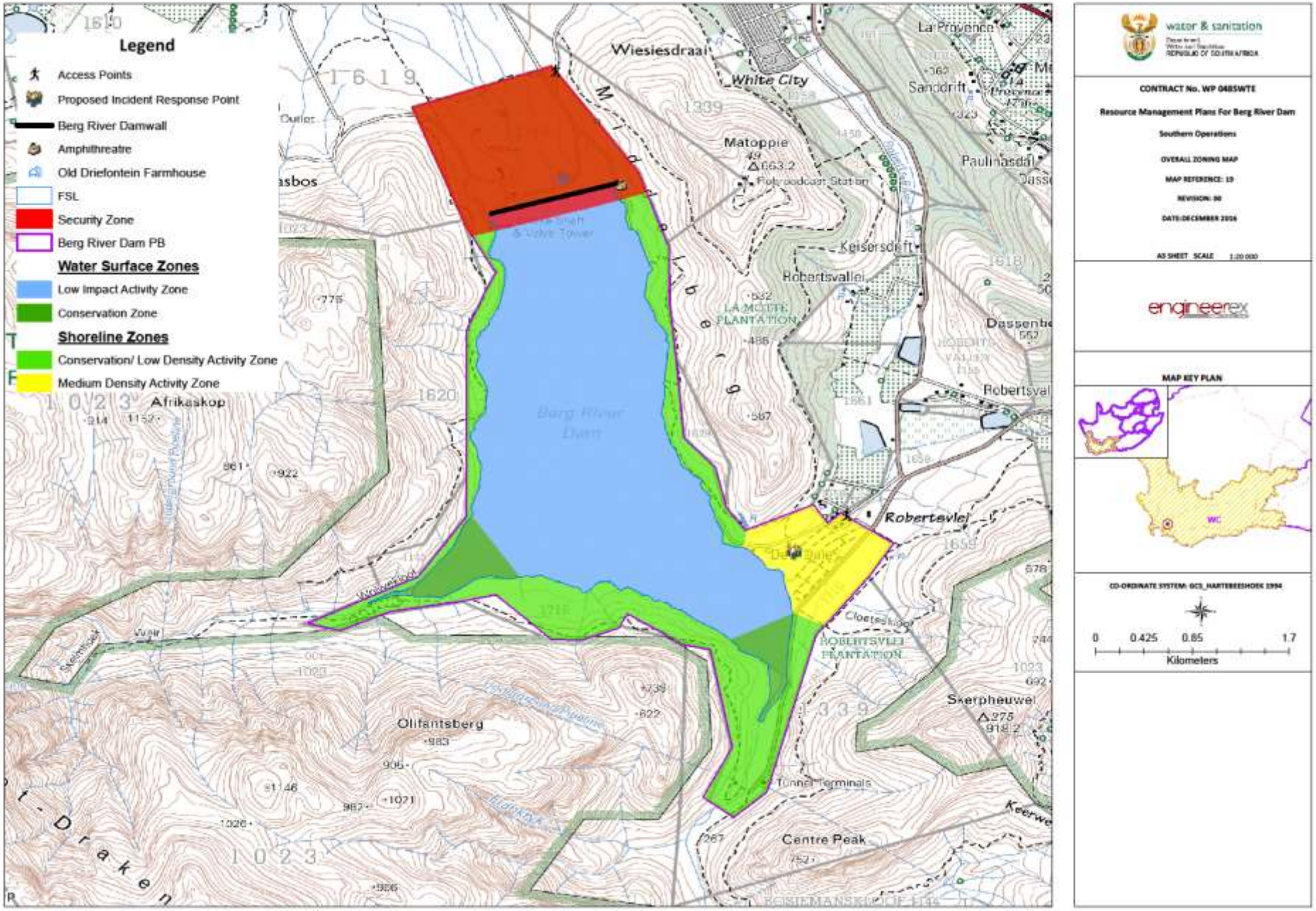

Figure 25: Proposed Overall Zoning Map

4.2.3 Carrying Capacity

The carrying capacity of a water resource represents the maximum level of users and related infrastructure that the water resource and surrounding area can accommodate, without diminishing user satisfaction, the economy and culture of the area.

In order to determine the degree of recreational use possible on the water surface, the Methodology for Carrying Capacity Assessment: Recreational Water Use (DWAF) was used as a guideline to determine the level of activity that would be sustainable at Berg River Dam.

Determining the carrying capacity ensures that recreational use of the dam is safe and that users do not feel crowded and enjoy their use of the dam. There are three kinds of carrying capacity, namely:

- **Physical Carrying Capacity** (PCC) – this is the maximum number of users that can physically fit onto the water surface at any given time;
- **Real Carrying Capacity** (RCC) – this is the maximum number of users that can use the resource once corrective factors that are unique to the dam are taken into account; and
- **Effective** (or permissible) **Carrying Capacity** (ECC) – this is the number of visitors that can use the resource, given the management capacity.

Each level constitutes a corrected capacity level of the preceding level. The PCC is always greater than the RCC, and the RCC is greater than the ECC, thus: **PCC > RCC and RCC ≥ ECC.**

The process of establishing the carrying capacity is normally determined through the following tasks:

- Analysis of recreation and water resource management policies;
- Analysis of objectives of the water resource;
- Analysis of current recreational water use;
- Definition, strengthening or modification of policies regarding recreational water use management;
- Identification of factors influencing recreational water use; and
- Determination of the recreational water use carrying capacity.

The carrying Capacity for Berg River Dam was calculated using the Low Supply Level (LSL) as per the DWS recommendation.

Physical Carrying Capacity (PCC)

PCC refers to the maximum number of users that can physically fit into or onto a defined water resource, over a particular time.

Formula: PCC = A x U/a x Rf

Where:

A = available Surface area for public use
U/a = area required per user
Rf = rotation factor (number of visits/day)

A = **214.80 ha** (40% of the water level).

The ***U/a*** is assumed to be the average which was calculated as 1 craft/3 ha. And again the rotation factor (*Rf*) is assumed as 1 visit per day.

Craft	U/A (ha/craft)
Rowing	0.4
Canoe	0.3
Paddleboat	0.3
Kayaks	0.3
Float tubes	0.3
Rowing shells	0.4
Average	**0.8**

Based on the table above the average hectare per user is 0.3 ha (3 000 m^2), the value of 2.0 ha (20 000 m^2) can be acceptable area per user. This has been chosen in order to ensure that the dam is not overcrowded, as such impacting on the sense of the area.

Therefore: **PCC = A x U/a x Rf**

= 214.80 ha x (1 craft/2ha) x 1

= 107.4 crafts

Real Carrying Capacity (RCC)

It refers to the maximum permissible number of users to the water resource, once the corrective factors (Cf) derived from the particular characteristics of the site have been applied to the PCC.

Formula: RCC = PCC x (100 – Cf1)% x (100 – Cf2)% x … (100 – Cfn)%

Where:

Cf = a corrective factor expressed as a percentage.

The RCC takes into account factors that limit recreation use (craft based) of the dam. For Berg River Dam these factors includes sensitive areas, such as conservation areas (41.29 ha) as well as aspects regarding the safe operation and management of the dam (15.10 ha).

These factors accounts for 56.39 ha, which is 10%

Therefore: RCC = **PCC x (100 – cf1)% x (100 – cf1)% x (100 – cf1)%**

= 107.4 x (100 – 10)%/100

= 96 crafts

Effective Carrying Capacity (ECC)

The maximum number of visitors that a site can sustain, given the management capacity (MC) available.

ECC = [Infrastructure Capacity x Management Capacity] x 100/ RCC

Given that there is no recreational facilities e.g slipways at Berg River Dam, the infrastructure capacity is estimated to be approximately 0. The management capacity is also estimated to be low as there is no formalised recreational management structure in place and thus the ECC is currently 0. Once a proposed Institutional Structure and infrastructure capacity is in place, the ECC can be recalculated to verify if the RCC can be possible.

4.3 STRATEGIC PLAN

The Strategic Plan is informed by the objectives identified by stakeholders and through research on potential opportunities at the dam.

The Objectives of this plan are broken down into management fields:

- Objective (What do we want?);
- Motivation (Why do we want to achieve this?);
- Action Projects (How do we achieve this?); and
- Management Support (Who will be involved?)

In **Tables 13 - 15**, the Strategic Plan on how to achieve the identified objectives identified regarding the dam is outlined.

Table 13: Strategic Plan for KPA 1: Resource Management

KPA 1: Resource Management			
Objective (What do we want)	**Motivation (Why do we want to achieve this)**	**Action Projects (How do we achieve this)**	**Management Support (Who will be involved)**
Alien Invasive Plants Control: • To have Berg River Dam catchment free of Alien Invasive Vegetation in order to support the proposed recreational activities and to maintain the native ecological aspect of the area.	• Alien Invasive Plant Species such as Pom-pom weed, Spear grass, etc. were identified at the dam. The further spreading of these species can have a detrimental effect on the ecology of the dam and they can also hinder other proposed recreational activities such as trail hiking and running.	• Remove all Invasive Alien Vegetation within the purchased line and the surrounding area. • Re-introduce more Fynbos indigenous vegetation at the dam since the area is highly infested by Alien Invasive Species which result in little Indigenous Vegetation left within the area. • Develop an inspection and cleaning mechanism to ensure that Motor Bikes and Hiking equipment such as hiking boots passing through the dam does not contaminate the dam with Alien Seeds.	• Working for Water (WfW) programmes within DEA and Land use and soil Management section within DAFF must be involved in order to eradicate and control Invasive Alien Plant Species within and around the dam. • Involve the Western Cape Expanded Public Works Programme (WEPWP) regarding the Alien Vegetation clearing projects. • South African Biodiversity Institute (SANBI) must be considered as well. • Involvement of TCTA (IA) and DMC.
Soil Erosion Control: • To prevent and mitigate soil erosion and visual pollution at the dam.	• Motor biking is one of the activities that usually takes place at the dam. However, this has resulted in soil erosion and visual pollution since there is no proper trails on site. The motor biking also cause noise pollution which scares big birds away from the dam.	• Motor Biking should be prohibited. • Establishment of sustainable trails that will be effectively managed and monitored. • Monitor trail activities to ensure compliance with environmental principles. • Exposed topsoil must be stabilised or sprinkled with water to avoid dust. • Compile and implement an Erosion Control Monitoring Programme.	• Relevant Government Departments such as Department of Environmental Affairs that are responsible for biodiversity must be consulted with regards to the soil erosion mitigation measures. • TCTA (IA) should ensure that no motor bikes are allowed at the dam, as well as to ensure continuous monitoring of the trails. • Involvement of the DMC and other Local Conservation initiatives e.g. Cape nature, Cape Winelands Biosphere Reserve (CWBR), Cape Pine, etc.

KPA 1: Resource Management			
Objective (What do we want)	**Motivation (Why do we want to achieve this)**	**Action Projects (How do we achieve this)**	**Management Support (Who will be involved)**
Water Quality: • To preserve and maintain the high standard of water quality of the dam.	• The water quality of the Berg River Dam is generally good and it is imperative to ensure that all proposed recreational activities are conducted in a sustainable manner with the aim of preserving water quality within the dam.	• All recreational activities must be monitored and evaluated to ascertain if there is any pollution threat to the dam. • Frequent monitoring of water quality.	• DWS Water Quality and River Health section must monitor water quality regularly to ensure its suitability for recreational activities. • Involvement of the TCTA (IA), DMC and Other Government Departments such as Environmental Affairs and NGOs that concern themselves with water quality and environmental health must be involved, this includes the Stellenbosch Local municipality, Cape Nature, etc. Other Government Departments such as Environmental Affairs and NGOs that concern themselves with water quality and environmental health must be involved, this includes the Stellenbosch Local municipality, Cape Nature, CWBR, etc.
Heritage Resources: • To identify, acknowledge and conserve resources of archaeological significance within the dam basin.	• The dam is situated in an area with culturally significant artefacts. The Driefontein Farmhouse is situated below the dam wall and it must be conserved and preserved well as it can attract more tourists to the dam.	• DMC to engage with the Stellenbosch University for Heritage related research purposes. • Establishment of heritage tourism.	• The South African Heritage Resources Agency (SAHRA) is the national body responsible for the protection of South Africa's cultural heritage resources. • Involvement of TCTA (IA) and DMC.
Zoning Plan: • To compile a Zoning Plan which will integrate conservation, recreation and development whilst not	• According to the RMP guideline, a Zoning Plan must be compiled in terms of DWAF's Guidelines for Compilation of Zoning Plans	• The Zoning Plan should accommodate all feasible recreational activities within the purchased line.	• DWS Survey Service section, Professional Service Provider (PSP) and other relevant Departments should be involved so that they can

KPA 1: Resource Management			
Objective (What do we want)	**Motivation (Why do we want to achieve this)**	**Action Projects (How do we achieve this)**	**Management Support (Who will be involved)**
retarding the primary functions of the dam.	for Government Waterworks (DWAF, 1999). There is an existing zoning plan which was compiled during the SUP development. • However, it is not yet effective and as a result it should be updated and implemented.		give their input in terms of their respective mandates. • TCTA (IA) to ensure that the Zoning plan is adhered to.

Table 14: Strategic Plan for KPA 2: Resource Utilisation

KPA 2: Resource Utilisation			
Objective (What do we want)	**Motivation (Why do we want to achieve this)**	**Action Projects (How do we achieve this)**	**Management Support (Who will be involved)**
Carrying Capacity: • To promote, accommodate and manage a variety of activities and facilities within the dam basin in a manner that enhances the user's experience and minimizes the impact on the resource.	• Carrying Capacity is an effective management tool to control access, utilization of the water resource and development within the dam basin. Berg River Dam is extremely popular for organized events which involve trail running, hiking, cycling, swimming, rowing, etc.	• Establish density controls for recreational activities and facilities that requires carrying capacity assessments (i.e. number of canoes per hectare) • Implement density controls as per approved accepted utilization level.	• TCTA (IA) to ensure that the density control is implemented. • Environmental and other planning institutions including relevant government departments need to be consulted when establishing density controls.
Improve Access Control: • To provide equitable, compactable and adequate access control at the dam.	• Berg River Dam is being utilised by various nearby communities and as a result there is a need for adequate access control to prevent vandalism of the dam's fence	• Access to the dam must be equitable and safe to all users. • Establishment of dam rules in terms of DWAF Regulation R654 relating to access to the dam, fees payable for access, safety measures, speed limit applicable on the	• TCTA (IA), DWS and DMC should ensure that the entrance fees remain reasonable and affordable to the community and tourists.

KPA 2: Resource Utilisation			
Objective (What do we want)	**Motivation (Why do we want to achieve this)**	**Action Projects (How do we achieve this)**	**Management Support (Who will be involved)**
	and gates as well as to ensure user safety.	ring roads around the dam and the time in which the dam will be open to the public. • Educate the Local Communities about the importance of safety measures around the dam basin in order to curb vandalism of the dam's properties. • Access fee to the dam should be prescribed in terms of the S113 and S56 of NWA. The fees can be utilised to maintain the dam as well as to create job opportunities such as cleaners, security, etc. • The entry fee need to be reasonable to ensure that the dam remains an affordable destination for all.	
<u>Organised Events:</u> • To ensure that the organised events are well planned and managed in order to meets the participant's expectations as well as to ensure compliance with Biodiversity Conservation Legislations.	• Different events that involves recreational activities such as mountain biking, trail running, hiking, etc. are more popular due to steep slope of the dam and it is more likely that the demand for organized events will increase in the future. This has to be regulated and well-coordinated in order to ensure sustainable utilisation of the dam	• Event Organizers in conjunction with DWS and DMC should develop an Events Management Plan (EMP) which will identify significant environmental risks (impacts) associated with recreational and competitive events and provide the appropriate control measures to minimize or avoid potential adverse impacts. • Event Organizers must ensure that participants are well trained. • Events organisers should development of an emergency preparedness plan. • Stakeholders need to be kept informed of events calendars and their implications, especially if it will affect access and use of the dam. • Clear communication signage must be put in place in order to inform recreational	• Events Permit must be acquired from the delegated management authority (TCTA) with assistance/ recommendations from the DMC. • Depending on the nature of the event, other organ of state or similar related services need to be involved e.g Municipal Disaster Management, Police, Emergency Ambulance, Local Fire Watch, etc. to ensure that all events are well planned beforehand.

KPA 2: Resource Utilisation			
Objective (What do we want)	**Motivation (Why do we want to achieve this)**	**Action Projects (How do we achieve this)**	**Management Support (Who will be involved)**
		users about the dam rules. This will also promote safety within the dam. • Events will have clearly defined limits placed on sizes, numbers and levels of use, as well as type of activity and restrictions of zones. • Development of an emergency preparedness plan. • A database should be in place containing all registered events, scheduled operation dates (event calendar), event operators as well as relevant governmental, industry, business and tourism role players.	
Safety: • Improved safety of navigation	• There is no standardised and harmonised AtoN and demarcation markers available on the dam.	• To improve safety of navigation through the implementation of standardised and harmonised AtoN and demarcation markers as directed by SAMSA.	• DWS to facilitate the process. • Agreements between SAMSA, TCTA, DWS, LAAPs and other relevant parties to be concluded.

Table 15: Strategic Plan for KPA 3: Benefit Flow Management

KPA 3: Benefit Flow Management			
Objective (What do we want)	**Motivation (Why do we want to achieve this)**	**Action Projects (How do we achieve this)**	**Management Support (Who will be involved)**
Community Participation And Beneficiation: • Uplift the Local Economy and increase Benefit Flows to the surrounding communities through community empowerment and recreational opportunities.	• Tourism sector have been identified as a vehicle for skills development, job creation, Broad-based Black Economic Empowerment, etc. it is imperative that the Local Communities derive benefits from recreational activities conducted at the dam.	• Implement Skills Development Programmes where opportunities exist. • Provision of suitable day visit areas within the dam as majority of communities enjoy visiting the dam during weekends. This will reduce littering at dam as there will be	• Relevant Municipal Departments such as Local Economic Development must be involved. • Involvement of the Ward Councillors, DMC as well as other relevant Government Departments that deal with community social welfare, sport and education should be involved in making sure

KPA 3: Benefit Flow Management			
Objective (What do we want)	**Motivation (Why do we want to achieve this)**	**Action Projects (How do we achieve this)**	**Management Support (Who will be involved)**
		good waste management containers onsite. • To subsidise the recreational events in order to accommodate all classes.	that the community is participating as well as benefiting from the dam through recreational activities. • TCTA (IA)
To unlock economic potential of the dam.	• Berg River Dam has a potential for Wind and hydro electrical power generation [5] • Due to availability of enough wind in the area, there is potential of a Yatch club[6]	A specialist studies must be undertaken to determine the feasibility of the proposed commercial opportunities (Wind and Hydroelectricity Power Generation as well as the Yatch club) at the dam (if approved by DWS).	• DWS • TCTA (IA) • DMC
Institutional Arrangements: • To establish an effective institutional structure that can manage the use of water for recreational purpose in an acceptable manner, which is also representative of all the Stakeholders.	• There is an existing Berg River Dam Steering Committee which was elected during the SUP development. However, this committee is not formalised and as a result existing institutional structure should be updated and formalised	• TCTA to be appointed as an IA. • Roles and Responsibilities to be clearly defined.	• DWS Institutional Establishment section, Process Facilitator and other relevant Departments should be involved so that they can give their input in terms of their respective mandates. • TCTA (IA)

[5] Proposal from Mr Ralph Damonse.
[6] Proposal from Barry Phillips.

4.4 FINANCIAL PLAN

The RMP provides guidance on cost recovery mechanisms to ensure the sustained and improved management of the dam. There are opportunities for PPPs which could further unlock the economic potential of the dam. PPPs allows for DWS to make State Assets such as GWWs available to private parties who wish to engage in tourism related commercial operations (DWAF, 2009). PPPs should be established as per Regulation 16 of the National Treasury.

The dam is a state asset and as such all profits generated from the recreational use, should also be used to further develop the dam. People should not be denied access to the dam. All fees associated with the usage of the dam for recreation should take into account the socio-economic status of the users. The access fees should make a provision for equitable access.

The information acquired from the RMP will be used to produce the Business Plan based on the action projects for each objective as stipulated under the Strategic Plan. However, many of the identified objectives are not of commercial nature and as such these non-economic objectives will not feature in the BP.

The BP provides a good description of possible economic recreational activities and the methods that can be used or enhanced to achieve the ultimate vision and the key objectives of Berg River Dam RMP. It also describes the financial management and operational requirements to implement the Objectives of the RMP

The BP will include a Financial Plan (FP) which will facilitate the implementation of the RMP by providing implementation program cost estimate for all possible economic recreational activities.

THE WAY FORWARD

Once the RMP and its BP are approved by the Minister of Water and Sanitation, it will be published in the Government Gazette as a regulation in terms of Section 26 of the NWA.

Review of RMP

According to DWAF (2006), the RMP is reviewed and updated every five (5) years to ensure that the management objectives remains relevant and management actions are continually improved. The BP is updated annually. **Figure 26** illustrates the RMP & BP review framework.

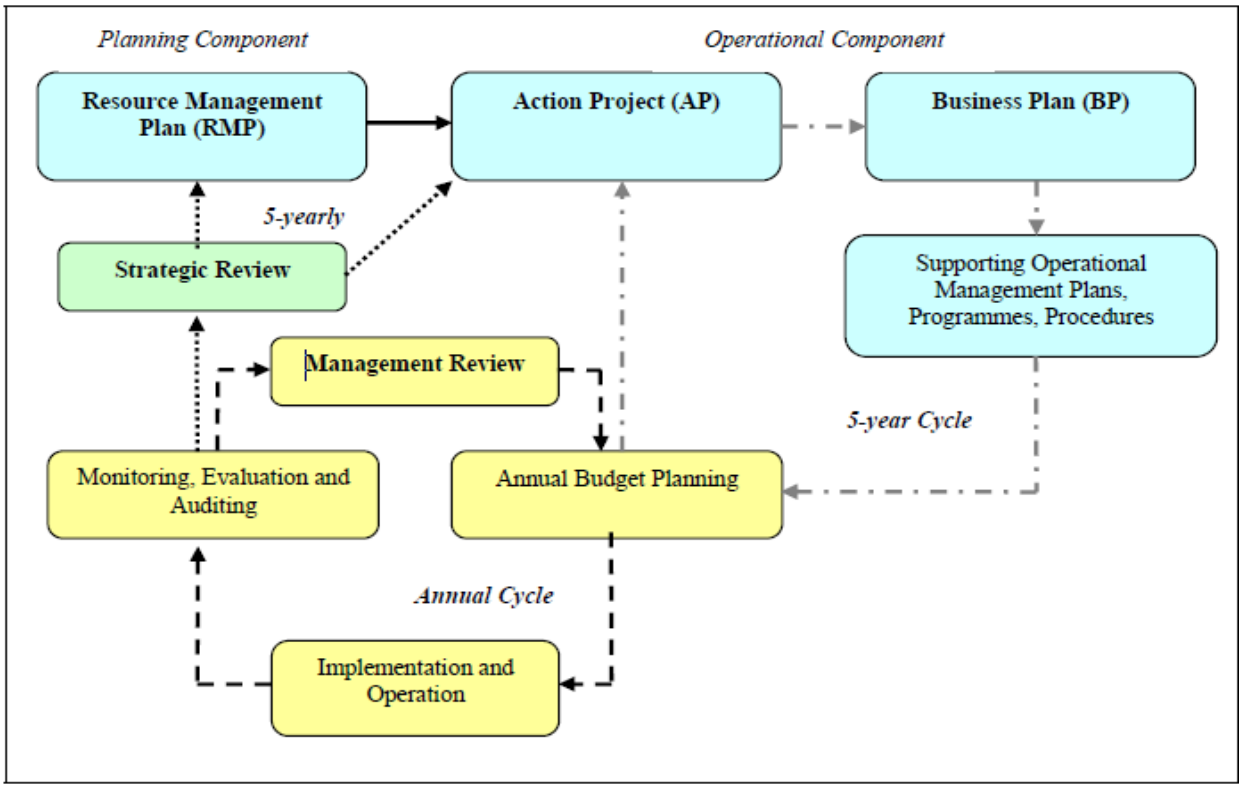

Figure 26: RMP and BP Review Framework

CONCLUSIONS

The RMP documents the challenges that exists within the Berg River Dam that can significantly impact on the utilisation and management of the dam and it's surrounding for recreational purposes. Such factors include biophysical, socio-economic, hydrological as well as access to the resource. These factors will assist DWS with the most appropriate approach to ascertain that the issues are addressed before the implementation of the RMP.

The RMP will assist in effectively managing the dam and its surrounding environment. Furthermore its function is to implement an **Institutional Plan** for the effective management of dam. The focus on Institutional Plan is accompanied by a **Zonal Plan** which provides guidance on potential activities that are allowed on the dam, together with a **Strategic Plan**. Moreover, the RMP promotes community participation and beneficiation, through Stakeholders engagement which were conducted to obtain common key objectives to be met by the RMP. The vision of the dam was formulated from the key common objectives identified by Stakeholders. Based on the strategic objectives identified for Berg River Dam, a BP has been developed to describe a manner in which the potential recreational activities are to be financially resourced.

In addition, by including the RMP in the Local Initiatives such as IDPs, LED, etc. can ensure effective co-operative governance as well as to provide necessary support with regards to the use of dam for recreational purposes. Undertaken in this manner, it is believed that the potential of the water resource can be optimally unlocked in a sustainable and equitable manner.

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APPENDICES