DRAFT BASIC ASSESSMENT REPORT

AUGUST 2021

Proposed Development of the Dihlaping Aquaculture Projects in Maletswai village within the Lephalale Local Municipality

Compiled By
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A programme by
Department of Environmental Affairs, Forestry and Fisheries

environmental affairs
Department:
Environmental Affairs
REPUBLIC OF SOUTH AFRICA

DOCUMENT DESCRIPTION

Applicant:	Dihlaping Aquaculture Projects
Report type:	Basic Assessment Report
Version	Draft
Project name:	Proposed Development of the Dihlaping Aquaculture Projects in Maletswai village within the Lephalale Local Municipality
IDS Reference Number:	IDS 340_031

Report details:

The purpose of this Draft Basic Assessment Report is to:
Present the proposed project and the need for the project;

- Describe the study area environment with respect to the proposed development to ensure an extensive amount of information for commenting purposes and eventually decision-making
- Provision of an overview of the BA Process being followed, including public consultation;
- Assessment of the anticipated positive and negative impacts of the proposed development on the receiving environment;
- Provision of recommendations with the aim of avoiding or mitigating negative impacts whilst enhancing the positive benefits of the project;
- Provision of an Environmental Management Programme (EMPr) for the proposed project.

This Draft Basic Assessment Report is being made available to all Interested and Affected Parties (I&APs) and stakeholders for a 30-day review period. All comments submitted during the review of the BA Report will be incorporated into the finalised Basic Assessment Report as applicable and where necessary. This finalised BA Report will then be submitted to the Limpopo Department of Economic Development, Environment and Tourism (LEDET) for decision-making.

DOCUMENT CONTROL

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Date: **02 August 2021**	**Date**: 02 August 2021	**Date:** 02 August 2021

PUBLIC PARTICIPATION DETAILS

Commenting period	02 August 2021 to 02 September 2021
Online Link	https://drive.google.com/drive/folders/1ZmFgfjYl7KeyApFywF7M5x9IronxWnD4?usp=sharing
Competent Authority	Limpopo Department of Economic Development, Environment and Tourism

EXECUTIVE SUMMARY

Introduction and background

Dihlaping Aquaculture Projects is proposing the establishment of the Dihlaping Aquaculture Projects at Moisimane Camp, Mmaletswai Village, located on the banks of the Palala River, 65 Km South of the town of Lephalale, Limpopo Province.

Basic Assessment Process

Information Decision Systems has been appointed by the National Department of Forestry, Fisheries and the Environment (DFFE), runs the Special Needs and Skills Development Programme which is aimed at providing Environmental Services, pro-bono, to small-scale businesses. The programme offers the undertaking of a Basic Assessment for projects that require this assistance in applying for Environmental Authorisation.

The proposed development triggers listed activities in terms GNR 327 and 324 of the EIA Regulations 2014 as amended (see summary table below) as such a Basic Assessment process is followed.

Relevant Government Notice	Activity No (s) (relevant notice): e.g., Listing notices 1, 2 or 3	Description of listed activity as per the wording in the listing notice
R327	**Listing Notice 1: Activity 3 (iii)**	The development and related operation of facilities or infrastructure for the slaughter of animals with a — (i) product throughput of poultry exceeding 50 poultry per day (iii) wet weight product throughput of fish, crustaceans or amphibians exceeding 20 000 kg per annum..
R327	**Listing Notice 1: Activity 5 (iii)**	The development and related operation of facilities or infrastructure for the concentration of— more than 25 000 chicks younger than 20 days per facility situated outside an urban area
R327	**Listing Notice 1: Activity 6 (i)**	The development and related operation of facilities, infrastructure or structures for aquaculture of: (i) finfish, crustaceans, reptiles or amphibians, where such facility, infrastructure or structures will have a production output exceeding 20 000 kg per annum (wet weight);
R327	**Listing Notice 1: Activity 8**	The development and related operation of hatcheries or agriindustrial facilities outside industrial complexes where the development footprint covers an area of 2 000 square metres or more.
R327	**Listing Notice 1: Activity 12**	The development— (xii) infrastructure or structures with a physical footprint of 100 square metres or more; where such development occurs— (c) if no development setback exists, within 32 metres of a watercourse, measured from the edge of a watercourse; —
R327	**Listing Notice 1: Activity 19**	The infilling or depositing of any material of more than [5] 10 cubic metres into, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock of more than [5] 10 cubic metres from [—(i)] a watercourse; [(ii) the seashore; or iii)the littoral active zone, an estuary or a distance of 100 metres inland of the high-water mark of the sea or estuary, whichever distance is the greater—]
R327	**Listing Notice 1: Activity 27**	The clearance of an area of 1 hectare or more, but less than 20 hectares of indigenous vegetation, except where such clearance of indigenous vegetation is required for: (i) the undertaking of a linear activity; or (ii) maintenance purposes undertaken in accordance with a maintenance management plan.

Relevant Government Notice	Activity No (s) (relevant notice): e.g., Listing notices 1, 2 or 3	Description of listed activity as per the wording in the listing notice
R324	**Listing Notice 3: Activity 12 (e) (ii)**	The clearance of an area of 300 square metres or more of indigenous vegetation except where such clearance of indigenous vegetation is required for maintenance purposes undertaken in accordance with a maintenance management plan. **In Limpopo** (ii) Within critical biodiversity areas identified in bioregional plans
R324	**Listing Notice 3: Activity 13 (e)(ii)**	The development and related operation of facilities of any size for any form of aquaculture. **In Limpopo** (iv) Areas within a watercourse or wetland, or within 100 metres from the edge of a watercourse or wetland.
R324	**Listing Notice 3: Activity 14 (xii) (e) (ff)**	The development— (xii) infrastructure or structures with a physical footprint of 100 square metres or more; where such development occurs— (c) if no development setback exists, within 32 metres of a watercourse, measured from the edge of a watercourse; **In Limpopo** (iv)Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority

This draft Basic Assessment Report (DBAR) has been compiled in accordance with the stipulated requirements in GNR 326, Appendix 1 of the EIA Regulations, 2014 (as amended in 2017), which outlines the legislative BA process and requirements for assessment of outcomes, impacts and residual risks of the proposed development. The Draft BAR further incorporates the findings and recommendations of the specialist studies conducted for the project.

Public Participation Process

The public participation process commenced in April 2021 whereby the intention to apply for an Environmental Authorisation was sent through the following;

- Notification by email to all stakeholders including authorities and the public
- Placement of site notices
- Distribution of the Background Information Document.
- Advertisement on the Mogol Pos dated 29th July 2021.

IDS has since developed an interested and affected parties register to capture information about all parties concerned and interested on the project.

Impact Assessment and Mitigation

The BA Report is informed by three specialist studies, an Aquatic and Wetland Assessment, Terrestrial Biodiversity Assessment and a Heritage Impact Assessment, together with inputs sourced by the environmental scientists in the within IDS and competent authorities that have been engaged especially in the Aquaculture field.

The EAP has not identified any negative impacts that could be classified as “fatal flaws”. The main negative impacts of the Dihlaping Aquaculture Farm project are predicted to be:

- Groundwater monitoring;
- Waste and water management
- Impacts on fauna and flora
- Alien invasive control
- Air emissions
- Soil erosion

- Stormwater management

Whilst the positive impacts have been noted as follows;

- Employment of 11 Skilled labour
- 44 Employment opportunities in the community including temporary, contracted & permanent
- Four (4) Learner ships for the youth
- Food security from the production of 35 tons per annum of Mossambicus tilapia as well as vegetables and chickens.

Mitigation actions have been included in the EMPr and detailed within the Draft BAR. The most important mitigation actions are:

- The development of an alien invasive vegetation control and removal plan, which will be implemented during construction and the operational phase of the project;
- Undertaking water quality monitoring (bi-annual) during the operational phase of the project to ensure the waste generated is not affecting nearby water courses and aquatic faunal species;
- The development of a Storm water management plan; and
- The development of a Fire management plan.
- Borehole monitoring on a bi-annual period, for water quality management, during the construction and operational phase.
- A permit application must be lodged for the removal and relocation of any Boscia albitrunca individuals occurring within the developmental footprint.
- A relocation plan and offset strategy must be developed for the relocation of Boscia albitrunca individuals.
- No construction or surface structure to occur near any riverine systems in the proposed development area and it must ensure that the impact on the ecology downstream of the site of the river system does not occur. The special mention is made to the following:
- The river flow downstream still needs to be maintained of any disturbed areas to ensure the ongoing viability of aquatic macroinvertebrate species in these areas.
- The water quality parameters as mentioned in section 2.1.1 need to be managed and monitored especially the pH and DO. This is done to ensure that reasonable water quality occurs downstream of the proposed development site. This will allow the ongoing survival of aquatic macroinvertebrate species diversity and reasonable sensitivity.
- Make sure that all the activities that are taking place within the proposed development area take the wetland and riverine boundaries into account. No activities should take place within the riverine and wetland boundaries unless it is unavoidable.
- No construction should take place within the 100m buffer from the river as this area is considered a riparian area.
- No infrastructure should be placed within the 32m buffer from any aquatic resources because this area is considered a riparian area.
- Demarcate all the riverine and wetland boundaries.
- No vehicle to drive through or enter the demarcated area except when there is a designated roadway.
- The vehicles should be also restricted from traveling only on the designated roadways to limit the ecological footprint of the proposed development activities.
- No dumping or any other materials is allowed within or on the boundary of the wetland and riverine system.
- No activities should take place on the riverine and wetland boundary. If this is unavoidable, a relevant authorisation must be obtained according to the National Environmental Management Act (NEMA) 107 of 1998 and Section 21 c and i of the National Water Act 36 of 1998.
- No dirty water from the runoff should reach the drainage features in the proposed development area and the requirement of regulation GN 704 of the National Water Act (Act 36 of 1998) needs to be clarified and strictly adhered to.

Based on the findings of the Basic Assessment process for Dihlaping Farm Aquaculture project, it is the opinion of the EAP that the project is authorised on condition that the mitigation measures provided within this report and the EMPr are met and complied with. The EMPr therefore has been identified as an extension of the Environmental Authorisation which the applicant must adhere to. The attention of the applicant is also drawn to the mitigation measures provided by the specialist assessments and the Aquaculture generic model for Mossambicus Tilapia by the DFFE Aquaculture Directorate to ensure financial sustainability of the project.

The project applicant, i.e. Dihlaping (Pty) Ltd, is being assisted under the DFFE Special Needs Programme on a pro bono basis as the applicant qualifies as having “special needs”, in particular, in that they do not have the financial means to conduct

with BA process without financial support. In addition, the applicant has been included within the Operation Phakisa programme which further confirms sustainability. However, the applicant does not have financial resources to consider site alternatives as the process would require due to the land being tribal land.

Due to the site having low impacts following implementation of mitigation measures, it is therefore recommended by the EAPs that the proposed layout and preferred site (this proposal) be included in the Environmental Authorisation (should such authorisation be granted for the proposed project).

Provided that the specified mitigation measures outlined in the EMPr are applied effectively, it is the opinion of the EAP that the benefits of the project outweigh the negative impacts and the project should receive Environmental Authorisation in terms of the EIA Regulations 2014 promulgated under the NEMA.

SUMMARY OF WHERE REQUIREMENTS OF APPENDIX 1 OF THE 2017 NEMA EIA REGULATIONS (GN R 326, AS AMENDED) ARE PROVIDED IN THIS BASIC ASSESSMENT REPORT

Appendix 1 of the Regulations	Yes/No	Section in the Basic Assessment Report
1) A basic assessment report must contain the information that is necessary for the competent authority to consider and come to a decision on the application, and must include-		
(a) details of – i. the EAP who prepared the report; and	YES	Section 2.7
ii. the expertise of the EAP, including a curriculum vitae;	YES	Section 2.7
(b) the location of the activity, including i) the 21 digit Surveyor General code of each cadastral land parcel;	YES	Section 3.2
(ii) where available, the physical address and farm name;	YES	Section 3.2
(iii) where the required information in items (i) and (ii) is not available, the coordinates of the boundary of the property or properties;	YES	Section 3.2
(c) a plan which locates the proposed activity or activities applied for as well as associated structures and infrastructure at an appropriate scale; or, if it is- (i) a linear activity, a description and coordinates of the corridor in which the proposed activity or activities is to be undertaken; or (ii) on land where the property has not been defined, the coordinates within which the activity (iii) is to be undertaken;	YES	Section 3.3
(d) a description of the scope of the proposed activity, including (i) all listed and specified activities triggered and being applied for; and (ii) a description of the activities to be undertaken including associated structures and infrastructure ;	YES	Section 3.3
e) a description of the policy and legislative context within which the development is proposed including- (i) an identification of all legislation, policies, plans, guidelines, spatial tools, municipal development planning frameworks, and instruments that are applicable to this activity and have been considered in the preparation of the report; and	YES	Section 5

Appendix 1 of the Regulations	Yes/No	Section in the Basic Assessment Report
(ii) how the proposed activity complies with and responds to the legislation and policy context, plans, guidelines, tools frameworks, and instruments		
(f) a motivation for the need and desirability for the proposed development including the need and desirability of the activity in the context of the preferred location	YES	Section 3.6
(g) a motivation for the preferred site, activity and technology alternative;	YES	Section 4
(h) a full description of the process followed to reach the proposed preferred alternative within the site, including: (i) details of all the alternatives considered; (ii) details of the public participation process undertaken in terms of regulation 41 of the Regulations, including copies of the supporting documents and inputs; (iii) a summary of the issues raised by interested and affected parties, and an indication of the manner in which the issues were incorporated, or the reasons for not including them; (iv) the environmental attributes associated with the alternatives focusing on the geographical, physical, biological, social, economic, heritage and cultural aspects; (v) the impacts and risks identified for each alternative, including the nature, significance, consequence, extent, duration and probability of the impacts, including the degree to which these impacts- (aa) can be reversed; (bb) may cause irreplaceable loss of resources; and (cc) can be avoided, managed or mitigated; (vi) the methodology used in determining and ranking the nature, significance, consequences, extent, duration and probability of potential environmental impacts and risks associated with the alternatives; (vii) positive and negative impacts that the proposed activity and alternatives will have on the environment and on the community that may be affected focusing on the geographical, physical, biological, social, economic, heritage and cultural aspects; (viii) the possible mitigation measures that could be applied and level of residual risk; (ix) the outcome of the site selection matrix; (x) if no alternatives, including alternative locations for the activity were investigated, the	YES	Section 2 Section 4 Section 6 Section 7 Section 8

Appendix 1 of the Regulations	Yes/No	Section in the Basic Assessment Report
motivation for not considering such; and (xi) a concluding statement indicating the preferred alternatives, including preferred location of the activity;		
(i) a full description of the process undertaken to identify, assess and rank the impacts the activity will impose on the preferred location through the life of the activity, including- (i) a description of all environmental issues and risks that were identified during the environmental impact assessment process; and (ii) an assessment of the significance of each issue and risk and an indication of the extent to which the issue and risk could be avoided or addressed by the adoption of mitigation measures;	YES	Section 8.1
(j) an assessment of each identified potentially significant impact and risk, including- (i) cumulative impacts; (ii) the nature, significance and consequences of the impact and risk; (iii) the extent and duration of the impact and risk; (iv) the probability of the impact and risk occurring; (v) the degree to which the impact and risk can be reversed; (vi) the degree to which the impact and risk may cause irreplaceable loss of resources; and (vii) the degree to which the impact and risk can be avoided, managed or mitigated;	YES	Section 8.1
(k) where applicable, a summary of the findings and impact management measures identified in any specialist report complying with Appendix 6 to these Regulations and an indication as to how these findings and recommendations have been included in the final report;	YES	Section 8.3.1
(l) an environmental impact statement which contains- (i) a summary of the key findings of the environmental impact assessment; (ii) a map at an appropriate scale which superimposes the proposed activity and its associated structures and infrastructure on the environmental sensitivities of the preferred site indicating any areas that should be avoided, including buffers; and (iii) a summary of the positive and negative impacts and risks of the proposed activity and identified alternatives;	YES	Section 8.3
(m) based on the assessment, and where applicable, impact management measures from specialist reports, the recording of	YES	Section 8.3

Appendix 1 of the Regulations	Yes/No	Section in the Basic Assessment Report
the proposed impact management objectives, and the impact management outcomes for the development for inclusion in the EMPr;		
(n) any aspects which were conditional to the findings of the assessment either by the EAP or specialist which are to be included as conditions of authorisation;	YES	Section 8.5
(o) a description of any assumptions, uncertainties, and gaps in knowledge which relate to the assessment and mitigation measures proposed;	YES	Section 8.4
(p) a reasoned opinion as to whether the proposed activity should or should not be authorised, and if the opinion is that it should be authorised, any conditions that should be made in respect of that authorisation;	YES	Section 8.5
(q) where the proposed activity does not include operational aspects, the period for which the environmental authorisation is required, the date on which the activity will be concluded, and the post construction monitoring requirements finalised;	YES	Section 8.5
(r) an undertaking under oath or affirmation by the EAP in relation to: (i) the correctness of the information provided in the reports; (ii) the inclusion of comments and inputs from stakeholders and I&APs; (iii) the inclusion of inputs and recommendations from the specialist reports where relevant; and (iv) any information provided by the EAP to interested and affected parties and any responses by the EAP to comments or inputs made by interested and affected parties; and	YES	Section 10
(s) where applicable, details of any financial provisions for the rehabilitation, closure, and ongoing post decommissioning management of negative environmental impacts;	YES	Section 9
(t) any specific information that may be required by the competent authority; and	YES	Appendix I
(u) any other matters required in terms of section 24(4)(a) and (b) of the Act.	NO	Not applicable

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Glossary of Terms

Term/abbreviation	Description
Aquaculture	the cultivation of aquatic animals and plants, especially fish, shellfish, and seaweed, in natural or controlled marine or freshwater environments
Aquaponics	A combination of aquaculture and hydroponics, i.e. an aquaculture system in which the waste produced by farmed fish (or other aquatic creatures) supplies the nutrients for plants grown hydroponically, which in turn purify the water
ASPT	Average Score per Taxon
BA	Basic Assessment
BAR	Basic Assessment Report
BID	Background Information Document
BPEO	Best Practicable Environment Option
CA	Competent Authority
CAPEX	Capital expenditure
CBA	Critical Biodiversity Areas

Term/abbreviation	Description
CR	Critical
CV	Curriculum Vitae
DBAR	Draft Basic Assessment Report
DFFE	Department of Forestry, Fisheries and the Environment
DO	Dissolved Oxygen
DWAF	Department of Water Affairs and Forestry
DWS	Department of Water and Sanitation
EIA	Environmental Impact Assessment
EIS	Ecological Important Service
EMF	Environmental Management Framework
EMPR	Environmental Management Programme
EN	Endangered
ESA	Ecological Support Areas
GNR	Government Notice
HGM	Hydrogeomoprhic
HIA	Heritage Impact Assessment
I&AP	Interested and affected parties
IDP	Integrated Development Plan
IDS	Information Decision Systems
IHIA	Intermediate Habitat Integrity Assessment
LED	Local Economic Development
LT	Least Threatened
NFEPA	National Freshwater Ecosystem Priority Areas
NWA	National Water Act
OPEX	Operating Expenditure
PACA	Protected and Conservation Areas
PES	Present Ecological State
pH	is a measure of how acidic/basic water is
RAS	Recirculating Aquaculture System
SACAD	South African Protected Areas Database
SAHRA	South African Heritage Resources Agency
SANBI	South African National Biodiversity Institute

Term/abbreviation	Description
SAPAD	South African Protected Areas Database
SDF	Spatial Development Framework
SG	Surveyor General
SWOT	Strengths, Weaknesses, Opportunities, and Threats
A sump	Lowest point to gather water to be immediately and permanently recycled in a RAS system
TDS	Total Dissolved Solids
Tilapia	Tilapia is the common name for nearly a hundred species of cichlid fish from the tilapiine cichlid tribe. Tilapia are mainly freshwater fish inhabiting shallow streams, ponds, rivers and lakes and less commonly found living in brackish water. Tilapia can feed on algae or any plant-based food, which reduces the cost of tilapia farming. The Mozambique tilapia is an oreochromine cichlid fish native to south-eastern Africa. Dull coloured, the Mozambique tilapia often lives up to a decade in its native habitats. It is a popular fish for aquaculture.
VU	Vulnerable

1 INTRODUCTION

Dihlaping Aquaculture Projects is proposing the establishment of the Dihlaping Aquaculture Projects at Moisimane Camp, Mmaletswai Village, located on the banks of the Palala River, 65 Km South of the town of Lephalale, Limpopo Province.

Information Decision Systems has been appointed by the National Department of Forestry, Fisheries and the Environment (DFFE), runs the Special Needs and Skills Development Programme which is aimed at providing Environmental Services, pro-bono, to small-scale businesses. The programme offers the undertaking of a Basic Assessment for projects that require this assistance in applying for Environmental Authorisation.

Therefore, IDS is currently undertaking a Basic Assessment Process for Dihlaping Aquaculture Projects for the establishment of the Dihlaping Aquaculture Projects with the aim of grow 35tons of Mozambique Tilapia.

The proposed development triggers listed activities in terms of the Environmental Impact Assessment (EIA) Regulations, Government Regulations (GNR) 324 and 327 of April 2017 promulgated under the National Environmental Management Act (NEMA) (Act no 107 of 1998). In terms of these Regulations, a Basic Assessment (BA) should be undertaken for the proposed project. The EAP will be managing the BA process on behalf of the project applicant.

2 METHODOLOGY: BASIC ASSESSMENT PROCESS

This section of the report describes the approach undertaken for the Basic Assessment process inclusive of the competent authority process that has been undertaken as well the details of the applicant and the independent Environmental Assessment Practitioner.

2.1 Application for Environmental Authorisation

The Environmental Authorisation Application has been lodged simultaneously with the Draft Basic Assessment report to the Limpopo Department of Economic Development, Environment and Tourism.

2.2 Basic Assessment Study

A Basic Assessment (BA) is the level of environmental assessment applicable to activities listed in Listing Notices 1 and 3 of the Environmental Impact Assessment (EIA) Regulations 2014 as amended in April 2017. A BA is applied to activities that are considered less likely to have significant environmental impacts and, therefore, unlikely to require a detailed Environmental Impact Assessment (EIA).

The BA aims to achieve the following:

- Determine the policy and legislative context within which the proposed activity is undertaken and how the activity complies with and responds to the policy and legislative context;
- Describe the need and desirability of the proposed project;
- Identify the alternatives considered, including the activity, location, and technology alternatives;
- Undertake an impact and risk assessment process inclusive of reasonably foreseeable cumulative impacts (where applicable). The focus being; determining the geographical, physical, biological, social, economic, heritage and cultural sensitivity of the project and the risk of impact of the proposed activity on these aspects to determine the nature, significance, consequence, extent, duration, and probability of the impacts occurring to; and the degree to which these impacts:
    - can be reversed;
    - may cause irreplaceable loss of resources; and
    - can be avoided, managed or mitigated.

This draft Basic Assessment Report (DBAR) has been compiled in accordance with the stipulated requirements in GNR 326, Appendix 1 of the EIA Regulations, 2014 (as amended in 2017), which outlines the legislative BA process and requirements for assessment of outcomes, impacts and residual risks of the proposed development. The DBAR further incorporates the findings and recommendations of the specialist studies conducted for the project.

An Environmental Management Programme (EMPr) has been compiled according to Appendix 4 of GNR 326 of the EIA Regulations, 2014 (as amended in 2017) for the construction and rehabilitation phases of the project and attached as **Appendix H**. The EMPr provides the actions for the management of identified environmental impacts emanating from the project and a detailed outline of the implementation programme to minimise and/ or eliminate any anticipated negative environmental impacts and to enhance positive impacts. The EMPr provides strategies to be used to address the roles and responsibilities of environmental management personnel on site, and a framework for environmental compliance and monitoring.

2.3 Specialist Assessments undertaken

To ensure a comprehensive meticulousness scientific approach to the BA study, IDS has appointed a number of specialist studies in order to comprehensively identify both potentially positive and negative environmental impacts (social and biophysical), associated with the proposed project, and where possible to provide mitigation measures to reduce the potentially negative impacts and enhance the positive impacts (**Table 1**). The specialist studies are attached as **Appendix G**.

Table 1: Specialist assessments conducted is support of the Basic Assessment process for the proposed development

Specialist Assessment	Organisation	Date	Appendix on the BA Report
Phase 1 Heritage Impact Assessment	Tsimba Archaeological Footprints (Pty) Ltd	June 2021	Appendix G1
Freshwater Impact Assessment	Information Decision Systems (Pty) Ltd	July 2021	Appendix G2
Terrestrial Biodiversity Impact Assessment	Information Decision Systems (Pty) Ltd	July 2021	Appendix G3
Specialist Reviewer	9zeroSeven (Pty) Ltd		

2.4 Details of the Applicant

Dihlaping Aquaculture Projects is the project applicant for the proposed development and the details are provided in **Table 2** below;

Table 2: Project applicant details

Company Name	Dihlaping Aquaculture Projects
Contact Person	Mathema Makola
Contact Details	066 100 8045 / 067 779 4945
Email	tloukola@webmail.co.za

2.5 Details of the Environmental Assessment Practitioner

Information Decision Systems (Pty) Ltd is the appointed independent Environmental Assessment Practitioner (EAP) for the proposed development of the Dihlaping Aquaculture Projects as per **Table 3** below. The CV of the EAP has been attached as **Appendix I.**

Table 3: EAP details

Company Name	Information Decision Systems (Pty) Ltd
Contact Person	Ms Vanessa Nkosi
Email	vanessa@ids-cc.co.za
Tel	087 353 2576
Fax	086 685 7767

3 PROJECT DESCRIPTION

3.1 Locality

The proposed project is located within a 6 ha piece of land at Moisimane Camp, Mmaletswai Village, 65 Km South of the town of Lephalale, under the jurisdiction of Lephalale Local Municipality, Limpopo Province.

The geographic coordinates of the study area have been described in **Figure 1** below.

Table 4: Geographical coordinates of study area

Site name	Latitude (S)	Longitude (E)
Dihlaping Aquaculture Farm	23°23'11.36"S	28° 1'35.15"E

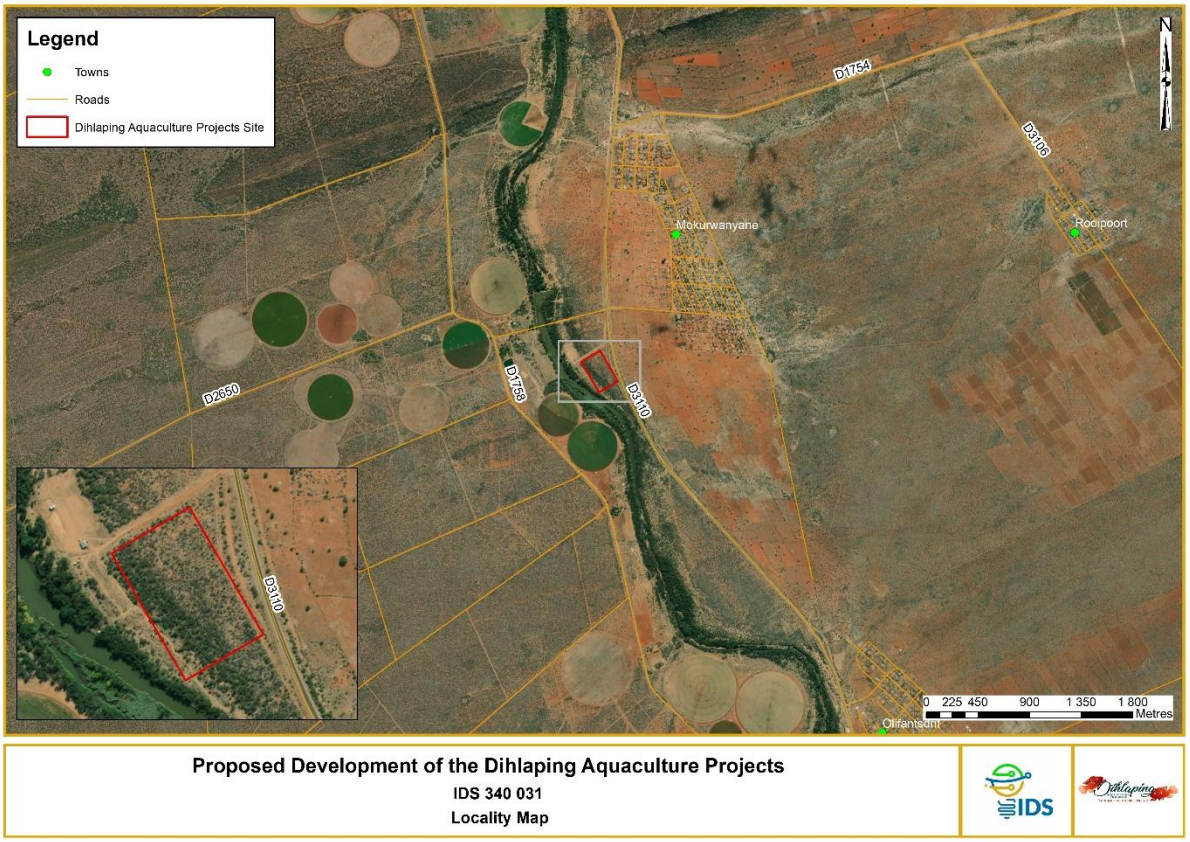

Figure 1: Site Locality

3.2 Property Description

The Dihlaping Aquaculture Projects farm is located within Farm Rooipoort 173 Portion 0 and Farm Schlesing 176 Portion 0 under the ownership of the Mmaletswai Tribal Authority (**Figure 2**). The applicant has been issued with a permit to occupy and utilise 6 ha of land by the tribal authority.

The table below describes the Surveyor General 21-digit code of the affected property.

Table 5: SG 21-digit code of the study area

Farm Rooipoort 173 Portion	T0LR00000000017300000
Farm Schlesing 176 Portion 0	T0LR00000000017600000

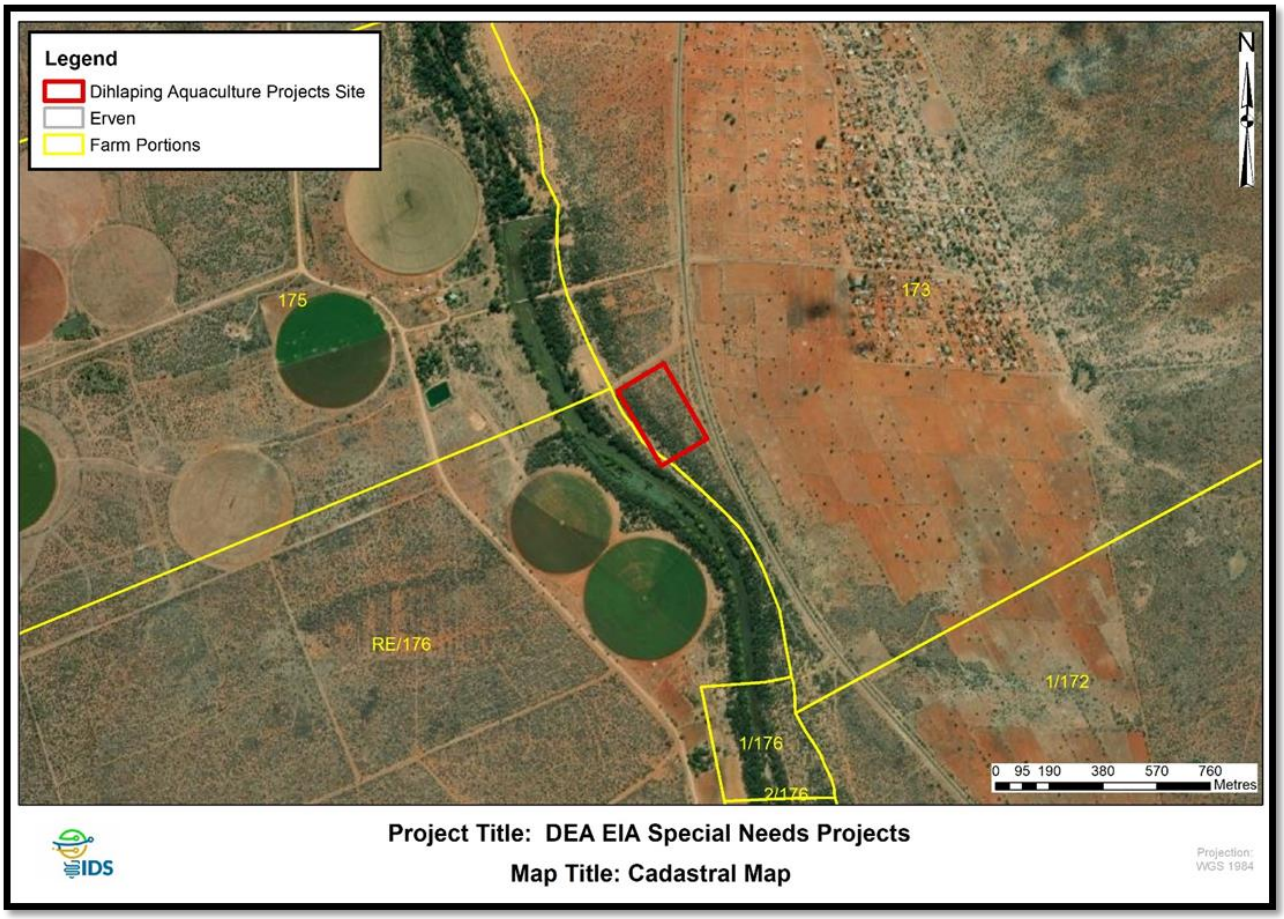

Figure 2 : Cadastral map of the study area

3.3 Scope of Works

The Dihlaping Aquaculture Projects was established in 2014. It started in Baviaanshoek as a pilot project in 2017 September as RAS-Reticulation Aquaculture system until 2018. In 2019 the tanks were turned into mimic green water ponds.

Dihlaping Aquaculture projects is aiming to breed and produce Mozambicus tilapia integrated with Poultry– Layers and Broilers to produce eggs, chicken meat and vegetables. Maletswai Village makes this an ideal location for the establishment of the project because of its traditional rural owned agricultural land. This location has a long summer and short winter which allows for an extended growth period for both the species. Chicken and fish meat are a popular food amongst the local population and recognizing this growth, Dihlaping will cater for this demand through the establishment of an integrated poultry fish farming.

Information Box

The Mozambique tilapia is an oreochromine cichlid fish native to southeastern Africa. Dull colored, the Mozambique tilapia often lives up to a decade in its native habitats. It is a popular fish for aquaculture.

South Africa's Department of Environmental Affairs and Tourism (DEAT) has placed a moratorium on farming *O. niloticus* in the provinces inhabited by *O. mossambicus* – namely the Limpopo, Mpumalanga and **KwaZulu-Natal provinces**. Nile tilapia farming is only permitted in six of the nine national provinces.

Integrated Fish Farming, Poultry and Vegetables

Integrated fish farming, poultry and vegetables fish farming is a system of producing fish in combination with other agricultural/livestock farming operations centered on the fishpond. By-product/wastes of crop can be used as feed, manure for the fish pond and as feed for livestock and manure for vegetables.

Figure 3: A description of the integrated fish farming poultry project

3.3.1 Tilapia Production System

The production system will consist of six ponds. For commencement, two ponds will be developed which shall increase to six ponds depending on the outcome of the first two ponds. Each pond will cover **25 x 8 m** with a capacity of **186m^3** and be capable of producing **35 Tons/annum**.

In addition, chicken houses will be built where to collect built-up manure from chicken droppings to fertilize the crop, feeding fish and selling to other farmers. Harvesting will be done using nets and will take place according to the established market demand.

A choice of additional applications to enhance production and water quality by the addition of supplemental oxygenation using paddle wheel aerators shall also be considered. Supplemental food if required will be produced on site to reduce costs and shorten the growth period.

3.3.2 Hatchery and Breeding System

The hatchery will be typically laid out as per **Figure 4** below. The breeding facility's function is to provide large quantities of fish fry, and the sex-reversal system in order to produce all-male fry (20-25mm) as male tilapia grow faster than female tilapia. The fingerling rearing system is to rear these sex-reversed fry to fingerling size (40-60mm) fish for stocking the pond grow-out system. The Palala River has an abundance of naturally occurring Oreochromis mossambicus which will be the source of the brood stock.

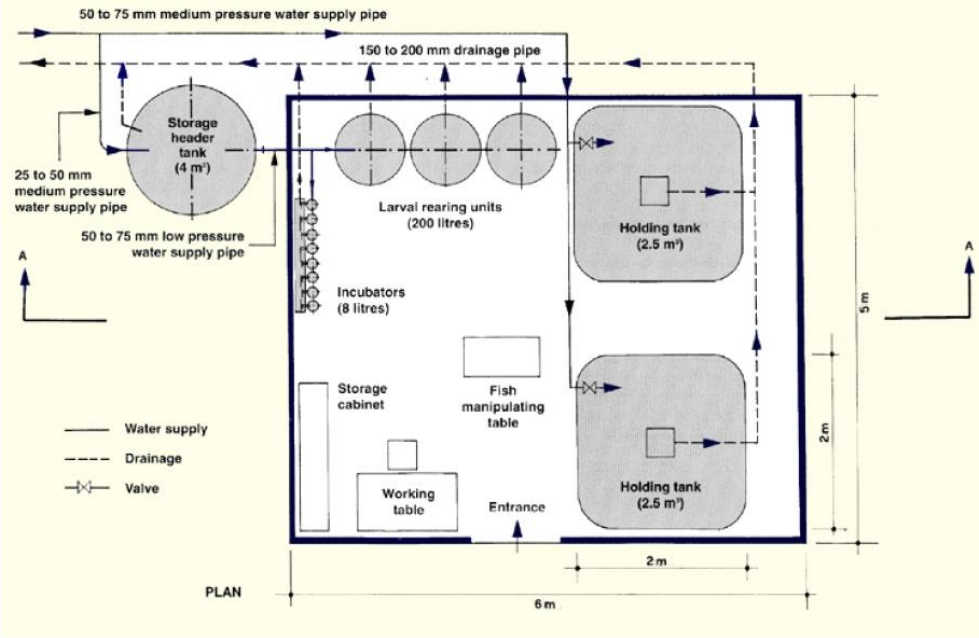

Figure 4: Proposed hatchery system

3.3.3 Water treatment

An artificial wetland will be established for purification of the water ensuring non consumptive use. Water losses will be restricted to evaporation, the build of salts and other by products will be substantially reduced using this method. This innovation and water-saving design will find valuable application in many places elsewhere where pond-farming is otherwise limited by water volume availability, and forms one of the attractive demonstration components of the farm. The Ponds will be built with cement and bricks and be sealed with clay.

The water supply for the hatchery is separate from that for the pond farm. The hatchery system is a RAS system (Reticulated Aquaculture System) which process its own water, the water will be supplied via boreholes to ensure water quality remains consistent.

3.3.4 Bulk Water Supply

The farm lies on the Palala River and the bulk water shall be provided via the water borehole whereas Palala River and overflows during summer months will be used as back up for irrigation. Only organic crops will be grown on the plot and chemicals and pesticides will not be needed as tunnels will be used to protect our fish and crops.

3.3.5 Electricity

The electricity supply is provided by Eskom, the supply is currently stable, but outages are experienced. Application for electricity connection is required.

3.3.6 Security

Fence - The farm will need to fence with an electric fence and Security officer is required to patrol at night to reduce the possibility of theft and predation by wildlife. The ponds will have nets to exclude daytime predation.

3.3.7 Indigenous Plants

During pegging of the site protected species and indigenous plants e.g. aloes were demarcated and the aim is to keep the indigenous plants on site. Protected trees will not be moved as there are plans to transplant them, only indigenous plants, some will be used for aesthetics and the rest will be kept in the nursery which will be built on site.

3.4 Physical size of activity

The total footprint of the site is approximately 6 ha and has been broken down into the following dimensions as per table below.

Table 6: Facilities dimensions

Facility name	Dimension	Geographic coordinates
Parking lot	Not detailed	23°23'6.19"S 28° 1'36.31"E
Office Space	7x4m	23°23'6.54"S 28° 1'36.62"E
Storage 2x	7x4m	23°23'6.54"S 28° 1'36.62"E
Processing Plant	6x6m	23°23'7.24"S 28° 1'36.97"E
Access Roads	Not detailed	**Start Point** 23°23'6.93"S 28° 1'35.97"E **End Point** 23°23'16.30"S 28° 1'37.69"E
Reservoir	Not detailed	23°23'10.77"S 28° 1'38.83"E
Chicken House (Broilersx3)	20x15m	**Broiler 1** 23°23'11.59"S 28° 1'35.66"E **Broiler 2** 23°23'11.25"S 28° 1'36.37"E **Broiler 3** 23°23'10.93"S 28° 1'37.05"E
Chicken House (Layers x3)	20x15m	**Layer 1**

Facility name	Dimension	Geographic coordinates
		23°23'12.30"S 28° 1'36.17"E **Layer 2** 23°23'12.03"S 28° 1'36.82"E **Layer 3** 23°23'11.81"S 28° 1'37.35"E
Hatchery	108m^2	23°23'13.35"S 28° 1'38.38"E
Fish Damx7	8x25m	23°23'14.67"S 28° 1'39.08"E
Tunnels 6x	30x10m	23°23'14.15"S 28° 1'36.23"E
Sump dams	Not detailed	23°23'15.46"S 23°23'15.46"S
Borehole	Not detailed	23°23'16.25"S 28° 1'36.45"E

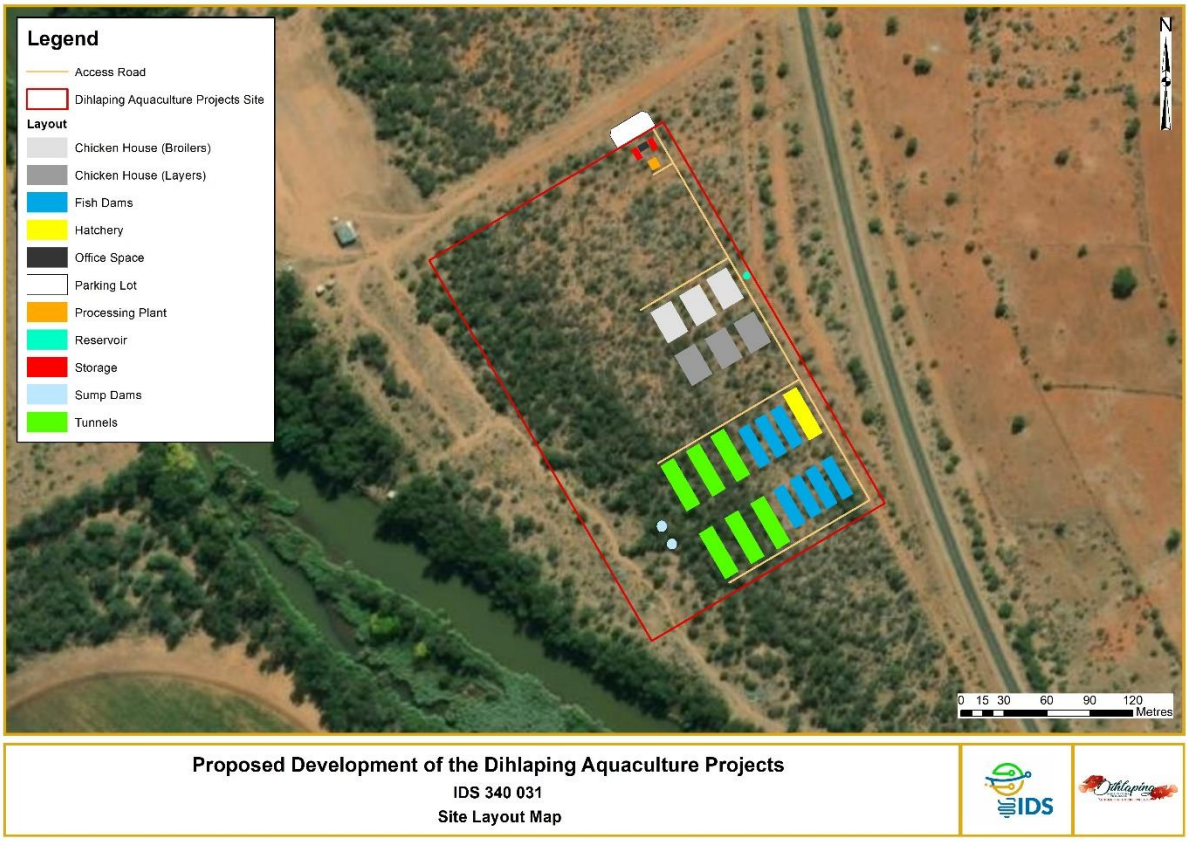

Figure 5: Proposed site layout plan

3.5 Site Access

A 1380m site access has been proposed utilising the existing gravel road off the R36. The coordinates of the access road have been indicated in **Table 6** above.

The route position information has been attached as **Appendix D**.

3.6 Needs and desirability

The needs and desirability discussed below is as per Notice 891 of 2014, Guideline on Need and Desirability in terms of the Environmental Impact Assessment (EIA) Regulations 2010.

3.6.1 Securing Ecological Sustainable Development and use of natural Resources

How will this development (and its separate elements/aspects) impact on the ecological integrity of the area?

Ecosystem Threat Status

According to the National Environmental Management: Biodiversity Act, the entire extent of the project area is within a least concern ecosystem, which is an ecosystem which has a low risk of undergoing significant degradation of ecological structure, function or composition as a result of human intervention, although they are not critically endangered ecosystems or endangered ecosystems.

Critical Biodiversity Areas

According to the DEA Screening Tool, a Critical Biodiversity Area 2 is noted within the site, resulting in a very high sensitivity towards terrestrial biodiversity.

Environmental Management Framework

According to the Waterberg District Environmental Management Framework (2021), agriculture in the area is important for the production of food for the expanding markets in parts of the district and also for markets in nearby Gauteng. In addition, agriculture remains the most important employment sector in the district and as such has an important function in the stability of the social structure of the area.

For these reasons it is important that current agricultural practices, especially intensive agriculture be maintained and be expanded onto additional high potential agricultural land in future. In addition, the site is defined to be within **Zone 10: Agriculture areas with commercial focus** as per Environmental Management Zones for the Waterberg District. The desired state for Zone 10 requires sustainable use of water for irrigation and no water quality deterioration is allowed. The proposed development is in line with the district municipality Environmental Management Framework.

Integrated Development Plan

The Lephalale Integrated Development Plan (2021), Lephalale is defined by Limpopo Growth and Development Strategy as a coal mining and petrochemical cluster. However agriculture is noted as a second economy in terms of high unemployment and lack of skills amongst the youth, women, and people with disability in Lephalale Municipality. It is therefore noted that the proposed development will induce growth within the second economy through employment and local business empowerment.

How will this development disturb or enhance ecosystems and/or result in the loss or protection of biological diversity? What measures were explored to firstly avoid these negative impacts, and where these negative impacts could not be avoided altogether, what measures were explored to minimise and remedy (including offsetting) the impacts? What measures were explored to enhance positive impacts?

Based on the terrestrial assessment, no species of conservation concern were noted, and it is evident that the area has been disturbed by anthropogenic activities. However, a South African protected tree, *Boscia albitrunca*, was identified within the project site area. The proposed project area shows signs of bush encroachment and the presence of alien invasive species, due to overgrazing, regular clearing of vegetation, ploughing lines and vehicle paths which traverse through the project area.

Even though the project area is noted to be a CBA 2, the current impacts within the project site and surrounding region as mentioned above has altered the natural state of the environment in a manner that has decreased the ecological function of the project area.

All impacts are noted to have a high, medium-high, medium or medium-low significance before mitigation measure can be implemented. These significance ratings are due to the removal of vegetation from the development footprint size, causing soil erosion, habitat loss, faunal and floral disturbance, and the infestation of alien invasive species. The generation of waste caused by the type of activity (agriculture), causes a higher significance rating, leading to bad odours in and around the study area and the potential transmission of disease-causing microbes. This aspect and related impacts affect the site as well as neighbouring areas, should the waste enter the watercourse. In addition to the above, the spread of invasive fish species into the nearby river system and the Limpopo catchment and the loss of floral, faunal and aquatic species due to flooding or the mismanagement of the close aquaculture system, is very important to consider as it is noted to have a high significance with regards to the impact on the environment. All impacts are however noted to have a low or very low significance rating if all mitigation measures are strictly adhered to.

Therefore based on the above, the development is noted to improve local economy and job creating without adverse impacts on the environment.

How will this development pollute and/or degrade the biophysical environment? What measures were explored to firstly avoid these impacts, and where impacts could not be avoided altogether, what measures were explored to minimise and remedy (including offsetting) the impacts? What measures were explored to enhance positive impacts?

Based on the terrestrial assessment, no species of conservation concern were noted, and it is evident that the area has been disturbed by anthropogenic activities. However, a South African protected tree, *Boscia albitrunca*, was identified within the project site area. The proposed project area shows signs of bush encroachment and the presence of alien invasive species, due to overgrazing, regular clearing of vegetation, ploughing lines and vehicle paths which traverse through the project area.

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to consider as it is noted to have a high significance with regards to the impact on the environment. All impacts are however noted to have a low or very low significance rating if all mitigation measures are strictly adhered to.

Therefore based on the above, the development is noted to improve local economy and job creating without adverse impacts on the environment.

What waste will be generated by this development? What measures were explored to firstly avoid waste, and where waste could not be avoided altogether, what measures were explored to minimise, reuse and/or recycle the waste? What measures have been explored to safely treat and/or dispose of unavoidable waste?

Construction Phase

No waste streams are anticipated to be produced from construction activities proposed on site other than domestic and construction waste which will be disposed of to a registered landfill. Consequently, volumes can only be determined at a later stage (development stage of the project).

Operational Phase

Due to the expected activities to be undertaken, the RAS system is a closed system. In addition, built-up manure from chicken droppings will be utilised to fertilize the crop, feeding fish and selling to other farmers.

Decommissioning phase

No waste streams are anticipated to be produced from decommissioning activities proposed on site other than domestic and construction waste which will be disposed of to a registered landfill.

How will this development disturb or enhance landscapes and/or sites that constitute the nation's cultural heritage? What measures were explored to firstly avoid these impacts, and where impacts could not be avoided altogether, what measures were explored to minimise and remedy (including offsetting) the impacts? What measures were explored to enhance positive impacts?

No graves or burial grounds were recorded within the study area therefore no disturbance is anticipated on the natural landscape or nation's cultural heritage by the development. A Heritage Impact Assessment was conducted and it was concluded that no heritage resources are located on site.

How will this development use and/or impact on non-renewable natural resources? What measures were explored to ensure responsible and equitable use of the resources? How have the consequences of the depletion of the non-renewable natural resources been considered? What measures were explored to firstly avoid these impacts, and where impacts could not be avoided altogether, what measures were explored to minimise and remedy (including offsetting) the impacts? What measures were explored to enhance positive impacts?

The proposed development will not impact on any non-renewable natural resources.

How will this development use and/or impact on renewable natural resources and the ecosystem of which they are part? Will the use of the resources and/or impact on the ecosystem jeopardise the integrity of the resource and/or system taking into account carrying capacity restrictions, limits of acceptable change, and thresholds? What measures were explored to firstly avoid the use of resources, or if avoidance is not possible, to minimise the use of resources? What measures were taken to ensure responsible and equitable use of the resources? What measures were explored to enhance positive impacts?

The proposed development will not impact on any renewable natural resources.

How will the ecological impacts resulting from this development impact on people's environmental right in terms following;

Construction and Operational Phase

The following impacts have been identified based on the scope of work to be carried out in comparison to the receiving environment:

- Removal of existing vegetation community which includes the loss of and a Critical Biodiversity Area 2 (CBA);
- Disturbance and mortality of faunal species due to habitat loss;
- Reduction in air quality due to the generation of dust caused by construction activities;
- Sedimentation and erosion due to the clearance of vegetation;
- The loss of floral and faunal species caused by the transmission of disease-causing microbes and bad odours due to the mismanagement and storage of animal waste;
- The loss of floral and faunal species due to flooding or the mismanagement of the close aquaculture system; and
- An increase of pests due to the mismanagement of waste and bad odours.

Decommissioning Phase

The following impacts have been identified based on the scope of work to be carried out in comparison to the receiving environment:

- Infestation of floral alien invasive species, due to the clearing of vegetation and infrastructure;
- Sedimentation and erosion due to the clearance of vegetation and infrastructure;
- The loss of floral and faunal species caused by the transmission of disease-causing microbes; and
- The disturbance of faunal movements, due to construction remnants.

Describe the linkages and dependencies between human wellbeing, livelihoods and ecosystem services applicable to the area in question and how the development's ecological impacts will result in socio-economic impacts (e.g. on livelihoods, loss of heritage site, opportunity costs, etc.)?

Based on the terrestrial assessment, no species of conservation concern were noted, and it is evident that the area has been disturbed by anthropogenic activities. However, a South African protected tree, *Boscia albitrunca*, was identified within the project site area. The proposed project area shows signs of bush encroachment and the presence of alien invasive species, due to overgrazing, regular clearing of vegetation, ploughing lines and vehicle paths which traverse through the project area.

Even though the project area is noted to be a CBA 2, the current impacts within the project site and surrounding region as mentioned above has altered the natural state of the environment in a manner that has decreased the ecological function of the project area.

All impacts are noted to have a high, medium-high, medium or medium-low significance before mitigation measure can be implemented. These significance ratings are due to the removal of vegetation from the development footprint size, causing soil erosion, habitat loss, faunal and floral disturbance, and the infestation of alien invasive species. The generation of waste caused by the type of activity (agriculture), causes a higher significance rating, leading to bad odours in and around the study area and the potential transmission of disease-causing microbes. This aspect and related impacts affect the site as well as neighbouring areas, should the waste enter the watercourse. In addition to the above, the spread of invasive fish species into the nearby river system and the Limpopo catchment and the loss of floral, faunal and aquatic species due to flooding or the mismanagement of the close aquaculture system, is very important to consider as it is noted to have a high significance with regards to the impact on the environment. All impacts are however noted to have a low or very low significance rating if all mitigation measures are strictly adhered to.

Therefore based on the above, the development is noted to improve local economy and job creating without adverse impacts on the environment.

Based on all of the above, how will this development positively or negatively impact on ecological integrity objectives/targets/considerations of the area?

Based on the terrestrial assessment, no species of conservation concern were noted, and it is evident that the area has been disturbed by anthropogenic activities. However, a South African protected tree, *Boscia albitrunca*, was identified within the project site area. The proposed project area shows signs of bush encroachment and the presence of alien invasive species, due to overgrazing, regular clearing of vegetation, ploughing lines and vehicle paths which traverse through the project area.

Even though the project area is noted to be a CBA 2, the current impacts within the project site and surrounding region as mentioned above has altered the natural state of the environment in a manner that has decreased the ecological function of the project area.

All impacts are noted to have a high, medium-high, medium or medium-low significance before mitigation measure can be implemented. These significance ratings are due to the removal of vegetation from the development footprint size, causing soil erosion, habitat loss, faunal and floral disturbance, and the infestation of alien invasive species. The generation of waste caused by the type of activity (agriculture), causes a higher significance rating, leading to bad odours in and around the study area and the potential transmission of disease-causing microbes. This aspect and related impacts affect the site as well as neighbouring areas, should the waste enter the watercourse. In addition to the above, the spread of invasive fish species into the nearby river system and the Limpopo catchment and the loss of floral, faunal and aquatic species due to flooding or the mismanagement of the close aquaculture system, is very important

to consider as it is noted to have a high significance with regards to the impact on the environment. All impacts are however noted to have a low or very low significance rating if all mitigation measures are strictly adhered to.

Therefore based on the above, the development is noted to improve local economy and job creating without adverse impacts on the environment.

Considering the need to secure ecological integrity and a healthy biophysical environment, describe how the alternatives identified (in terms of all the different elements of the development and all the different impacts being proposed), resulted in the selection of the "best practicable environmental option" in terms of ecological considerations?

No site or design alternatives were noted for this development, the site layout plan was designed in consultation with the independent relevant specialists with the aim of reducing the development footprint.

Describe the positive and negative cumulative ecological/biophysical impacts bearing in mind the size, scale, scope and nature of the project in relation to its location and existing and other planned developments in the area?

Job creation and economic development are essential for the survival of local municipality specifically Lephalale. Therefore, based on the above, the development is noted to improve local economy and job creating without adverse impacts on the environment. The proposed development will therefore feed into these two essential areas of survival during the construction and operation phases of development. Results from growing local economies and access to job opportunities also mean the socio-economic status of the locals within the municipality will be improved.

3.6.2 Promoting justifiable economic and social development

What is the socio-economic context of the area, based on, amongst other considerations, the following considerations?

Environmental Management Framework

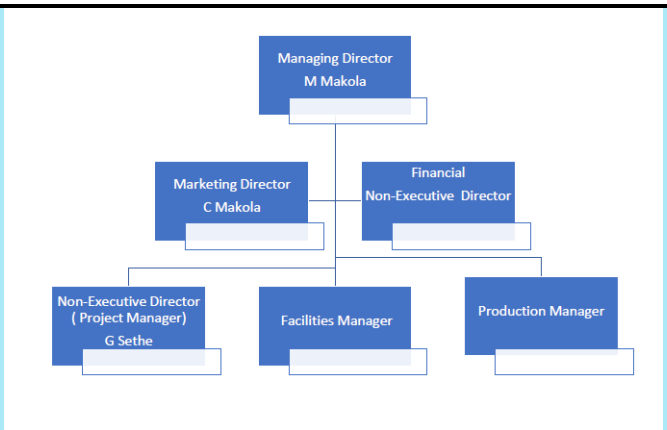
According to the Waterberg District Environmental Management Framework (2021), agriculture in the area is important for the production of food for the expanding markets in parts of the district and also for markets in nearby Gauteng. In addition, agriculture remains the most important employment sector in the district and as such has an important function in the stability of the social structure of the area. For these reasons it is important that current agricultural practices, especially intensive agriculture be maintained and be expanded onto additional high potential agricultural land in future. In addition, the site is defined to be within **Zone 10: Agriculture areas with commercial focus** as per Environmental Management Zones for the Waterberg District. The desired state for Zone 10 requires sustainable use of water for irrigation and no water quality deterioration is allowed. The proposed development is in line with the district municipality Environmental Management Framework.

Integrated Development Plan

The Lephalale Integrated Development Plan (2021), Lephalale is defined by Limpopo Growth and Development Strategy as a coal mining and petrochemical cluster. However agriculture is noted as a second economy in terms of high unemployment and lack of skills amongst the youth, women, and people with disability in Lephalale Municipality. It is therefore noted that the proposed development will induce growth within the second economy through employment and local business empowerment.

Considering the socio-economic context, what will the socio-economic impacts be of the development (and its separate elements/aspects), and specifically also on the socio-economic objectives of the area?

The Total OPEX (Operating Expense, Operating Expenditure, Revenue Expenditure) and CAPEX (Capital Expenditure, Capital Expense) is R 14 000 000.00. It is anticipated that a total of six people will be employed within the management sector. This excludes general labour as indicated by the organogram below.



Once developed the Dihlaping Aquaculture Training, Development and Support Facility provide the following Job Opportunities.

- Employment at the facility =11 Skilled
- Employment opportunities in the community = 44
- including temporary, contracted & permanent
- Learner ships for the youth=4

How will this development address the specific physical, psychological, developmental, cultural and social needs and interests of the relevant communities?

Job creation and economic development are essential for the survival of local municipality specifically Lephalale. Therefore, based on the above, the development is noted to improve local economy and job creating without adverse impacts on the environment. The proposed development will therefore feed into these two essential areas of survival during the construction and operation phases of development. Results from growing local economies and access to job opportunities also mean the socio-economic status of the locals within the municipality will be improved.

Will the development result in equitable (intra- and inter-generational) impact distribution, in the short- and long-term? Will the impact be socially and economically sustainable in the short- and long-term?

Job creation and economic development are essential for the survival of local municipality specifically Lephalale. Therefore, based on the above, the development is noted to improve local economy and job creating without adverse impacts on the environment. The proposed development will therefore feed into these two essential areas of survival during the construction and operation phases of development. Results from growing local economies and access to job opportunities also mean the socio-economic status of the locals within the municipality will be improved.

In terms of location, describe how the placement of the proposed development will result in the creation of residential and employment opportunities in close proximity to or integrated with each other, reduce the need for transport of people and goods, and result in access to public transport or enable non-motorised and pedestrian transport?

The proposed project is located in Mmaletswai Village within the Lephalale Municipality. A residential area is located less than 50m of the site. This residential area has been noted as a direct beneficiary of the project in terms of socio-economic benefits. It is anticipated that the residents of this area will not require public transport to get into the proposed industrial area.

How were a risk-averse and cautious approach applied in terms of socio-economic impacts in terms of limits of current knowledge, level of risk associated with the limits of current knowledge and how and to what extent was a risk-averse and cautious approach applied to the development ?

A SWOT analysis was conducted for the proposed development with the aim of identifying risks associated with the development.

How will the socio-economic impacts resulting from this development impact on people's environmental right in terms of Negative and Positive impacts?

Job creation and economic development are essential for the survival of local municipality specifically Lephalale. Therefore, based on the above, the development is noted to improve local economy and job creating without adverse impacts on the environment. The proposed development will therefore feed into these two essential areas of survival during the construction and operation phases of development. Results from growing local economies and access to job opportunities also mean the socio-economic status of the locals within the municipality will be improved.

It is for this reason that no negative impacts are anticipated as far as people's environmental rights are concerned. Negative impacts indicated on the Basic Assessment report have been address with mitigation measures with the aim of ensuring that people's environmental rights are not violated in any manner.

Considering the linkages and dependencies between human wellbeing, livelihoods and ecosystem services, describe the linkages and dependencies applicable to the area in question and how the development's socioeconomic impacts will result in ecological impacts?

It is for this reason that no negative impacts are anticipated as far as people's environmental rights are concerned. Negative impacts indicated on the Basic Assessment report have been address with mitigation measures with the aim of ensuring that people's environmental rights are not violated in any manner.

Therefore, the identified need by Dihlaping Farm to establish an aquaculture farm in a rural setting should be regarded as an initiative that will grow the local municipality and its society in general for a long term.

Based on the terrestrial assessment, no species of conservation concern were noted, and it is evident that the area has been disturbed by anthropogenic activities. However, a South African protected tree, *Boscia albitrunca*, was identified within the project site area. The proposed project area shows signs of bush encroachment and the presence of alien invasive species, due to overgrazing, regular clearing of vegetation, ploughing lines and vehicle paths which traverse through the project area.

Even though the project area is noted to be a CBA 2, the current impacts within the project site and surrounding region as mentioned above has altered the natural state of the environment in a manner that has decreased the ecological function of the project area.

All impacts are noted to have a high, medium-high, medium or medium-low significance before mitigation measure can be implemented. These significance ratings are due to the removal of vegetation from the development footprint size, causing soil erosion, habitat loss, faunal and floral disturbance, and the infestation of alien invasive species. The generation of waste caused by the type of activity (agriculture), causes a higher significance rating, leading to bad odours in and around the study area and the potential transmission of disease-causing microbes. This aspect and related impacts affect the site as well as neighbouring areas, should the waste enter the watercourse. In addition to the above, the spread of invasive fish species into the nearby river system and the Limpopo catchment and the loss of floral, faunal and aquatic species due to flooding or the mismanagement of the close aquaculture system, is very important to consider as it is noted to have a high significance with regards to the impact on the environment. All impacts are however noted to have a low or very low significance rating if all mitigation measures are strictly adhered to.

Therefore based on the above, the development is noted to improve local economy and job creating without adverse impacts on the environment.

As a result, the developments' ecological impacts are noted to be low in comparison to the positive socio-economic impact the development will have on the local area.

What measures were taken to pursue the selection of the "best practicable environmental option" in terms of socio-economic considerations?

The proposed development has considered the current site in terms of visual and heritage impacts. None of these impacts were deemed high to affect the socio-economic considerations of the site. In addition, the need for employment and local economy induction has been considered strongly.

What measures were taken to pursue environmental justice so that adverse environmental impacts shall not be distributed in such a manner as to unfairly discriminate against any person, particularly vulnerable and disadvantaged persons (who are the beneficiaries and is the development located appropriately)?

It is not anticipated that adverse environmental impacts will be distributed in such a manner as to unfairly discriminate against any person. The local community will benefit from the project, as detailed above. In addition, mitigation measures have been provided to mitigate against negative impacts identified.

What measures were taken to pursue equitable access to environmental resources, benefits and services to meet basic human needs and ensure human wellbeing, and what special measures were taken to ensure access thereto by categories of persons disadvantaged by unfair discrimination?

Job creation and economic development are essential for the survival of local municipality specifically Lephalale. Therefore, based on the above, the development is noted to improve local economy and job creating without adverse impacts on the environment. The proposed development will therefore feed into these two essential areas of survival during the construction and operation phases of development. Results from growing local economies and access to job opportunities also mean the socio-economic status of the locals within the municipality will be improved.

It is for this reason that no negative impacts are anticipated as far as people's environmental rights are concerned. Negative impacts indicated on the Basic Assessment report have been address with mitigation measures with the aim of ensuring that people's environmental rights are not violated in any manner.

Therefore, the identified need by Dihlaping Farms to establish an aquaponics farms in a rural setting should be regarded as an initiative that will grow the local municipality and its society in general for a long term.

What measures were taken to ensure that the responsibility for the environmental health and safety consequences of the development has been addressed throughout the development's life cycle?

An EMPr has been drafted for the construction and operational phase of the development, to ensure environmental safety during construction, as well as safety of staff on site. Refer to **Appendix H**.

What measures were taken to ensure the participation of all interested and affected parties, ensure participation by vulnerable and disadvantaged persons, promote community wellbeing and empowerment through environmental education, the raising of environmental awareness, the sharing of knowledge and experience and other appropriate means?

The public participation process is outlined in **Section 8** and **Appendix E** of this report and includes the process followed to ensure as many I&APs are reached and provided with an opportunity to comment. All comments received will be considered and responded to in a Comments and Response Report.

What measures have been taken to ensure that current and/or future workers will be informed of work that potentially might be harmful to human health or the environment or of dangers associated with the work, and what measures have been taken to ensure that the right of workers to refuse such work will be respected and protected?

Job creation and economic development are essential for the survival of local municipality specifically Madibeng. Therefore, based on the above, the development is noted to improve local economy and job creating without adverse impacts on the environment. The proposed development will therefore feed into these two essential areas of survival during the construction and operation phases of development. Results from growing local economies and access to job opportunities also mean the socio-economic status of the locals within the municipality will be improved.

Therefore, the identified need by Dihlaping Farms to establish an aquaponics farms in a rural setting should be regarded as an initiative that will grow the local municipality and its society in general for a long term.

Describe how the development will impact on job creation in terms of, amongst other aspects including the number of temporary versus permanent jobs that will be created?

Job creation and economic development are essential for the survival of local municipality specifically Madibeng. Therefore, based on the above, the development is noted to improve local economy and job creating without adverse impacts on the environment. The proposed development will therefore feed into these two essential areas of survival during the construction and operation phases of development. Results from growing local economies and access to job opportunities also mean the socio-economic status of the locals within the municipality will be improved.

Therefore, the identified need by Dihlaping Farm to establish an aquaculture farm should be regarded as an initiative that will grow the local municipality and its society in general for a long term.

What measures were taken to ensure that there were intergovernmental coordination and harmonisation of policies, legislation and actions relating to the environment?

Section 5 of this BAR summarises the legal and policy context applicable to the proposed development.

A list of organs of state that have been notified and provided with an opportunity to comment on the BAR. IDS is not aware of any current conflicts of interest between organs of state that are required to be resolved.

What measures were taken to ensure that the environment will be held in public trust for the people, that the beneficial use of environmental resources will serve the public interest, and that the environment will be protected as the people's common heritage?

Specialist studies were commissioned to inform the initial site layout of the development. Factors such as the agricultural potential, vegetation condition and presence/ absence of surface water resources were used to inform the preferred site layout, and realistic mitigation measures are proposed to reduce or enhance impacts.

As such the “measures” that will be taken include the consideration of various specialist inputs to ensure that the best practicable environmental option (BPEO) is assessed and submitted to the Department for approval.

Are the mitigation measures proposed realistic and what long-term environmental legacy and managed burden will be left?

The mitigation measures proposed must be realistic and implementable for the outcome of the impact assessment to be reliable.

It is the opinion of IDS that the recommended mitigation and monitoring measures put forward by specialist practitioners are realistic given the nature and scale of the proposed development.

What measures were taken to ensure that he costs of remedying pollution, environmental degradation and consequent adverse health effects and of preventing, controlling or minimising further pollution, environmental damage or adverse health effects will be paid for by those responsible for harming the environment?

Section 28 of NEMA (Duty of Care) holds every person who causes, has caused, or may cause significant pollution and degradation of the environment accountable. As such, the mechanisms provided for in the NEMA could be used by any person or the responsible authority (ies) to hold those responsible for pollution and degradation of the environment accountable.

The necessary rehabilitation measures are incorporated into the EMPr, which will require that the applicant be responsible for the costs of remedying environmental degradation (e.g. erosion of topsoil or pollution of groundwater) that may occur during the construction phase.

Considering the need to secure ecological integrity and a healthy bio-physical environment, describe how the alternatives identified (in terms of all the different elements of the development and all the different impacts being proposed), resulted in the selection of the best practicable environmental option in terms of socio-economic considerations?

Section 28 of NEMA (Duty of Care) holds every person who causes, has caused, or may cause significant pollution and degradation of the environment accountable. As such, the mechanisms provided for in the NEMA could be used by any person or the responsible authority (ies) to hold those responsible for pollution and degradation of the environment accountable.

The necessary rehabilitation measures are incorporated into the EMPr, which will require that the applicant be responsible for the costs of remedying environmental degradation (e.g. erosion of topsoil or pollution of groundwater) that may occur during the construction phase.

Describe the positive and negative cumulative socio-economic impacts bearing in mind the size, scale, scope and nature of the project in relation to its location and other planned developments in the area?

With any development there is the possibility of an influx of people into the area. Such an impact is often related to the development of industrial areas, as projects like these tend to provide employment opportunities for several years.

Employment should be prioritised for the local, youthful population. Labour accommodation will also not be provided, which means that people should be less inclined to move to the area in search of jobs.

The potential concerns with an influx of job-seekers would related competition over job opportunities in the area, as work is already very limited. More importantly, it is important to note that an influx of job-seekers (such as contractors) are often associated with an increase in risky sexual behaviours or even sex work. This could cause a spike in sexually transmitted diseases, such as HIV/Aids.

Specialist workers attracted to the area during the construction phase might encourage practices such as prostitution, which are often fuelled by promiscuous sexual relationships, usually driven by financial incentives.

Conflicts can be stirred as a result of many other factors. Some of these include conflict (but are not limited to):

- An increase in economic disparities between those with jobs and those without;
- Changes in values and changes in 'way of life' of those with jobs;
- Changes in power relations between employed youth and elders;
- Perceived unfair recruitment strategies; and/or
- Perceived preferential procurement strategies.

It should be noted that, as with most social impacts, in-migration may also have a positive impact in terms of providing locals with small business opportunities due to an increased demand for local produce and other goods, as well as opportunities for cultural exchange.

It is the EAPs' opinion that it is highly unlikely for these concerns to be realised, however, as the project will not provide labour accommodation and as labour will be sourced through the LMs.

Employing Local Labour

The amount of jobs to be created has been indicated in **Section 3.7**, it is anticipated that most of these jobs would be available during the construction and operational period of the development. The importance of employing local residents cannot be overstated. Not only does employment afford an income to households that are highly deprived thereof, additional benefits to may include:

- Reducing crime rates;
- Reducing alcohol and drug-abuse rates; and
- Reducing intra-household violence.

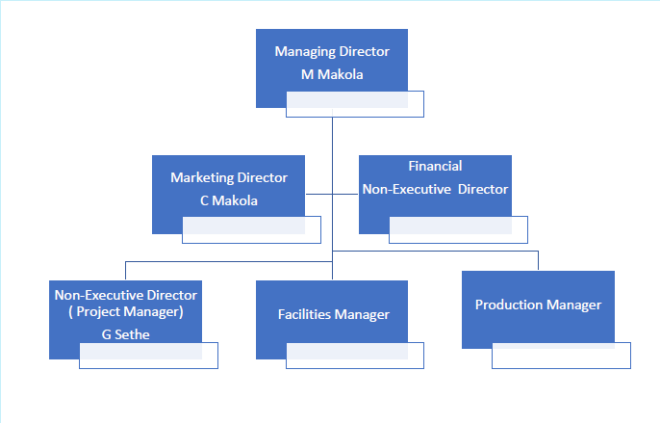
Skills Training and Further Training Opportunities

There is a strong possibility that the local residents might not have the skills required to perform the work needed. It is therefore advised that the proponent initiates programmes aimed at ensuring that a number of local residents are provided with appropriate education and skills training to allow them to perform the work needed, or through a community trust mechanism, is afforded the opportunities and access to further education.

3.7 Socio-economic value

What is the expected capital value to be contributed for North West Province Growth Domestic Product?

The Total OPEX (Operating Expense, Operating Expenditure, Revenue Expenditure) and CAPEX (Capital Expenditure, Capital Expense) is R 14 000 000.00. It is anticipated that a total of six people will be employed within the management sector. This excludes general labour as indicated by the organogram below.



Once developed the Dihlaping Aquaculture Training, Development and Support Facility provide the following Job Opportunities.

- Employment at the facility =11 Skilled
- Employment opportunities in the community = 44
- including temporary, contracted & permanent
- Learner ships for the youth=4

How many new employment opportunities will be created in the development phase?

Once developed the Dihlaping Aquaculture Training, Development and Support Facility provide the following Job Opportunities.

- Employment at the facility =11 Skilled
- Employment opportunities in the community = 44
- including temporary, contracted & permanent
- Learner ships for the youth=4

How many permanent employment opportunities will be created during operational phase?

Expected fulltime employment of 11 people

What is the estimated conclusion date of the activity or activities applied for (excluding activities that have operational phase)?

N/A

4 DESIGN AND SITE ALTERNATIVES

In terms of the EIA Regulations 2014 (as amended in 2017) feasible alternatives are required to be considered as part of the environmental investigations. In addition, the obligation that alternatives are investigated is also a requirement of Section 24(4) of the NEMA (Act No. 107 of 1998) (as amended).

As such, an alternative is defined as different means of meeting the general purpose and requirements of the activity which may include alternatives to:

- the property on which or location where it is proposed to undertake the activity;
- the type of activity to be undertaken;
- the design or layout of the activity;
- the technology to be used in the activity;
- the operational aspects of the activity; and
- the option of not implementing the activity.

4.1 Design alternatives

No design alternatives have been considered for this development.

4.2 Site alternatives

No design alternatives have been considered for this development.

5 ENVIRONMENTAL LEGISLATION

In order to protect the environment and ensure that the development is undertaken in an environmentally responsible manner, there are a number of significant environmental legislation (Table 11) that need to be considered during this study.

This section outlines the legislation that is applicable to the proposed project and has been considered in the preparation of this report.

5.1 Environmental Impact Assessment Regulations

The purpose of these EIA Regulations 2014 as amended in 2017 is to regulate the procedure and criteria as contemplated in Chapter 5 of the Act relating to the preparation, evaluation, submission, processing and consideration of and decision, on applications for environmental authorisations for the commencement of activities subjected to environmental impact assessment in order to avoid or mitigate detrimental impacts on the environment and to optimise positive environmental impacts.

Three (3) Listing Notices are identified within the EIA Regulations 2014 as amended in 2017 i.e. R327, R325 and R324.

The table below **(Table 7)** aims to provide the listed activities applicable to the proposed development. All activities listed under R327 and R324 must be investigated and communicated as per procedure prescribed in regulations 19 and 20 of the EIA Regulations 2014 as amended in 2017.

Table 7: Table of applicable listed activities as per EIA Regulations 2014 as amended

Relevant Government Notice	Activity No (s) (relevant notice): e.g., Listing notices 1, 2 or 3	Description of listed activity as per the wording in the listing notice	Applicability
R327	**Listing Notice 1: Activity 3 (iii)**	The development and related operation of facilities or infrastructure for the slaughter of animals with a — (i) product throughput of poultry exceeding 50 poultry per day (iii) wet weight product throughput of fish, crustaceans or amphibians exceeding 20 000 kg per annum.	The following production is proposed; ▪ Produce 35 Tons ton of Tilapia Fish per annum
R327	**Listing Notice 1: Activity 5 (iii)**	The development and related operation of facilities or infrastructure for the concentration of— more than 25 000 chicks younger than 20 days per facility situated outside an urban area	In addition to the fish production, the applicant intends to develop Layers and Broilers to produce eggs, chicken meat

Relevant Government Notice	Activity No (s) (relevant notice): e.g., Listing notices 1, 2 or 3	Description of listed activity as per the wording in the listing notice	Applicability
R327	**Listing Notice 1: Activity 6 (i)**	The development and related operation of facilities, infrastructure or structures for aquaculture of: (i) finfish, crustaceans, reptiles or amphibians, where such facility, infrastructure or structures will have a production output exceeding 20 000 kg per annum (wet weight);	The following production is proposed; ▪ Produce 35 Tons ton of Tilapia Fish per annum
R327	**Listing Notice 1: Activity 8**	The development and related operation of hatcheries or agriindustrial facilities outside industrial complexes where the development footprint covers an area of 2 000 square metres or more.	The proposed development will be undertaken on a 6 ha of land.
R327	**Listing Notice 1: Activity 12**	The development— (xii) infrastructure or structures with a physical footprint of 100 square metres or more; where such development occurs— (c) if no development setback exists, within 32 metres of a watercourse, measured from the edge of a watercourse; —	The proposed development is located within 32m of the watercourse.
R327	**Listing Notice 1: Activity 19**	The infilling or depositing of any material of more than [5] 10 cubic metres into, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock of more than [5] 10 cubic metres from [—(i)] a watercourse; [(ii) the seashore; or iii)the littoral active zone, an estuary or a distance of 100 metres inland of the high-water mark of the sea or estuary, whichever distance is the greater—]	The proposed development is located within 32m of the watercourse.
R327	**Listing Notice 1: Activity 27**	The clearance of an area of 1 hectare or more, but less than 20 hectares of indigenous vegetation, except where such clearance of indigenous vegetation is required for: (i) the undertaking of a linear activity; or (ii) maintenance purposes undertaken in accordance with a maintenance management plan.	The proposed development will be undertaken on 6 ha of indigenous vegetation
Listing Notice 3			

Relevant Government Notice	Activity No (s) (relevant notice): e.g., Listing notices 1, 2 or 3	Description of listed activity as per the wording in the listing notice	Applicability
R324	**Listing Notice 3: Activity 12 (e) (ii)**	The clearance of an area of 300 square metres or more of indigenous vegetation except where such clearance of indigenous vegetation is required for maintenance purposes undertaken in accordance with a maintenance management plan. **In Limpopo** (ii) Within critical biodiversity areas identified in bioregional plans	Construction of piggery infrastructure such as dry sows, weaner house and office on 5 hectares of land. The site is within CBA 1, CBA 2 and ESA areas of the Limpopo conservation plan. An aquatic CBA is also noted.
R324	**Listing Notice 3: Activity 13 (e)(ii)**	The development and related operation of facilities of any size for any form of aquaculture. **In Limpopo** (ii) Areas within a watercourse or wetland, or within 100 metres from the edge of a watercourse or wetland.	The proposed development is located within 100m of the watercourse
R324	**Listing Notice 3: Activity 14 (xii) (e) (ff)**	The development— (xii) infrastructure or structures with a physical footprint of 100 square metres or more; where such development occurs— (c) if no development setback exists, within 32 metres of a watercourse, measured from the edge of a watercourse; **In Limpopo** (iv)Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority	The proposed development is located within 32m of the watercourse.

5.2 Other applicable environmental legislation

Table 8: Applicable environmental legislation for the proposed development

Legislation, policy and guideline	Year	Applicability to the proposed development
National Environmental Management Act, 1998 (Act No.107 of 1998 as amended).	1998	The National Environmental Management Act (Act No. 107 of 1998) aims at providing for co-operative environmental governance by establishing principles for decision making on matters affecting the environment, institutions that will promote co-operative governance and procedures for coordinating environmental functions exercised by organs of state; to provide for certain aspects of the administration and enforcement of other environmental management laws; and to provide for matters connected therewith.
National Water Act, 1998 (Act No. 36 of 1998) as amended	1998	The National Water Act (Act No. 36 of 1998) (NWA, 1998) was drafted in order to ensure the protection and sustainable use of water resources (including wetlands) in South Africa. According to Section 21 of the NWA, the proposed development triggers Section 21 (a), (b), (c) and (i).
National Heritage Resources Act, 1999 (Act No. 25 of 1999)	1999	The National Heritage Resources Act 25 of 1999 intends to introduce an integrated and interactive system for the management of the national heritage resources; to promote good government at all levels, and empower civil society to nurture and conserve their heritage resources so that they may be bequeathed to future generations; to lay down general principles for governing heritage resources management throughout the Republic; to introduce an integrated system for the identification, assessment and management of the heritage resources of South Africa; to establish the South African Heritage Resources Agency together with its Council to co-ordinate and promote the management of heritage resources at national level; to set norms and maintain essential national standards for the management of heritage resources in the Republic and to protect heritage resources of national significance; to control the export of nationally significant heritage objects and the import into the Republic of cultural property illegally exported from foreign countries; to enable the provinces to establish heritage authorities which must adopt powers to protect and manage certain categories of heritage resources; to provide for the protection and management of conservation-worthy places and areas by local authorities; and to provide for matters connected therewith. According to Section 38 of the National Heritage Resources Act (Act No. 25 of 1999), at the earliest stages of any development project, the agency must be informed. In response, the agency must determine whether or not heritage resources are likely to be impacted by the proposed development.
National Environmental Management Biodiversity Act, 2004 (Act No. 10 of 2004)	2004	The National Environmental Management: Biodiversity Act (Act 10 of 2004) provides for the listing of threatened or protected ecosystems, in one of four categories: critically endangered, endangered, vulnerable or protected. The purpose of listing threatened ecosystems is primarily to reduce the rate of ecosystem and species extinction by preserving sites of exceptionally high conservation value. Listed ecosystems were defined at the local rather than a regional scale and were delineated based on one of the following: The South African Vegetation Map, priority areas identified in provincial conservation plans, national forest types recognised by the Department of

Legislation, policy and guideline	Year	Applicability to the proposed development
		Water Affairs and Forestry (DWAF), as well as highly irreplaceable forests patches or forest clusters systematically identified by DWAF. The study area is located within a Critical Biodiversity Area with a least concern ecosystem.
National Environmental Management Waste Act, 2009 (Act No. 59 of 2008)	2008	The National Environmental Management: Waste Act (Act 59 of 2008) (as amended) details the protection of the surrounding environment through efficient waste management by the appointed Contractor. Recirculation aquaculture systems (RAS) represent a new and unique way to farm fish. Instead of the traditional method of growing fish outdoors in open ponds and raceways, this system rears fish at high densities, in indoor tanks with a "controlled" environment. Recirculating systems filter and clean the water for recycling back through fish culture tanks. New water is added to the tanks only to make up for splash out and evaporation and for that used to flush out waste materials. In contrast, many raceway systems used to grow trout are termed "open" or "flow through" systems because all the water makes only one pass through the tank and then is discarded. Therefore no waste is anticipated during operational phase to constitute a waste licence.
National Development Plan: A Vision for 2030	2030	The South African Government through the Presidency has published a National Development Plan. The Plan Aims to eliminate poverty and reduce inequality by 2030. The Plan has the target of developing people's capabilities to be to improve their lives through education and skills development, health care, better access to public transport, jobs, social protection, rising income, housing and basic services, and safety. It proposes the following strategies to address the above goals: 1. Creating jobs and improving livelihoods; 2. Expanding infrastructure; 3. Transition to a low-carbon economy; 4. Transforming urban and rural spaces; 5. Improving education and training; 6. Providing quality health care; 7. Fighting corruption and enhancing accountability; 8. Transforming society and uniting the nation.
National Environmental Management: Air Quality Act (Act No 39 of 2004)	2004	Section 32 - Control of dust. Section 34 - Control of noise. Section 35 - Control of offensive odours
Occupational Health and Safety Act (Act No. 85 of 1993)	1993	Section 8 - General duties of employers to their employees.

Legislation, policy and guideline	Year	Applicability to the proposed development
		Section 9 - General duties of employers and self-employed persons to persons other than their employees
Lephalale Local Municipality Integrated Development Plan (2017-2022)	2017	The Lephalale Integrated Development Plan (2021), Lephalale is defined by Limpopo Growth and Development Strategy as a coal mining and petrochemical cluster. However agriculture is noted as a second economy in terms of high unemployment and lack of skills amongst the youth, women, and people with disability in Lephalale Municipality. It is therefore noted that the proposed development will induce growth within the second economy through employment and local business empowerment.
Waterberg District Environmental Management Framework (2021)	2021	According to the Waterberg District Environmental Management Framework (2021), agriculture in the area is important for the production of food for the expanding markets in parts of the district and also for markets in nearby Gauteng. In addition, agriculture remains the most important employment sector in the district and as such has an important function in the stability of the social structure of the area. For these reasons it is important that current agricultural practices, especially intensive agriculture be maintained and be expanded onto additional high potential agricultural land in future. In addition, the site is defined to be within **Zone 10: Agriculture areas with commercial focus** as per Environmental Management Zones for the Waterberg District. The desired state for Zone 10 requires sustainable use of water for irrigation and no water quality deterioration is allowed. The proposed development is in line with the district municipality Environmental Management Framework.

6 BASELINE DESCRIPTION

This section describes the biophysical and socio-economic environment that may be affected by the proposed development focussing on significant environmental aspects of the proposed development were consulted to describe the baseline conditions.

6.1 Geology

The study area is basal sedimentary and overlying volcanic rocks of the Karoo Supergroup as well as quaternary deposits (**Figure 6**). The Karoo Supergroup is represented by a basal sedimentary and volcanic unit of the Bandelierkop Complex. The Bandelierkop Complex which constitutes a typical greenstone belt succession of metasedimentary and metavolcanic rocks has been subdivided into mafic, ultramafic rocks plus meta-quartzite and marble.

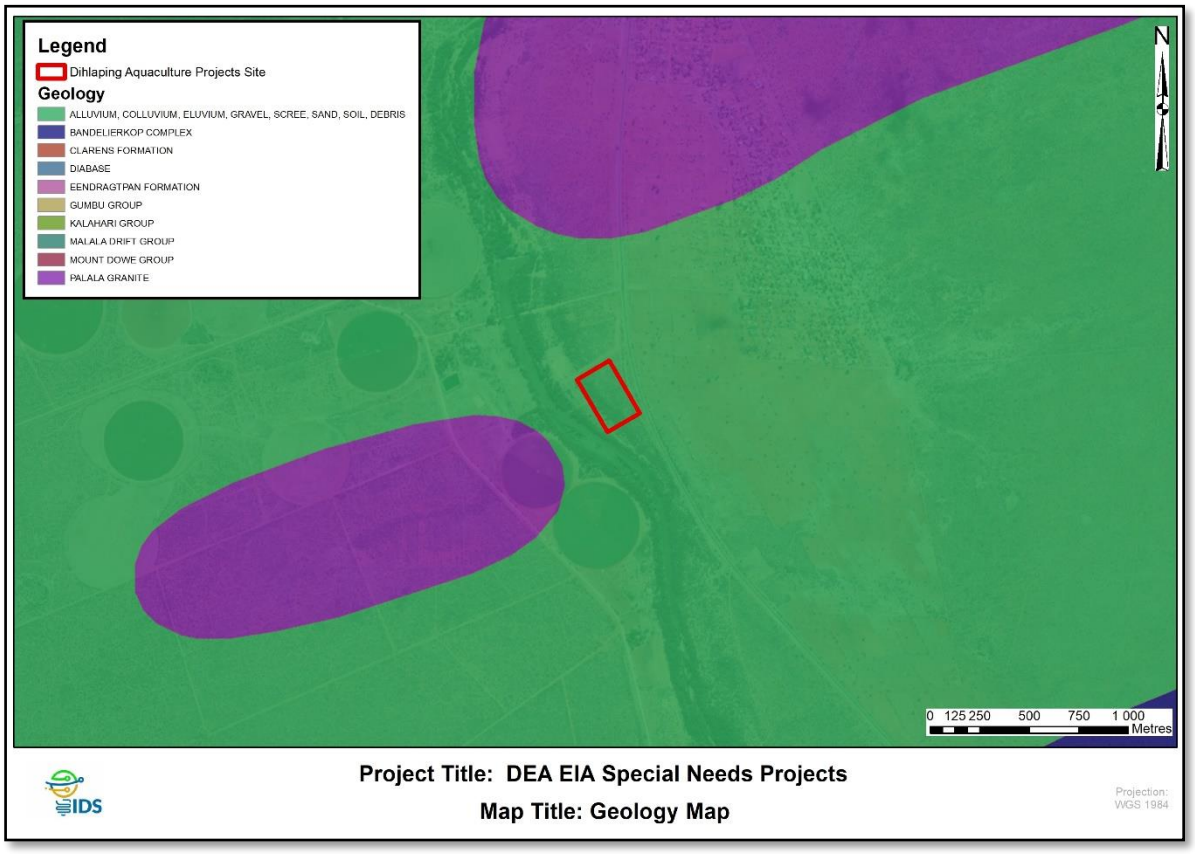


Figure 6: Geological Map of the Dihlaping Farm

6.2 Topography

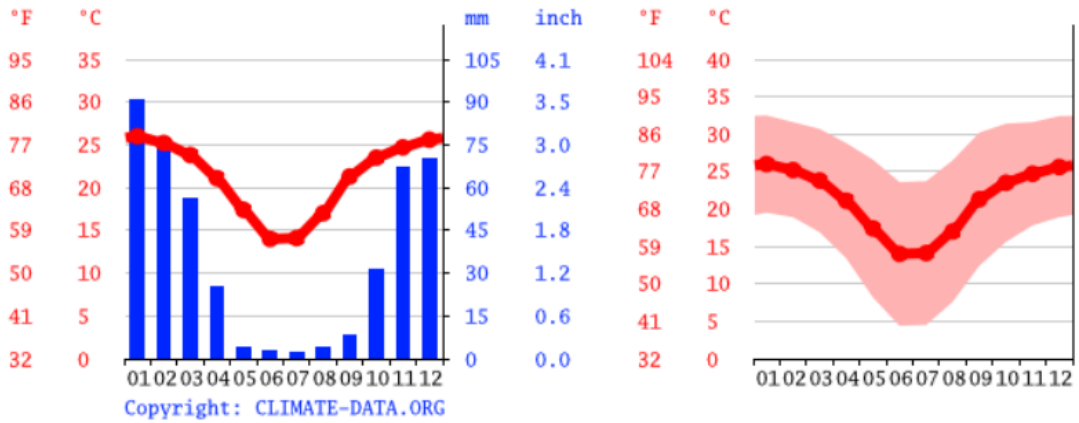
Based on **Figure 7** below the elevation profile of the study area is relatively flat at an average elevation of 827m above sea level.

Figure 7: Elevation profile of the study area from east to west

6.3 Climate

The Lephalale lies on 829m above sea level Lephalale is influenced by the local steppe climate. There is not much rainfall in Lephalale all year long. This climate is considered to be BSh according to the Köppen-Geiger climate classification. The average temperature in Lephalale is 21.9 °C. In a year, the rainfall is 391 mm. The driest month is August, with 1 mm of rainfall. In January, the precipitation reaches its peak, with an average of 84 mm. The warmest month of the year is February, with an average temperature of 25.9 °C. At 15.0 °C on average, July is the coldest month of the year. The difference in precipitation between the driest month and the wettest month is 83 mm. The variation in annual temperature is around 11.0 °C.

Table 9: Climate data of Lephalale



6.4 Soil

The study area is located within Ferric Luvisols which are characterised by a surface horizon depleted of clay and accumulation of clay in a subsurface “argic” horizon.

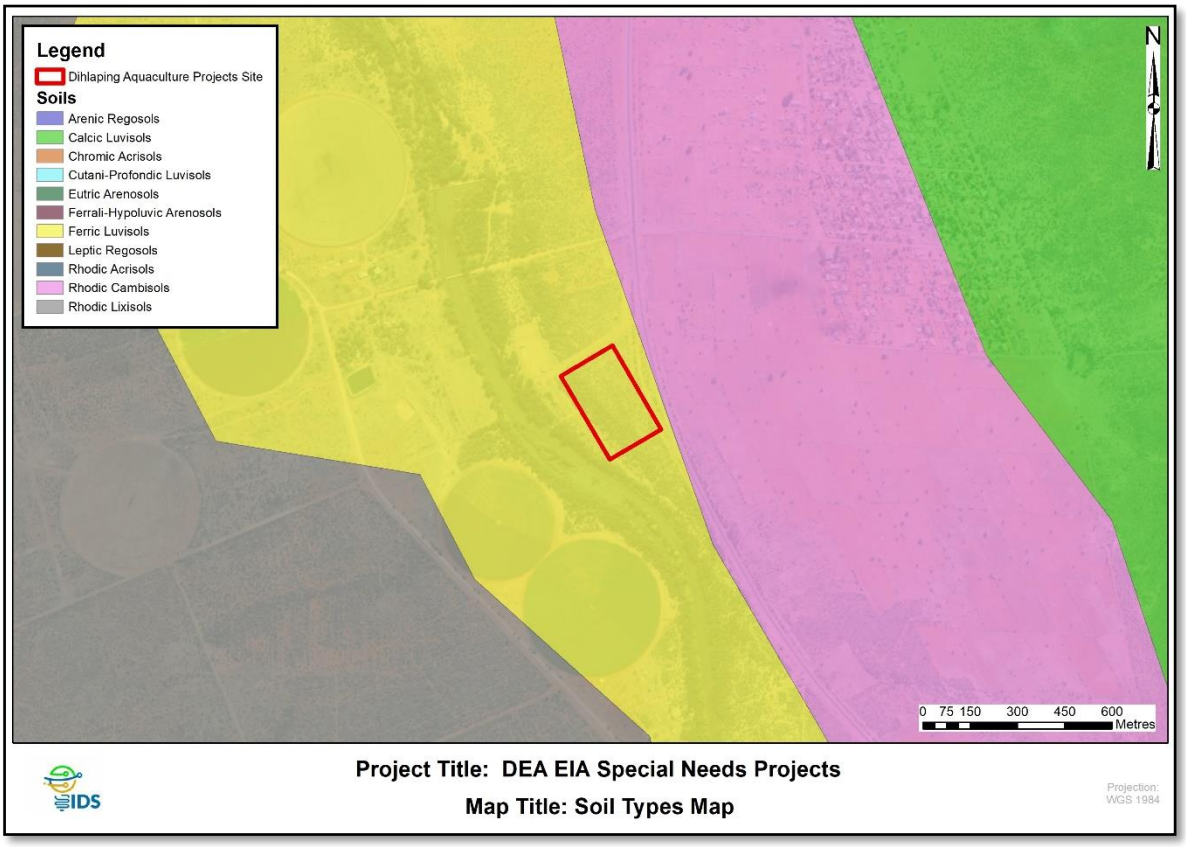


Figure 8: Soil classification map

6.5 Agricultural Potential

According to the DEA Screening Tool, the study area is within a **medium agricultural land (Figure 9)**.

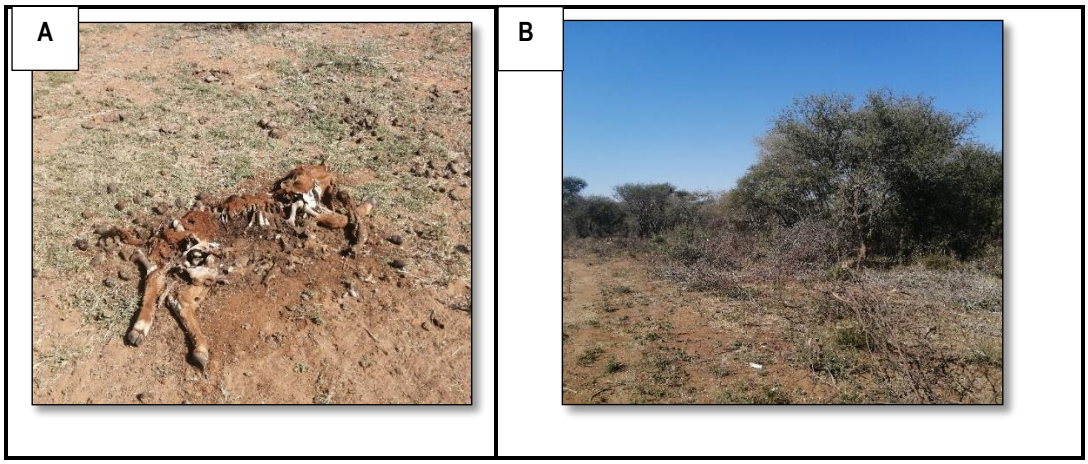
Figure 9: Agricultural sensitivity map

6.6 Hydrology

6.6.1 Aquatic Assessment

A photographic record of the site was taken to provide a visual record of the condition of the proposed development site observed during the field assessment survey. The photographs taken are presented below with a table summarising all the observation for different criteria that were observed during the visual assessment at Dihlaping Aquaculture as shown in **Table 10**.

Table 10: The visual observation that was recorded during the survey.



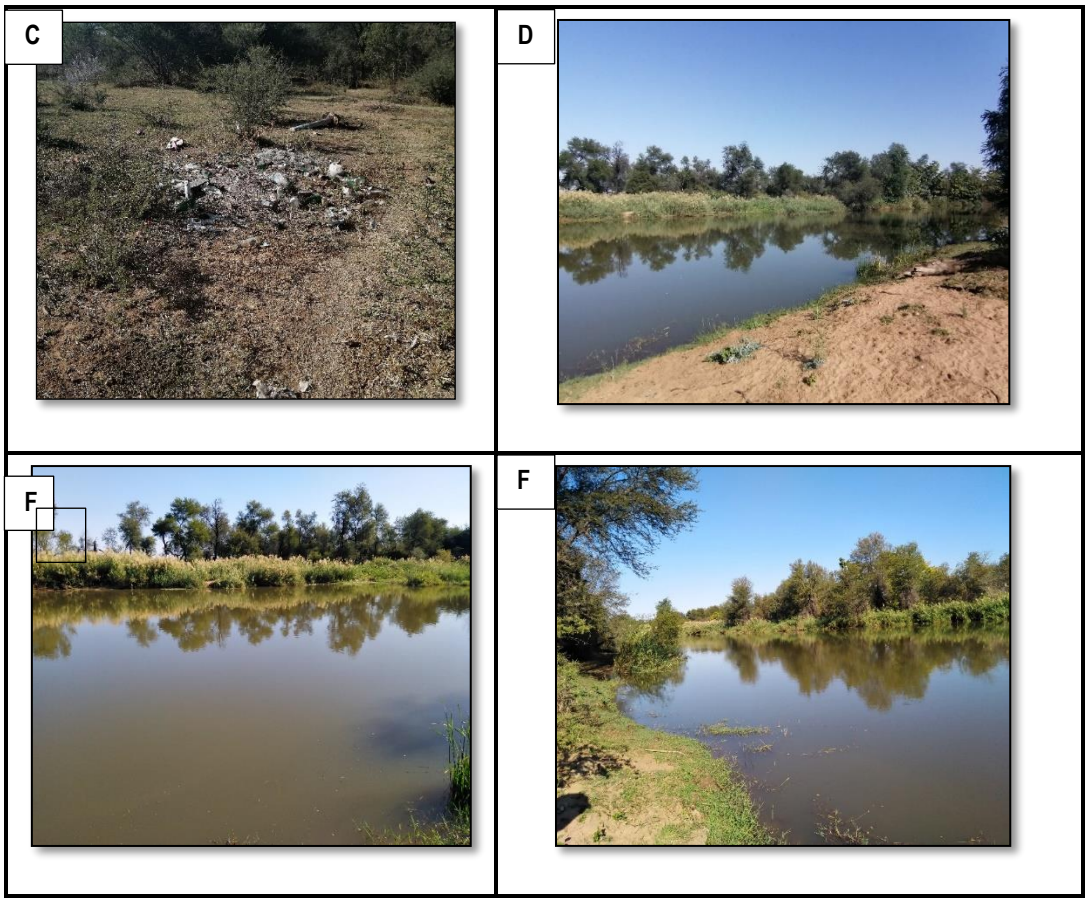


Table 11: The description and location of the visual observation made on site.

Letters	Descriptions	Co-ordinates	
		Latitude (S)	Longitude (E)
A	The dead rotten calf observed on a site next to a gravel road.	23°23'12.09"S	28° 1'31.76"E
B	Trees are being cut off by the community members for domestic use such as fire.	23°23'12.60"S	28° 1'36.83"E
C	The littering has been observed on site. It almost looks like a dumping site for the local community.	23°23'14.30"S	28° 1'32.67"E
D	Some areas on the river bank are sandy with few vegetation, but some are dominated by grass as shown in E.	23°23'14.32"S	28° 1'29.46"E
E	The water appears dirty since it brownish in colour and crocodiles were observed on the other side of the river.	25°18'33.01"S	27°48'12.75"E
F	The in current and out of current marginal vegetation has been observed and the riparian area appears healthy.	23°23'14.89"S	28° 1'30.03"E

Table 12: Description of the location of the assessment site during the measurement of physicochemical water properties.

Factors	Dihlaping Aquaculture
Erosion potential	There is low potential for erosion in high flow conditions.
Riparian zone characteristics	The riparian zone is in relatively in good condition at this point with mainly natural vegetation occurring. It mostly dominated by grasses, shrubs, and trees.
Algal presence	Some algal proliferation was observed at the site.

Factors	Dihlaping Aquaculture
Flow condition	The flow was very slow at this point.
Depth characteristics	The river was more than 6m deep due to side bank erosion.
Visual indication of the impact on aquatic fauna	Some instream sedimentation was observed on a site.
Water clarity	Water is brownish.
Water odour	None.

6.6.1.1 In situ Water Quality

The *in situ* water quality analysis was conducted on the site and water quality results are shown in **Table 13**. These water quality results are important since they provide information regarding the state of water due to the direct impact water quality has on the aquatic organisms.

Table 13: Water parameters recorded during survey at Dihlaping Aquaculture with TWQR as stipulated by DWAF (1996).

Variables	WQ1	TWQR (Aquatic)	TWQR (Aquaculture)
Temperature (°C)	24.5	-	14-18
pH	7.81	6.5-8.5	6.5-9
DO (mg/l)	5.6	5-8	5-8
TDS (ppm)	162	<450	<450
Conductivity ($mS.m^{-1}$)	501	-	-
Salinity	0.58	-	<2

The *in situ* water quality that was conducted on the Lephalale River indicated good water quality conditions and would not present adverse conditions to local aquatic biota. The water temperature, pH, DO, TDS, and conductivity values all fell within the TWQR as stipulated by DWAFF (1996). This is further justified by the presence of macroinvertebrate such as Synlestidae and Baetidae which are known to be sensitive to pollution and prefer unpolluted water with high DO and low siltation (Ndebele-Murisa, 2012). Therefore, water quality may be considered as good based on the physico-chemical water parameters data collected during the study.

6.6.1.2 Habitat Assessment

The condition of the aquatic habitat of the stream at the proposed site was screened using the IHIA methods developed by Kleynhans (1996). The results of the habitat condition screening are shown in **Table 14** and **Table 15** below.

Table 14: The results of the IHIA instream assessment of the Lephalale River.

Instream Assessment	Average Impact Score	Weighted Score	
Water abstraction	4,3	2,4	
Flow modification	11	5,7	
Bed modification	15,6	8,1	
Channel modification	13,3	6,9	
Water quality	7,7	4,3	
Inundation	10	4,0	
Exotic macrophytes	10	3,6	
Exotic fauna	12,3	3,9	
Solid waste disposal	13,3	3,2	
Total Instream	57,7	Class	D

Table 15: The results of the IHIA riparian assessment of the Lephalale River.

Riparian Assessment	Average Impact Score	Weighted Score	
Indigenous vegetation removal	12,3	6,2	
Exotic vegetation encroachment	9	4,3	
Bank erosion	14	8,4	
Channel modification	15	6,7	
Water abstraction	9	4,2	
Inundation	9,7	5,3	
Flow modification	11,3	6,2	
Water quality	7,7	4,2	
Total Riparian	54.5	**Class**	**D**

The condition of both the instream and riparian habitats for the stream are Class D. Both the instream and the riparian area of Lephalale River has been largely modified. There is a great loss of natural habitats, biota and basic ecosystem that has occurred. This modification can be attributed to human settlement, and it is noted that there are agricultural holdings found along the river which may discharge water with high mineral content. The modification of the riparian area is largely due to the overgrazing of indigenous species, leading to the dominance of exotic alien species along the riverbanks as shown in **Table 10.**

6.6.1.3 Aquatic Macroinvertebrates

Macroinvertebrate Habitat

The biological assessment was done on the site point 1 in Lephalale River. The invertebrate habitats were than assessed using the SASS5 biotopes score sheets as applied by (Tate & Husted, 2015).The results of the biotope assessment are provided from the table below (**Table 16**).

Table 16: Biotope score during the Dihlaping Aquaculture survey (May 2021).

Biotope	Rating (0-5)
Stones in current	0
Stones out of current	0
Bedrock	0
Aquatic Vegetation	2.5
Marginal Vegetation in Current	0
Marginal Vegetation Out of Current	3
Gravel	0
Sand	0
Mud	2
Biotope Score	7.5
Biotope Category (Tate and Husted, 2015)	**F**

The habitats availability within the assessed site was rated as F, this indicate poor biotope diversity with the reach that was assessed. This low biotope score (SASS5) in **Table 17** can be attributes to the low diversity of stones, bedrock, marginal vegetation in current, gravel and sand. The high diversity of aquatic vegetation and marginal vegetation out of current biotopes indicates the macroinvertebrate assemblage with a high preference for these biotopes would be expected. The biotopes results indicates that the habitats availability may be a limiting factor to the macroinvertebrates that were observed on site, particularly those species that prefer area that were not present on the assessed site such as stones and bedrock.

6.6.1.4 South African Scoring System

The aquatic macroinvertebrate results that were obtained during the survey at Dihlaping Aquaculture are present in the table below (**Table 17**). The SASS5 scores that were recorded during the survey was 88, with an Average Score per Taxon (ASPT) of 4.2, this indicate that the taxa that was collected during the survey were tolerant (>5 sensitivity score).

Table 17: The biotopes specific summary of the results obtains during the survey in Dihlaping Aquaculture from the application of the SASS5 index (May 2021).

Aspect	Site
SASS5 Score	105
No. of Taxa	23
ASPT	4.6
Category (Dallas, 2007)	**B**

Based on the data obtained during the survey for Dihlaping Aquaculture, all aquatic macroinvertebrate species were found on the vegetation biotopes only. None was found in the stones, gravel and sand since this biota were not present on the assessed site as shown in **Table 16**. The biotic integrity based on the biological bands for the Highveld by Dallas (2007), it was categorised as being largely natural with few modifications (class B) (**Table 17)**. The present of marginal vegetation diversity contributed to the diverse Hemiptera taxa collected, increasing the total sensitivity score. Numerous taxa were absent from the site, this includes the Trichoptera which is regarded as a key taxon since it is highly sensitivity to pollution. This is due to the absent of the diverse stone's biotopes in the assessed site. Furthermore, more species of Coenagrionidae and Hemiptera species were collected during the study.

6.6.2 Wetland delineation

This study has used both primary and secondary datasets for wetland delineation in the proposed development site. The primary data collection included auguring, pictures, geographical co-ordinates, and wetland vegetation identification. While the second data collection included the Google Earth Pro, SANBI's BGIS, National Freshwater Ecosystem Priority Areas, South African Inventory of Inland Aquatic Ecosystems, and Waterberg District EMF. The wetland delineation followed the DWAF (2005) guidelines, where the four indicators were considered including soil form, soil type, soil wetness and vegetation. On the proposed development site, no wetland systems were identified during the site assessment. However, a watercourse presenting wetland features (*Phragamites australis*) was identified in proximity to the development site (**Figure 10**). The watercourse has been altered from the natural state as presented in **Figure 11**. The natural watercourse is characterised by a narrow channel; however, in proximity to the site, the watercourse was a large open waterbody with large-scale sedimentation. Although wetland plants were identified within the sedimented channel, wetland features to determine the boundary of a wetland were absent. Furthermore, the hydrology of the watercourse has been altered through the unnatural inundation; any geomorphological features have been altered through alluvial deposition and exportation; no wetland plants were identified outside the channel area.

Figure 10: Watercourse identified in proximity to project area with wetland features (plants) in sedimented areas

Figure 11: Google Earth Imagery showing alteration of habitat by the weir

6.7 Biodiversity

A scientific methodology is followed, to identify Critical Biodiversity Areas within the country. These areas are required to meet set biodiversity targets in terms of maintaining ecosystems, species and the ecological process which occur in these areas. These areas are including both in the terrestrial and aquatic environment. The aim of the identification of Critical Biodiversity Areas is for informed decision-making, with regards to suitable development areas. A variety of land use sectors hold environmental authorizations which may affect the biodiversity of the environment in those areas. These Critical Biodiversity Areas are identified at provincial level, in map formats, as part of the provincial spatial biodiversity plan (South African National Biodiversity Institute, 2021). The project site falls within Critical Biodiversity Area 2 according to the DEA Screening Tool (**Figure 12**). As a result, a very high sensitivity has been allocated to the study area.

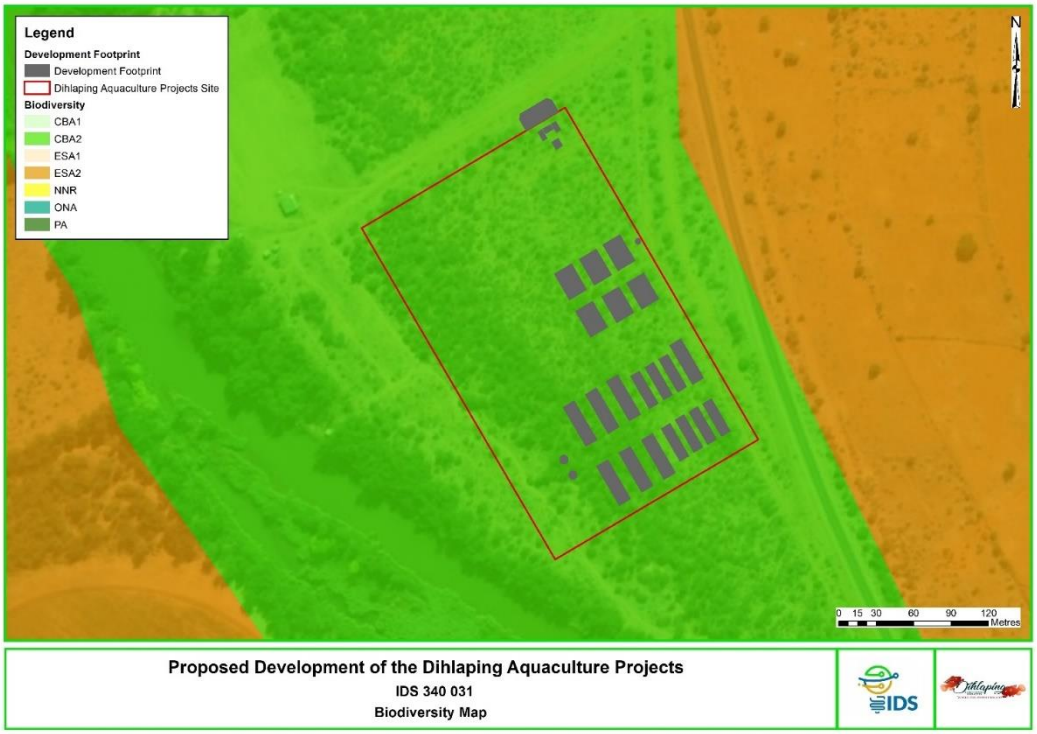


Figure 12: Biodiversity Map

6.7.1 National Biodiversity Assessment

The National Biodiversity Assessment (NBA) is an output of South Africa's biodiversity status, from a multitude of data sources, and comes in a variety of formats including seven technical reports, a synthesis report, datasets, and a book, amongst many other formats. The aim of the book is to inform decision-making sectors, inform the policy drafting process and to add value towards the national development priorities. The NBA can be used as a tool, to monitor and produce quantifiable trends of South Africa's biodiversity state. The latest release of the NBA was in the year 2019, ending its assessments period in the year 2018, which was a period which lasted 5 years, from 2015 (South African National Biodiversity Institute, 2019).

6.7.2 Ecosystem Threat Status

Included in the National Environmental Management: Biodiversity Act (Act 10 of 2004) (NEMBA), a list of threatened or protected ecosystems is created. The initial list to be provided was gazette on the 9th of December 2011. The aim of creating such a list is towards conservation efforts of such ecosystems, and to prevent their further degradation. The list is further classified under various categories, namely; critically endangered (CR), endangered (EN), vulnerable (VU), least threatened (LT) or protected (Threatened Ecosystems, 2021). The map below indicated that the project area is within a Least Concern categorized Ecosystem (**Figure 13**).

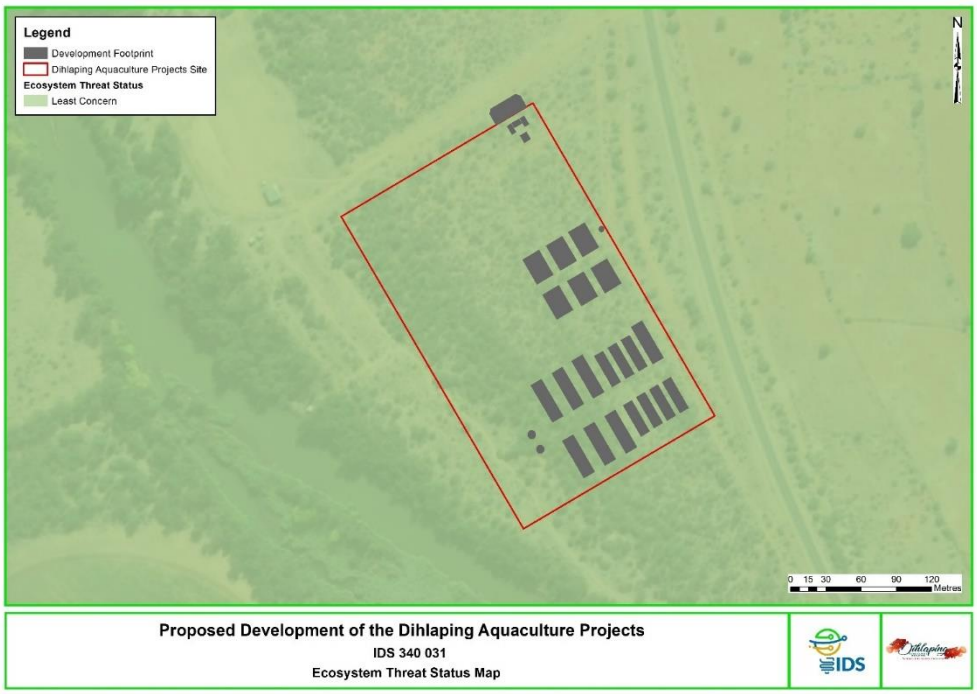


Figure 13: Ecosystem Threat Status Map (2018)

6.7.3 Ecosystem Protection Level

The National Environmental Management: Protected Areas Act (Act 57 of 2003) stipulates national lawfully restricted areas, as protected areas, according to various categories, such as nature reserves, national parks, and protected environments. The Ecosystem Protection Level is determined by the proportion the ecosystem type which falls within a protected area, and that is compared against the set biodiversity target for the ecosystem type, which then determines the protection level. The protection levels are further classified into categories, based on their protection level proportions, where the biodiversity targets and completely met in a protected area, the ecosystem type is categorized as “well protected”. Where the ecosystem type has more than 50% proportion for the biodiversity targets to be met, it is categorized as “moderately protected”; where the ecosystem type has a proportion between 5-49%, it is categorized as “poorly protected”; and in ecosystem types where there is no proportion which falls within a protected area, or the proportion is 5% or less of the biodiversity target met in a protected area, the ecosystem type is categorized as “no protected” (Driver, Daniels, Helme, Lotter, & Raimondo, 2012). The project site falls within a Poorly Protected ecosystem type **Figure 14**.

Figure 14: Ecosystem Protection Status Map

6.7.4 South African Conservation Areas and Protected Areas

The South African Protected Areas Database (SAPAD) and the South African Conservation Areas Database (SACAD) is Geodatabase, which contains the different layers of Protect and Conservation areas within South Africa, also including private protected areas. This database has a lifecycle of a quarterly basis per year. Both categories of SAPAD and SACAD make up the database of Protected and Conservation Areas (PACA) Database.

The Protected areas are categorized into the following area types:

- National Parks;
- Nature Reserves;
- Special Nature Reserves;
- Mountain Catchment Areas;
- World Heritage Sites;
- Protected Environments;
- Forest Nature Reserves;
- Forest Wilderness Areas; and
- Marine Protected Areas.

The map below indicates that the project site does not fall within any national protected areas, nor does it fall within any buffer zones of national protected areas (**Figure 15**).

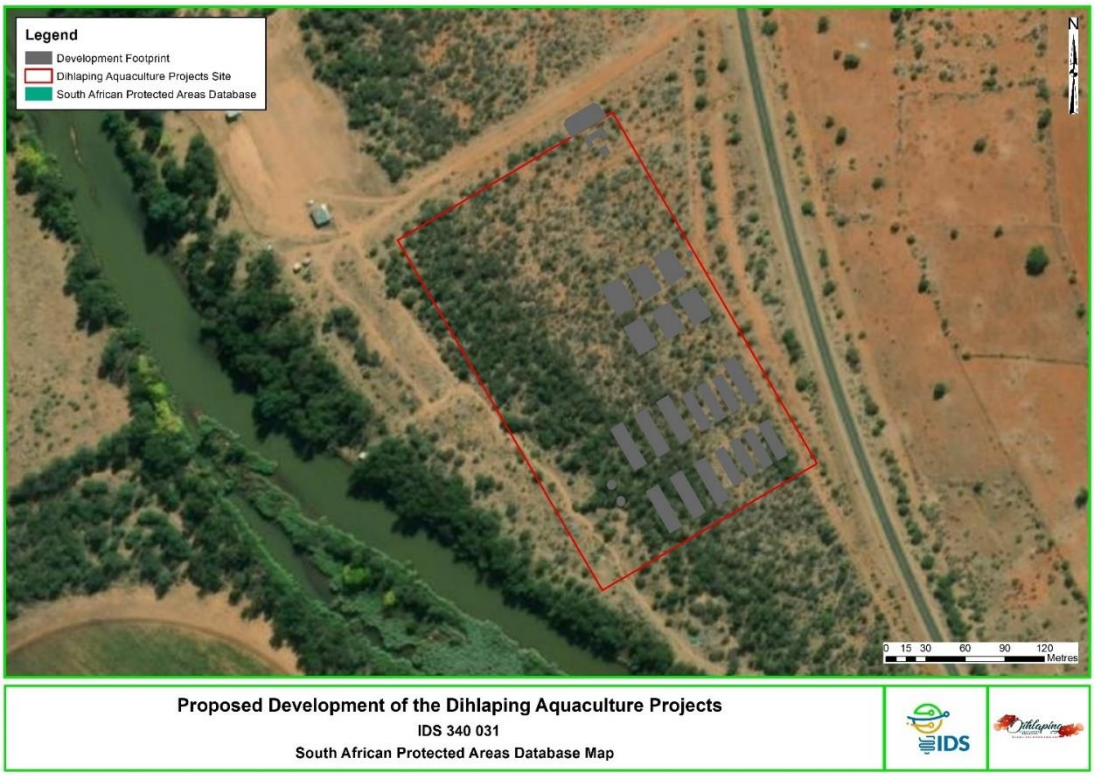


Figure 15: South African Protected Areas Database map (2020)

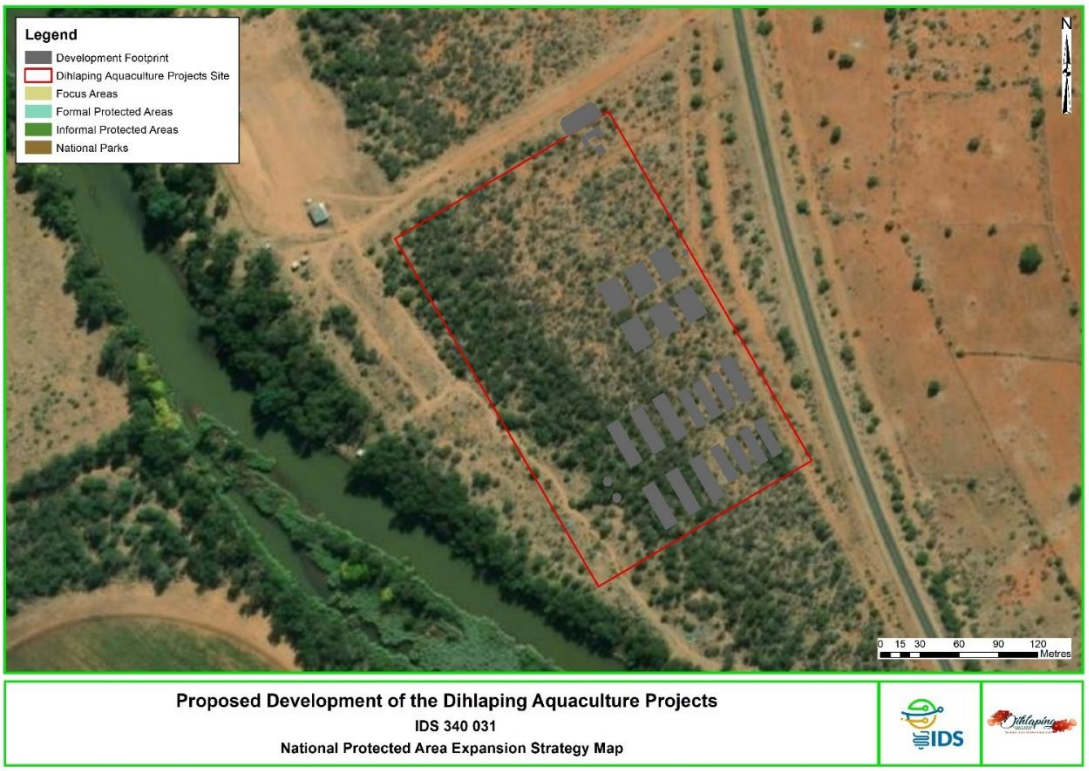


Figure 16: South African Protected Areas Expansion Strategy Database map

Conservation Areas are categorized into the following area types:

- Biosphere Reserves;
- Conservation; and
- Botanical Gardens.

The map below indicates that the project area does not fall within any national conservation area, nor does it fall within any buffer zones of national conservation areas (**Figure 17**).

Figure 17: South Africa and Conservation Areas Database map (2020)

6.8 Vegetation

The project site is located within the Central Bushveld Bioregion. The vegetation type is Savanna Biome. South Africa's Savanna Biome is mapped according to the vegetation structure, as well as the environmental conditions, specifically; rainfall seasonality, and the subtropical thermal regime with little to no incidence of frost. The Savanna Biome does not occur on high altitudes and is found on altitude ranges 1 500 m to 1 800 m, on highveld portions along the southern region of the Central Bushveld (Mucina and Rutherford, 2011).

The structure of the vegetation is mostly dominated with a herbaceous layer, of grass species and a discontinuous to open tree layers. The dominance of each layer component grades the Savanna type, such as; "Savanna grasslands" to "tree savanna", "shrub savanna", "savanna woodland" or "savanna parkland". Fire is an important natural event for the Savanna vegetation type, for the grass layer to dominate. This can be categorized as maintenance of the woody plants layers, where it reduces the rate of bush encroachment for moist

savannas, and for arid savannas, it maintains the height of the trees and shrubs at a height which still allows for the browsing fauna to reach.

6.8.1 Vegetation Types

The project site falls within the SVcb 18 Roodeberg Bushveld vegetation type (Geocortex Viewer for HTML5, 2018).

Figure 18: Vegetation Type Map

6.8.2 SVcb 18 Roodeberg Bushveld

The distribution of the vegetation type is located in the Limpopo Province, from Marken and Villa Nora in the southern portion, to Baltimore nearing Swartwater in the norther region, and the plains around the bottom of the Blouberg and Leratapje Mountains in the northeastern region. The altitude ranges from 850 m to 1 100 m. The vegetation and landscape features are mostly plains and gently undulating plains, low hills, with short closed woodland to tall open woodland, and a sparsely vegetated grass layer.

6.8.3 Important Plant Taxa

The important taxa consist of vegetation species which are found to dominate a vegetation type, frequently occurring or being prominent in the landscape (Mucina and Rutherford, 2011). For SVcb 18 Roodeberg Bushveld vegetation type, the following species are considered important plant taxa:

Table 18: Species composition of the SVcb 18 Roodeberg Bushveld vegetation type

Dominant taxa	Species list
Tall Trees:	*Vachelia burkei* (d), V. *nigrescens* (d), *V. robosta* (d), *V. erioloba*, *Sclerocarya birrea* subsp. *caffra*.
Small Trees:	*Vachelia erubescens* (d), *V. mellifera* subsp. *detinens* (d), *V. nilotica* (d) *V. tortilis* subsp. *heteracantha* (d), *Combretum apiculatum* (d), *Kirkia acuminata* (d), *Vachelia grandicornuta*, *V. luederitzii* var. *retinens*, *V. Vachelia* var. *leiorhachis*, *Albizia harveyi*, *Combretum imberbe*, *Commiphora mollis*, *Rhus lancea*, *Terminialia sericea*, *Ziziphus mucronata*.

Dominant taxa	Species list
Tall Shrubs:	*Dichrostachys cinera* (d), *Grewia flava* (d), *Euclea crispa* subsp. *crispa*, *E. undulata*, *Grewia monticola*, *Hibiscus micranthus*.
Low Shrubs:	*Commiphora africana*, *Melhania acuminata*, *Sida cordifolia*, *Solanum delagoense*.
Graminoids:	*Aristida canescens* (d), *Chloris virgata* (d), *Digitaria eriantha* subsp. *eriantha* (d), *Enneapogon cenchroides* (d), *Eragrotis rigidior* (d), *Panicum maximum* (d), *Urochloa mosambicensis* (d), *Aristida congesta*, *Brachiaria deflexa*, *Cymbopogon pospischilii*, *Cynodon dactylon*, *Eragrotis rotifer*.
Herbs:	*Achyranthes aspera*, *Corbichonia decumbens*, *Hemizygia ellottii*, *Kyphocarpa angustifolia*, *Seddera capensis*, *Tephrosia purpurea* subsp. *leptostachya*, *Waltheria indica*.

6.8.4 Floral Species of Conservation Concern Assessment

The expected flora of conservation concern is listed according to the National Red List categories, included in the table below are the threatened species category: **Vulnerable** (**VU**), **Endangered** (**EN**), **Critically Endangered** (**CR**), and **Critically Endangered**, **Possibly Extinct** (**CR PE**) (**Table 19**). The categories of IUCN status and description of the floral species data was collected from the National Red List (Threatened Species Programme | SANBI Red List of South African Plants, 2021).

Table 19: The expected floral SCC to occur within the project site, including their conservation status according to the South African red list species.

Family	Species name	IUCN	Probability of occurrence on site	Probability of occurrence Justification	Habitat Requirements
ACANTHACEAE	*Dicliptera fruticosa*	**NT**	**Low**	The preferred habitat where this species occurs, is not the vegetation type which occurs within the project site area, Roodeberg Bushveld. The probability of occurrence is therefore categorised as Low.	**Major habitats:** Sekhukhune Mountain Bushveld, Ohrigstad Mountain Bushveld, Poung Dolomite Mountain Bushveld, Sekhukhune Plains Bushveld, Gravelotte Rocky Bushveld **Threats:** Threatened within some parts of its range by expanding human settlements and agriculture. This shade-loving species may also be sensitive to excessive wood extraction which reduces tree cover in savanna habitat. **Population trend:** Decreasing This range-restricted species is still relatively common, with more than 10 remaining locations. It is suspected to be declining in parts of its range due to ongoing expansion of human settlements and agriculture.
MARSILEACEAE	*Marsilea farinosa*	**VU**	**High**	The preferred habitat of this plant species is the vegetation type which occurs within the project site area, and the probability of occurrence is therefore categorised as High.	**Major habitats:** Roodeberg Bushveld **Threats:** Overstocking of Livestock especially in Botswana is the main potential threat. **Population trend:** Stable Small range, known from five locations. This subspecies is potentially threatened by livestock overgrazing.

The vegetation assessment field survey was conducted through the proposed development foot of the project area, where a walk through was conducted, and the plant species were noted. The plant species which are listed belowis the full list of plant species identified within the project site during field survey conducted on the 21st May 2021.

The dominant vegetation cover is described as 'Bushveld'. The species *Vachellia tortilis* dominated the mapped degraded area, and *Themeda triandra* in the Transformed area. *Vachellia tortilis*'s vegetation coverage is approximately 80% of the mapped degraded area, and *Themeda triandra* dominated the Transformed area, covering an approximate area of 90%. However, the degraded area is almost entirely overgrazed, and is in a poor habitat condition.

6.9 Faunal Assessment

6.9.1 Avifauna

Based on the expected species list with Desktop Results, 180 bird species were expected within the project site and surrounding regions, based on Desktop Spatial Analysis studies. Three avifaunal species were recorded during the field survey, from a visual sighting of the birds.

Table 20: Avifauna specifies identified within project site

Common Name	Species Name	IUCN (Red List)	SANBI (Red List)	Field survey image
Common African Eagle	*Stephanoaetus coronatus*	NT	VU	*Visual Sighting*
Spotted Thick-knee	*Burhinus capensis*	LC	LC	*Visual Sighting*
Black Sparrowhawk (Goshawk)	*Accipiter melanoleucus*	LC	LC	*Visual Sighting*

6.9.2 Mammals

The mammal species recorded during the field survey were identified through a visual sighting of the animal, and a person who lives within the project sites surrounding community communicating the information of the presence of the animals within the surrounding vicinity of the project site.

Table 21: Mammal species identified within the project site

Common Name	Species Name	IUCN (Red List)	SANBI (Red List)	Field survey image
Vervet Monkey	*Chlorocebus pygerythrus*	LC	LC	*Visual Sighting*
Common Hippopotamus	*Hippopotamus amphibius*	VU	LC	*Person Communicating*

6.9.3 Herpetofauna

Based on the expected species list with Desktop Results, 34 reptile species and 9 frog species were noted. However, there was one Reptile species which was identified from the project site, from a visual sighting of the animal (**Table 22**).

Table 22: Herpetofauna (Reptile) species identified within the project site and neighbouring Lephalala River

Common Name	Species Name	IUCN (Red List)	SANBI (Red List)	Field survey image
Nile Crocodile	*Crocodylus niloticus*	LC	VU	

6.10 Landscape and Visual

6.10.1 Land use

The current land use of the study area is noted to be zoned as Agricultural. This is in line with the proposed development as aquaponics is recognised as agriculture. In addition, the proposed aquaculture operation is within the agricultural sector.

6.11 Heritage

A Heritage Impact Assessments (HIA) was compiled Tsimba Archaeological Footprints (Pty) Ltd and is attached as **Appendix G1**

6.11.1 The Stone Age

6.11.1.1 The Early Stone Age (2 million to 250 000 years BP)

The Stone Age dates back more than 2 million years representing a more explicit beginning of the cultural sequence divided into three epochs, the Early, Middle and Late Stone Ages. These early people made stone and bone implements. In South Africa more than 3 million years ago appeared proto- human hominids. The hominid site nearest to the study area is Taung near Vryburg. Taung was proclaimed a UNESCO World Heritage Site proclaimed at the same time with the Sterkfontein Caves (Krugersdorop) and Makapans Valley (Mokopane) in a sequential nomination.

Archaeological research carried out over a period of approximately 70 years has shed light on various aspects of this extensive past, from the Earlier Stone Age to the Late Iron Age. These studies have focused on a range of topics from early subsistence strategies to farming, settlement, and mining. Over this time, the archaeological evidence shows, as our early ancestors advanced physically, mentally and socially they invented stone and bone tools and learned to control fire and exploit natural resources effectively. The earliest tools clearly manufactured by our ancestors and their relatives (early hominids) date to 2, 5 million years ago.

Oldowan and Acheulean tools are widely distributed across South Africa, where they are most commonly found in association with water sources such as lakes and rivers. Unfortunately, because of this there are very few sites where the tools are found in a primary context, that is, exactly where the user left them. Most of the tools have either been washed into caves or eroded out of riverbanks and washed down rivers. An example of this is the site of Maleoskop on the farm Rietkloof1, one of only a few places in Mpumalanga where ESA artefacts have been found to date. This area is drained by the Olifant River, which is fed by numerous tributaries, of which the Rietspruit is one. Erosion gullies along the Rietspruit revealed concentrations of ESA stone tools. These stone tools consisted of choppers (Olduwan), hand axes, and cleavers (Acheulean).

6.11.1.2 The Middle Stone Age (MSA) [250 000 years – 30 000 years BP]

The Middle Stone Age is marked by the introduction of a new tool kit which included prepared cores, parallel-sided blades and triangular points hafted to make spears. By then humans had become skilful hunters, especially of large grazers such as wildebeest, hartebeest and eland.

Relatively few MSA sites have been studied on the Waterberg plateau and none is dated (Wadley et al 2016). In contrast, several late LSA sites have been excavated (van der Ryst 1998). The hiatus between MSA and LSA occupations on the plateau requires further research; LSA settlements are not present before the late eleventh/early twelfth century AD when Iron Age agro pastoralists also entered the region (van der Ryst 1998; Wadley 2016).The MSA layers indicated that the cave was repeatedly visited over a long period, the lower layers dated to more than 40 000 years ago, with those above dating to 27 000BP. It is possible that humans occupied the cave when climate conditions were particularly wet and cold. At about 12 000BP, for example, a high number of fractured pieces of dolomite from the cave roof were found in the archaeological deposit. This occurs naturally when conditions are particularly wet and cold, and the rock is forced to expand and contract as the water freezes and thaws. The archaeological deposit that contained the fractured pieces of roof also preserved the remains of stone tools, animals and ash, which suggested that the sporadic roof fall stopped people from using the shelter

6.11.1.3 The Later Stone Age (LSA) [40 000 years to ca2000 years BP]

In the LSA period humans are classified as Homo sapiens which refer to the modern physical form and thinking capabilities. Several behavioural traits are exhibited, such as rock art and purposeful burials with ornaments, became a regular practice[1].

According to Bergh (1999) some rock paintings, are known 20 to 30 km north east of Mokopane and the Archaeological database at Wits also have paintings on record to the east of the study area on the Planknek Mountain range.The Later Stone Age (LSA), which occurred from about 20 000 years ago, is signalled by a series of technological innovations and social transformations within these early hunter-gatherer societies.

As at other LSA sites in southern Africa evidence of adornment in the form of ostrich eggshell beads was present in most levels at these two sites. An examination of the beads, and remaining pieces of shell, provided insight into the methods used to make strings of beads. In most cases shell pieces were drilled from the inside surface of the shell, probably because the outside surface was slippery; once pierced they were ground to create smooth edges.

The first site, dated to between ~4870BP and ~700BP, was situated on a terrace on the northern side of a low rock shelter in which there are four panels of rock art. It was not possible to say whether the rock art was painted during the mid- or later Holocene, as colouring material was present in all the excavated layers. Stonewalling present at both sites was associated with the last 250 years of hunter-gatherer occupation, and may have served as protection against intruders and predators. The faunal assemblage suggested that during the late Holocene small game hunting was no longer significant, and that snaring and fishing formed the main subsistence activity. A high percentage of the tools at one of the sites were used to prepare skins and in woodworking activities.

6.11.2 Iron Age Period

The facies that may be present are:

- Urewe Tradition: Kwale branch- Mzonjani facies AD 450 – 750 (Early Iron Age).
- Moloko branch- Icon facies AD 1300 - 1500 (Late Iron Age)
- Kalundu Tradition: Happy Rest sub-branch - Doornkop facies AD 750 - 1000 (Early Iron Age) Eiland facies AD 1000 – 1300 (Middle Iron Age) Klingbeil facies AD 1000 - 1200 (Middle Iron Age) Letaba facies AD 1600 - 1840 (Late Iron Ag

Pieces of clay ceramic and an iron bead indicated early social contact with the first farmers who moved into the area sometime around AD 500, which marked the beginning of the Iron Age in South Africa (Berrington 1978).

The expansion of early farmers, who, among other things, cultivated crops, raised livestock, mined ore and smelted metals, occurred in this area between AD 400 and AD 1100. Dates from Early Iron Age sites[10] indicated that by the beginning of the 5th century AD Bantu-speaking farmers had migrated down the eastern lowlands and settled in the lowveld. Subsequently, farmers continued to move into and between the lowveld and highveld until the 12th century. These Early Iron Age sites tend to be found in similar locations. Sites were found within 100m of water, either on a riverbank or at the confluence of streams. The close proximity to streams meant that the sites were often located on alluvial fans (Whitelaw, 1996 pp 75-83).

Huffman (1997) notes that large cattle byres with pits were also significant features of EIA sites dating from AD 600. At Langdraai,[15] an AD750 site, situated on an alluvial fan about 400m east of the Alexander Spruit, the dung deposit in one of the cattle kraals was at least 25cm thick and two bag shaped pits were located at either end of the kraal. The size of the cattle kraal and the presence of cattle bones at the site show that herding undoubtedly played an important role in the subsistence economy of the Early Iron Age. Evidence from this and the previous site also suggested that small domestic livestock, like sheep and goat, were eaten (Schapera, 1993 p.53).

The archaeology also shows that people and their ancestors regularly moved between these vastly different environments to and from the coast to obtain and trade a variety of resources. From AD 900 these included objects brought across the ocean from foreign countries (Marker 1976). Coal was used in South Africa as far back as the Iron Age (300 – 1880 AD). During this time charcoal was used to melt copper and iron. Large-scale usage of coal only started happening around the middle of the 19th century.

6.11.3 Historical Background Coal Mining of Lephalale-

The Lephalale area houses the largest remaining known coal reserves in South Africa and the fourth largest power station in the world (Medupi). The mining and energy fortunes of the area, which were largely propelled by Medupi, have impacted on the property values because of the demand for space in the area.

6.11.3.1 Early industrial developments

In 1852, the first mine was constructed in what is now South Africa. This was the beginning of a copper project that would go on to form the cornerstone of the town of Springbokfontein, today Springbok, in the Northern Cape Province. Commercial coal mining began 12 years later, with the construction of a mine in Eastern Cape that would also see a settlement constructed around it, the town of Molteno. This town was established by George Vice, the local-born son of an Englishman, and named after an Anglo-Italian immigrant who had been born in London, and established a process of white Europeans moving to South Africa to set up mining operations, which would be staffed by predominantly black workers, a trend which would characterize later generations of South African mining.

Coal mining played a supportive role as provider of energy to the growing gold mining industry and indeed, many collieries were historically and are today owned by gold mining companies. To these coal mine owners it was more important to keep the costs of their own energy inputs low, than to profit from coal mining itself. The coal price remained very low until the mid-1970s, when export opportunities opened up through a deep terminal in Richards Bay, and Japanese long term contracts. The low coal price was accompanied by harsh working conditions and low wages for African workers, a tendency to mine only the best coal ("picking out the eyes" in mining jargon) instead of mining the whole seam, and a disregard for environmental impacts.

Coal mining continued to expand until the turn of the 20th century, with deposits at Vereeniging and Witbank exploited from 1879 and 1895 respectively fuelling the region's growing industries. Historically the Vaal coalfields were the first to be intensively exploited, hosting a number of coal fired power stations as well as steel and heavy industry. The largest coalfields are found in a continuous expanse from Mpumalanga into KwaZulu Natal, where seams are between 15 and 100 metres deep, and around seven metres thick, but very variable. More recently, coalfields to the North (Waterberg and Soutpansberg) have been opened up.

6.11.3.2 The History of cheap labour and Coal Mining

The dominance of coal interests has imposed logic on the political economy which is played out in the form of weak regulation and the dependence of local and provincial government on coal interests. Under apartheid, coal mining provided an avenue for advancing Afrikaner capital, and is now the focus of a programme for building a black middle class through participation in coal mining. Coal mining also has a history of cheap labor, and confrontation with organized labor. Mine owners in general, like other business and industry, made a limited presentation to the Truth and Reconciliation Commission, but did not come near to accepting responsibility for, amongst others, miners' deaths and ongoing illnesses.

6.11.3.3 Historical context of legislations and regulations for coal mines

As far back as 1903, South Africa has had laws that placed the responsibility for mining impacts on the mine owner. When a closure certificate was obtained, this responsibility ceased. However, under a traditionally weak regulation system, many mines became defunct and ownerless. The then apartheid government, attempted to deal with this situation through the 1975 Fanie Botha Accord, between the Minister of Water Affairs and the Chamber of Mines. They agreed that the state would take 100% responsibility for all mines closed before 1976. Mines closed from 1976 to 1986 would be 50% state responsibility and 50% owner responsibility. After 1986 all mines and its closure would be the responsibility of the owner. As a result, the South

African Department of Water Affairs has spent more than R120 million the last 10 years to deal with historic pollution – though this is amount is said to only be a fraction of what is ultimately needed.

Historical problems include the estimated 6000 abandoned mines (not all of them coal mines). The abandoned Transvaal and Delagoa Bay Colliery outside Witbank has been identified as representing the greatest possible risk of any mine in the D&O Mines database. This is a large colliery which has partially collapsed, leaving large sinkholes in an area adjacent to an informal settlement. The remaining coal in the underground workings is burning, compounding the physical hazard posed by the mine as well as polluting the air. The workings are flooded and have started to decant, producing highly saline acid drainage with unacceptable levels of heavy metals. This water drains into the Brugspruit, a tributary of the Olifants River. Poor water quality resulting from this and other abandoned and operational coal mines has been linked to the death of fish and crocodiles in the Loskop Dam Nature reserve downstream.

In terms of the national estate as defined by the NHRA, no sites of significance were found during the survey as described below.

The surveyed area is an undulating piece of land which is characterised by spread-out grass veldt in some sections. The site is flanked by farming fields in a rural setting. The proposed development site is mostly disturbed by different human activities making it difficult for archaeological artefacts and sites to survive in such an environment.

Figure 19: Power line traversing across the proposed development site

Figure 20: Evidence of rubbish dumping on site. Suggesting that archaeological site sensitivity has largely been tempered with

Figure 21: Access roads within the proposed development site

Figure 22: In most of the proposed development are, ground visibility was good making it easy to identify archaeological artefacts (if present)

6.11.4 Built Environment

Section 34(1) of National Heritage Resources Act of 1999 protects these structures against any altering.

- No structures over 60 years old

6.11.5 Archaeological Resources

Section 35 (4) No person may, without a permit issued by the responsible heritage resources authority

- During the survey, no archaeological sites were recorded.

6.11.6 Cultural Landscapes, Intangible and Living Heritage

Section 3 (3) of the National Heritage Resources Act, No. 25 of 1999 makes provisions of such places of spiritual significance to individuals.

- Long term impact on the cultural landscape is considered to be negligible as the surrounding area consists of farms and homesteads. Visual impacts to scenic routes and sense of place are also considered to be low due to the nonexistence of any notable scenic routes structures within the study area.

6.11.7 Burial Grounds and Graves

36(3) No person may, without a permit issued by SAHRA or a provincial heritage resources authority.

- No graves or burial grounds were recorded within the study area.

6.11.8 Public Monuments and Memorials

37. Public monuments and memorials must, without the need to publish a notice to this effect be protected in the same manner as places which are entered in a heritage register referred to in section 30.

- No public monuments and memorials exist within the proposed development area.

6.12 Socio-economic

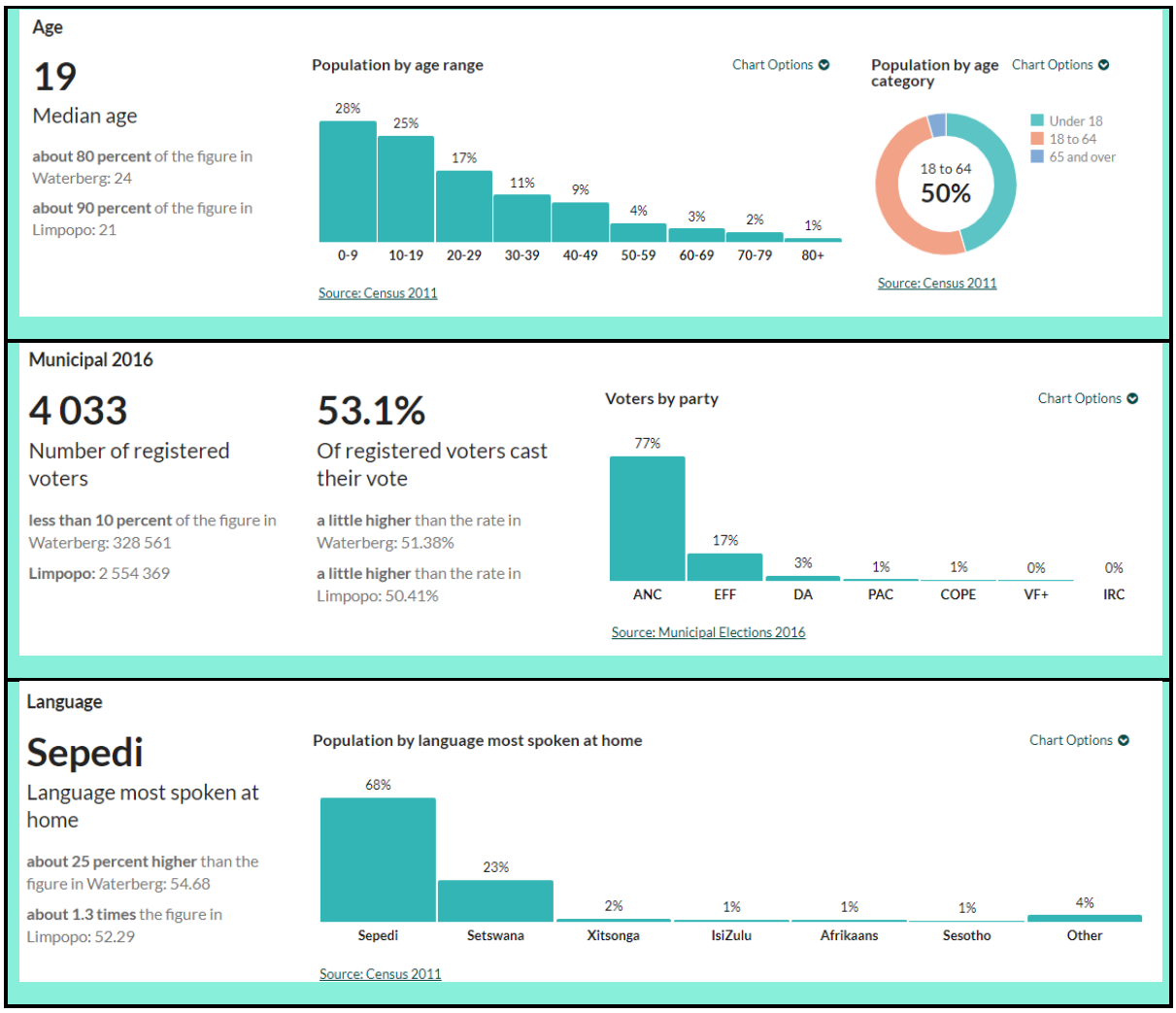
The socio-economic aspect of the site has been determined utilising the Statistics SA 2011 for Ward 2 (63702002) under the Madibeng Local Municipality. In addition, the Feasibility study compiled by Urban-Econ Development Economists on behalf of Department of Agriculture, Forestry & Fisheries dated 2018 has been utilised to evaluate the economic viability of the proposed development.

6.12.1 Demographics

According to the Statistics SA 2011 for Ward 9, the demographics of the ward indicate that approximately 4 033 people live within the ward, with a median age of 19. Black Africans dominate the ward as compared to Whites at 1%. Sepedi is noted as

the dominant language followed by Setswana at 23%. At least 97.4% of the population is born in South Africa whilst 2% represents the population born outside of South Africa. The population of the ward is largely dominated by females at 52%.

Table 23: A summary of the demographics of Ward 9 (https://wazimap.co.za/profiles/ward-93602009-lephalale-ward-9-93602009/)



6.12.2 Levels of Education

Approximately 58.5% of the population completed Grade 9 or higher whilst only 28.4% completed Matric or higher (**Figure 23**).

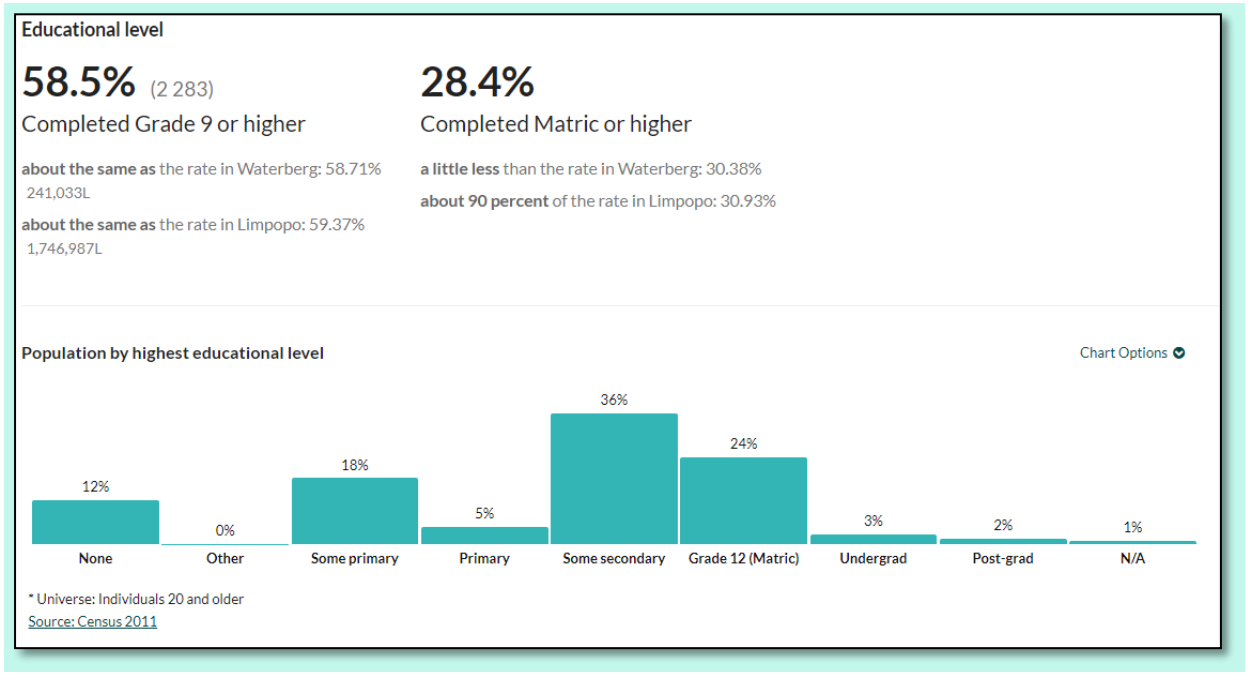


Figure 23: A summary of the education levels of Ward 9

6.12.3 Economic Activities and Employment levels

The Waterberg District Municipality IDP states that high unemployment rate is noted especially amongst the youth. The Stats SA indicates that only 27.5% of the population is employed mainly within the formal sector. The average annual income of each household is the same as that of the Waterberg District Municipality household income value at R30 000.00. A large number of the population earns between R20 000-R 40 000 per year.

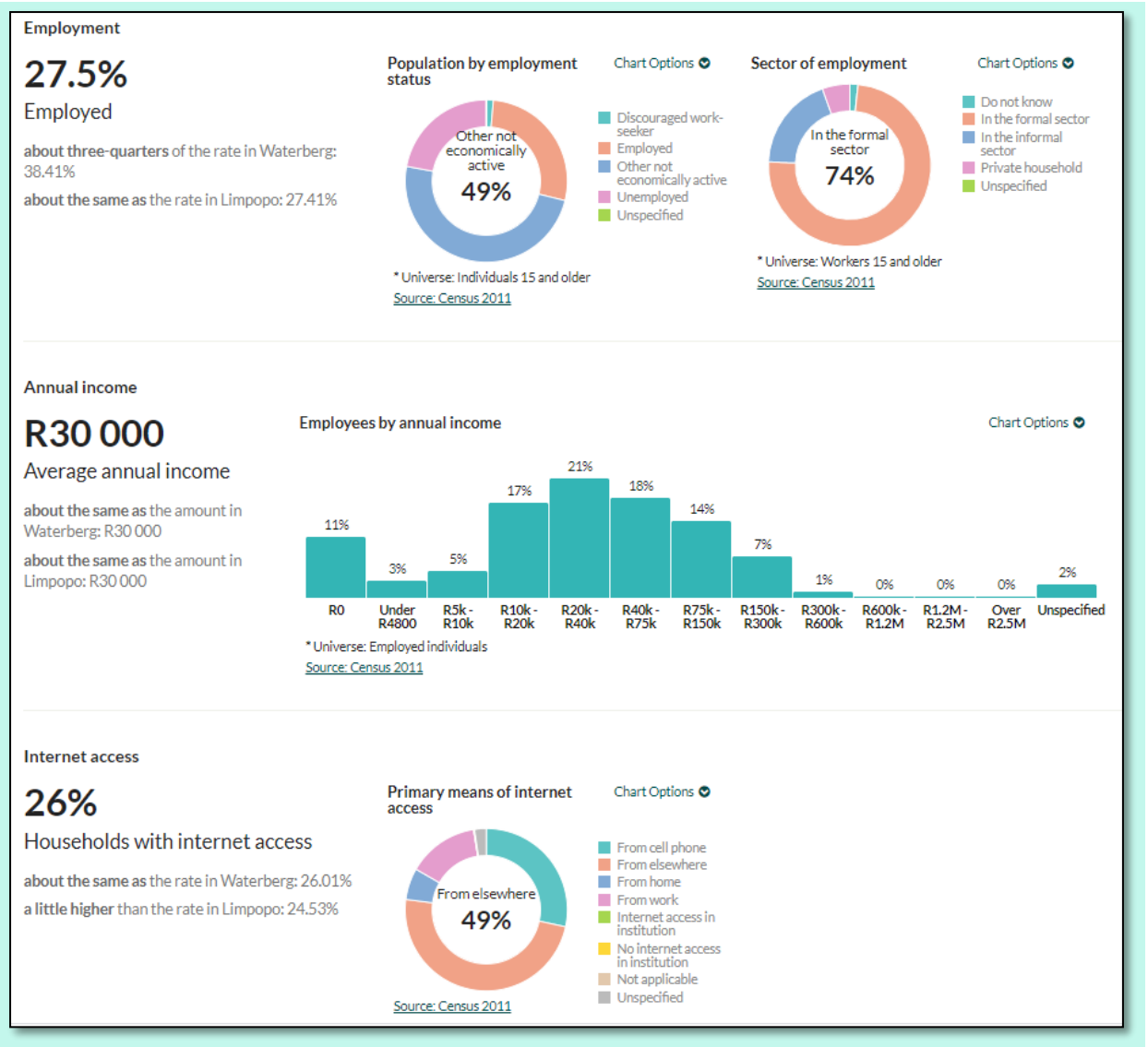


Figure 24: Summary of the economic profile of Ward 9

6.12.4 Economic Viability

The information below is informed by the Feasibility study compiled by Urban-Econ Development Economists on behalf of Department Of Agriculture, Forestry & Fisheries dated 2018 has been utilised to evaluate the economic viability of the proposed development.

6.12.4.1 Regional and Local Markets

Tilapia is by far the favourite fish in most part of Africa, and is being sold as various products including:

1. **Fresh whole fish** – this is the most popular form of product and is most common at the source of the supplier (farms or fisheries sites) which can range from small sizes (150 grams) to 450 grams (average plate size) to a larger size of about 650 grams.

2. **Fresh or frozen fillet** – not that common but increasing in popularity. Mostly found at the retail outlets and upper markets restaurants. Increasingly these products can be found at retail outlets and through large commercial farms.

3. **Frozen whole fish** – Very common and mostly supplied though the importation channels (such as China and India). Typically sold at an average plate size fish.

4. **Dried/Salted**- Common product mostly in rural areas and is being offered by local traders. Asia markets often import to Africa countries, however local demand exceeds imports.

Based on South African producer's experience, and ongoing research into the informal market for fish, it was found that if a rural area or township has high representation of African diaspora communities, tilapia can be sold for R 12 per fish, which equates to an estimated R 50.00/kg and more. However, in a township or area where the African diaspora is small and widely spread, these prices are not likely to be achieved. Prices may range from R35-38.00/kg for 300-gram fish.

6.12.4.2 Price Sensitivity

The generic economic models clearly identify the key impact pricing of the fish (Rands/kilogram) plays in determining the minimum and maximum profitable scales of production. The average farm gate price for the **Nile tilapia ranges from R 30 to R 40 per kilogram in South Africa**.

The size of the Mozambique tilapia being sold plays a major role in the profitability of an operation and the selling price that should be targeted. While plate sized fish are generally more popular for the general consumer, growing the tilapia to larger weights (i.e. 300 grams or more) is less profitable than selling them at smaller sizes. There has been an informal market in South Africa identified for smaller tilapia, however, this market is informal and is currently being researched and analysed. For example, if producing 50 tons of tilapia, the following selling prices would need to be achieved to be profitable:

- 300-gram fish: R 73/kilogram
- 400-gram fish: R 79/kilogram

The applicant aims to produce 35 tons per year. According to the feasibility study, based on the table below, a RAS system is profitable for Mossambicus tilapia production **when producing 34 tons of fish per annum** and **selling at a price of R 74/kg**. A **positive PI of 1.06 was achieved**, with an IRR of 8%, indicating good investment potential exists. This is based on 2017/2018 figures.

Table 24: Financial Analysis: Mossambicus tilapia in a Pond System

Production Scale	Min Profitable 34 tons	Optimal 530 tons
Financial Indicators		
Total Capital Expenditure	R 5 686 976.69	R 54 269 952.31
Loan Amount – Working Capital	R 1 241 630.90	R 11 805 634.61
Loam Amount - Infrastructure	R 4 445 345.79	R 42 464 317.70
Interest Rate	8.25%	8.25%
Profitability Index (PI)	1.06	6.30
Internal Rate Return (IRR)	8%	45%
Net Present Value over 10 years	R 6 000 667.74	R 341 746 840.51
Pay-back period (year)	20	20
Years until profitable	7	2
Production Indicators		
Farm Size (hectares)	1.63	9.9
Number of fingerlings required	9 758	152 112
Number of employees (Year 1)	4	31

7 RESOURCE USE AND PROCESS DETAILS

This section provides resource details during construction and operation phase of the development. This includes services i.e. electricity, water, sewer and waste.

7.1 Waste, effluent, and emission management

7.1.1 Solid waste management

Solid waste is anticipated to be produced during construction and operational phase of the proposed development. It has been noted that Jericho does not get waste collection from the municipality therefore domestic and construction waste will be disposed off at Marapong landfill site as it is the nearest location where refuse removal is provided for by the municipality.

Organic waste as a result of packaging of vegetables will be fed to the snails, and any uneaten rotten will be composted (concrete prepared area) and used for crops.

Due to the expected activities to be undertaken, the RAS system is a closed system. In addition, built-up manure from chicken droppings will be utilised to fertilize the crop, feeding fish and selling to other farmers.

Poultry waste will be used for crops for the vegetables.

7.1.2 Liquid effluent (other than domestic sewage)

No liquid effluent is anticipated for the proposed development.

7.1.3 Liquid effluent (domestic sewage)

The proposed development aims to utilise eco-friendly waste management processes.

7.1.4 Emissions into the atmosphere

The RAS system to be utilised for the proposed aquaponics project is a closed system. It is therefore not anticipated that significant emissions into the atmosphere will be released to trigger the need for a licence. In addition, the rural nature of the study area suggests that air emissions are livestock (manure), vehicles and dust from the dirt roads. It is worth noting that the current state of the ambient air quality is good.

7.2 Water Use

The farm lies on the Palala River and the bulk water shall be provided via the water borehole whereas Palala River and overflows during summer months will be used as back up for irrigation. Only organic crops will be grown on the plot and chemicals and pesticides will not be needed as tunnels will be used to protect our fish and crops.

7.3 Power Supply

The electricity supply is provided by Eskom, the supply is currently stable, but outages are experienced. Application for electricity connection is required.

7.4 Energy Efficiency

A generator has been provisioned as an alternative source of energy.

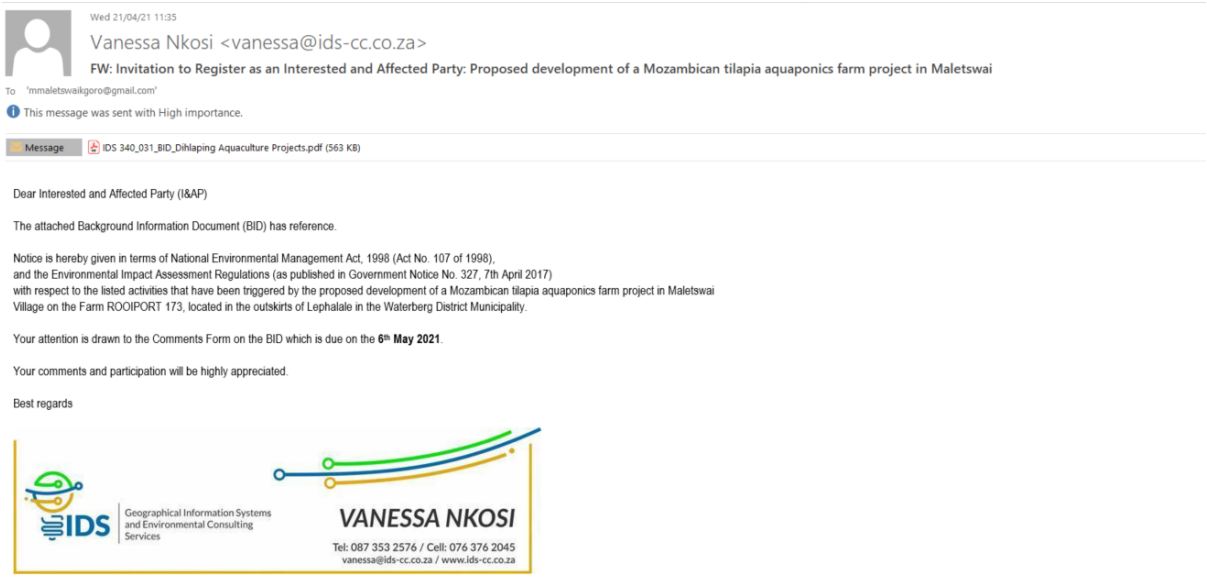
8 PUBLIC PARTICIPATION PROCESS

This section of the report describes the public participation process conducted to date in accordance with the requirement of the EIA Regulations, 2014. Applicable documentation has been attached as **Appendix E**.

8.1 Phase 1 Public Participation

8.1.1 Invitation

The invitation was sent to the identified interested and affected parties on the 21st April 2021 for a period of 30 days. The Background Information Document was attached to the invitation.



Wed 21/04/21 11:35

Vanessa Nkosi <vanessa@ids-cc.co.za>

FW: Invitation to Register as an Interested and Affected Party: Proposed development of a Mozambican tilapia aquaponics farm project in Maletswai

To 'mmaletswaikgoro@gmail.com'

This message was sent with High importance.

Message | IDS 340_031_BID_Dihlaping Aquaculture Projects.pdf (563 KB)

Dear Interested and Affected Party (I&AP)

The attached Background Information Document (BID) has reference.

Notice is hereby given in terms of National Environmental Management Act, 1998 (Act No. 107 of 1998),
and the Environmental Impact Assessment Regulations (as published in Government Notice No. 327, 7th April 2017)
with respect to the listed activities that have been triggered by the proposed development of a Mozambican tilapia aquaponics farm project in Maletswai
Village on the Farm ROOIPORT 173, located in the outskirts of Lephalale in the Waterberg District Municipality.

Your attention is drawn to the Comments Form on the BID which is due on the **6th May 2021**.

Your comments and participation will be highly appreciated.

Best regards

IDS Geographical Information Systems and Environmental Consulting Services

VANESSA NKOSI

Tel: 087 353 2576 / Cell: 076 376 2045
vanessa@ids-cc.co.za / www.ids-cc.co.za

Figure 25: Proof of project notification

8.1.2 Site Notification

Three (3) A3 site notices were placed in pre-selected locations in discussion with the applicant. The location of the site notices is indicated by **Figure 26** below. Proof of the site notices has been attached as **Appendix E1**.

Table 25: Description of site notices

Site Notice Number	Description	Geographic coordinates
SN1	 Placed at the entrance of the study area	23°22'56.46"S 28° 1'38.01"E

Site Notice Number	Description	Geographic coordinates
SN2	 Placed on the main road	23°22'57.38"S 28° 1'38.81"E
SN3	 Placed at a local shop	23°22'56.96"S 28° 2'10.83"E

Figure 26: Map indicating the location of the site notices

8.1.3 Background Information Document

A Background Information Document was distributed on site and electronically to the public and stakeholders dated April 2021. The purpose of the BID is to provide members of the public with information about the proposed project. This information allowed readers to:

- Determine whether they are an Interested and Affected Party (I&AP).
- Understand the project in order to provide informed comments.
- Understand the applicable environmental authorisation process in order to participate meaningfully.

A registration form was attached to the BID for commenting purposes.

BACKGROUND INFORMATION DOCUMENT (BID)

PROPOSED DEVELOPMENT OF THE DIHLAPING AQUACULTURE FARM
IDS REFERENCE NUMBER: IDS 340_031

ENVIRONMENTAL AUTHORISATION APPLICATION PROCESS
APRIL 2021

Applicant: Dihlaping Aquaculture Projects
Environmental Assessment Practitioner: Information Decision Systems (Pty) Ltd

INTRODUCTION

This Background Information Document (BID) serves to notify the public of the intention of the Dihlaping Aquaculture Projects to apply for environmental authorisation, under the National Environmental Management Act, 1998 (Act No. 107 of 1998) for the proposed establishment of an agri-business through the development of aquaponics and poultry in Maletswai Village within the jurisdiction of Waterberg District Municipality.

Information Decision Systems (Pty) Ltd (IDS) has been appointed by the Department of Forestry, Fisheries and Environment (DFFE) to manage the Special Needs and Skills Development Programme which is aimed at providing pro-bono environmental services to qualifying businesses. Under this programme, IDS undertakes Basic Assessments (BAs) for applicants who can demonstrate that they have "special needs", in particular, where applicants cannot afford to undertake the necessary BA process. This led to the IDS undertaking this BA for the proposed Mozambican tilapia aquaponics farm project in Maletswai Village on the Farm Rooiport 173, located in the outskirts of Lephalale in the Waterberg District Municipality.

Information Decision Systems (Pty) Ltd has been appointed by DFFE on behalf of Dihlaping Aquaculture Projects as the independent Environmental Assessment Practitioner (EAP) to undertake the process required to apply for Environmental Authorisation from the Limpopo Department of Economic Development Environment and Tourism (LEDET).

PURPOSE OF THIS DOCUMENT

The purpose of this document is to provide members of the public with information about the proposed project. This information will allow readers to:

- Determine whether they are an Interested and Affected Party (I&AP).
- Understand the project in order to provide informed comments.
- Understand the applicable environmental authorisation process in order to participate meaningfully.

PROJECT OVERVIEW

Figure 27: An abstract of the BID

8.1.4 Database

An interested and affected parties database has been compiled (**Appendix E9**) and the following stakeholders have been invited;

- National Department of Water and Sanitation
- National Department of Forestry, Fisheries and the Environment
- South African Heritage Resources Agency (SAHRA)
- Limpopo Department of Economic Development, Environment and Tourism (LEDET)
- Lephalale Local Municipality (Refuse & Waste)
- Waterberg District Municipality
- Ward 9 councillor
- Maletswai Traditional Authority
- Eskom
- Limpopo Tourism and Parks Board
- Industrial Development Corporation
- Lephalale Development Company (LDC)

PROPOSED DEVELOPMENT OF THE DIHLAPING AQUACULTURE FARM
IDS REFERENCE NUMBER: IDS 340_031
IAP DATABASE

ORGANISATION	CONTACT PERSON	CONTACT NUMBER	EMAIL ADDRESS
APPLICANT			
Dihlaping Aquaculture Projects	Mathema Makola	066 100 8045	tloukola@webmail.co.za
NATIONAL AUTHORITY			
National Department of Water and Sanitation	Love Hlekane	012 392 1420	HlekaneL@dws.gov.za
National Department of Forestry, Fisheries and the Environment	Pontsho Sibanda		PontshoS@Dalrrd.gov.za
National Department of Forestry, Fisheries and the Environment	Gugu Njokweni		GNjokweni@environment.gov.za
National Department of Forestry, Fisheries and the Environment	Kishan Sankar	021 402 3631	KSankar@environment.gov.za
National Department of Forestry, Fisheries and the Environment	Maxhoba-ayakhawuleza Jezile	021 430 7037	MJezile@environment.gov.za EnvironAssessment@environment.gov.za
National Department of Forestry, Fisheries and the Environment	Keagan Desmond Halley	021 402 3326	KHalley@environment.gov.za
PROVINCIAL AUTHORITY			
Limpopo Department of Economic Development, Environment and Tourism (LEDET)	E. V. Maluleke	015 290 7138	malulekeev@ledet.gov.za
Limpopo Department of Economic Development, Environment and Tourism (LEDET)	Ronnie Haywood	014-763-1733	haywoodr@ledet.gov.za
Lephalale Dept of Agriculture	Lungiswa Ritshuri		Ritshuril@agric.limpopo.gov.za
Limpopo: Dept of Agriculture	Mr. Bigman Maloa	015 2943000	maloambi@lda.gov.za
Department of Roads and Transport	Mr Floyd Brink	(015) 284-7000	brinkf@drt.limpopo.gov.za
LOCAL AUTHORITIES			
Waterberg District Municipality	S. Mafa	014 718 3300	dmafa@waterberg.gov.za
Lephalale Local Municipality	Mr. Eben Badenhorst	014 763 2193	christa.rosett@lephalale.gov.za
Lephalale Local Municipality	Mr. Walter Rachidi	014 762 1433	walter.rachidi@lephalale.gov.za
Ward 9 Ward Councilor			
Traditional Authority	Moses Nku	078 920 2874	
Committee Chairperson	Gabriel Motsatsi	073 207 2715	
OTHER STAKEHOLDERS			
Eskom	Tseliso Msimanga		MsimanTI@eskom.co.za
Limpopo Tourism and Parks Board		015 293 3600	info@golimpopo.com
Industrial Development Coorporation	Ms. Loni Mamatela	015 295 4521	lonim@idc.co.za
Lephalale Development Company (LDC)	Piet	014 762 1412	piet@ldc.org.za;
RESIDENTS			

Figure 28: An abstract of the I&AP Register

8.2 Commenting Phase

8.2.1 Advertisement

The newspaper advertisement has been published on the *Mogol Pos* where the notification for the Environmental Authorisation process has been made the details of the commenting period is outlined. A copy of the advertisement has been attached as **Appendix E**.

NOTICE OF ENVIRONMENTAL AUTHORISATION PROCESS JULY 2021

Notice of Environmental Authorisation Application in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998) as amended; and the Environmental Impact Assessment Regulations (as published in Government Notice No. 327, 7th April 2017). This is with respect to the listed activities that have been triggered by the proposed establishment of the Dihlaping Aquaculture Projects at Moisimane Camp, Mmaletswai Village, located on the banks of the Palala River, 65 Km South of the town of Lephalale, Limpopo Province. The proposed project is aiming to breed and produce Mozambicus tilapia integrated with poultry. The production output will be the fish, egg, chicken meat and vegetables.

This scope of work triggers the following listed activities: Government Notice, No. R. 327, April 2017 (LN1) – Activity No. 3, 5, 6, 8, 12, 19, and 27 as well as Government Notice, No. R. 324, April 2017 (LN3) – Activity No.12, 13 and 14.

INTERESTED AND AFFECTED PARTIES ARE INVITED TO REGISTER AND COMMENT ON THE DRAFT BASIC ASSESSMENT REPORT TO BE PLACED AT THE LEPHALALE PUBLIC LIBRARY FOR A PERIOD OF 30 DAYS i.e., 02nd AUGUST 2021 to 2nd SEPTEMBER 2021.

Enquiries can be sent to Information Decision Systems (Ms. Vanessa Nkosi,
Tel: 087 353 2576, **Email:** vanessa@Ids-cc.co.za)
Alternatively, please access the document from one of the following platforms:

Google Drive Link:
https://drive.google.com/drive/folders/1ZmFgfjYl7KeyApFywF7M5x9IronxWnD4?usp=sharing
Facebook: Information Decision Systems
LinkedIn: Information Decision Systems

Figure 29: Proof of advertisement

8.2.2 Comments and Responses

The comments and responses have been summarised by the table below obtained from Phase 1 of the public participation process to date (Draft BAR).

Table 26: Summary of the comments and responses

Organisation	Name and contact details	Date	Comment	EAP response (if applicable)
South African Heritage Resource Agency	Nokukhanya Khumalo Email: **nkhumalo@sahra.org.za**	**12th July 2021**	**Interim Comment** As the proposed development is undergoing an EA Application process in terms of the National Environmental Management Act, 107 of 1998 (NEMA), NEMA Environmental Impact Assessment (EIA) Regulations for activities that trigger the Mineral and Petroleum Resources Development Act, No 28 of 2002 (MPRDA)(As amended), it is incumbent on the developer to ensure that a Heritage Impact Assessment (HIA) is done as per section 38(3) and 38(8) of the National Heritage Resources Act, Act 25 of 1999 (NHRA). This must include an archaeological component, palaeontological component and any other applicable heritage components. The HIA must be conducted as part of the EA Application in terms of NEMA and the NEMA EIA Regulations. The archaeological component of the HIA should follow the SAHRA 2007 Minimum Standards: Archaeological Component of Impact Assessment Report. The quickest process to follow for the archaeological component would be to contract a qualified archaeologist (see www.asapa.co.za or www.aphp.org.za). The Minimum Standards refers to a Letter of Recommendation for Exemption from further studies that may be submitted should the archaeologist deem it appropriate. The proposed development area is located within an area of moderate and insignificant sensitivity in terms of palaeontological resources as per the SAHRIS PalaeoSensitivity. As such, a desktop Palaeontological Impact Assessment (PIA) must be undertaken by a qualified palaeontologist. (See https://www.palaeosa.org/heritage-practitioners.html for a list of qualified palaeontologists). The report must comply with the 2012 Minimum Standards: Palaeontological Components of Heritage Impact Assessments. The Minimum Standards refers to a Letter of Recommendation for Exemption from further studies that may be submitted should the palaeontologist deems it appropriate. Any other heritage resources as defined in section 3 of the NHRA that may be impacted, such as built structures over 60 years old, sites of cultural significance associated with	Documents have been uploaded to the SAHRA system as per comment. A desktop Palaeontological Impact Assessment (PIA) will be undertaken by a qualified palaeontologist and included on the Final BAR.

Organisation	Name and contact details	Date	Comment	EAP response (if applicable)
			oral histories, burial grounds and graves, graves of victims of conflict, and cultural landscapes or viewscapes must also be assessed. The applicant is advised to extend the BAR process in terms of section 19(1)b of the NEMA EIA regulations in order to comply with this comment.	

8.3 Notification Phase

Following receipt of the decision from the Limpopo Department of Economic Development, Environment and Tourism (LEDET), all registered I&APs will be notified of the decision and the appeal process.

9 IMPACT ASSESSMENT

The assessment of impacts below has adhered to the minimum requirements in the EIA Regulations, 2014, and considered applicable official guidelines into account. The issues raised by interested and affected parties are also addressed in the assessment of impacts as well as the impacts of not implementing the activity (Section 24(4)(b)(i).

9.1 Methodology

The method used to determine the significance of impacts associated with the development was motivated by the Department of Environmental Affairs Series 5 of Impact Significance. This method is known as the systematic method which follows the criteria that includes;

- extent or spatial scale of the impact;
- intensity or severity of the impact;
- duration of the impact;
- mitigatory potential; and
- acceptability.

in description, the criteria is defined:

- **Nature**: A brief written statement of the environmental aspect being impacted upon by a particular action or activity;
- **Extent**: The area over which the impact will be expressed. Typically, the severity and significance of an impact have different scales. This is often useful during the detailed assessment phase of a project in terms of further defining the determined significance or intensity of an impact. For example, high at a local scale, but low at a regional scale;
- **Duration**: Indicates what the lifetime of the impact will be;
- **Intensity**: Describes whether an impact is destructive or benign;
- **Probability**: Describes the likelihood of an impact actually occurring; and
- **Cumulative**: In relation to an activity, means the impact of an activity that in itself may not be significant but may become significant when added to the existing and potential impacts eventuating from similar or diverse activities or undertakings in the area.

The criteria to be used for the rating of impacts are provided in **Table 27**.

Table 27: Criteria to be used for the rating of impacts

Score	Rating	Description
Consequence Descriptors		
Severity or Intensity – defines the magnitude of the impact		
5	High	Natural, cultural and social functions and processes are altered to extent that they permanently cease
4	Moderately High	Natural, cultural and social functions and processes are altered to extent that they are severely impaired and may temporarily cease
3	Moderate	Affected environment is altered, but natural, cultural and social functions and processes continue albeit in a modified way
2	Moderately Low	Affected environment is altered, but natural, cultural and social functions and processes continue albeit in a slightly modified way
1	Low	Impact affects the environment in such a way that natural, cultural and social functions and processes are not affected
Extent – relates to the extent of the impact		
5	Entire system	Entire habitat unit / Entire system/ > 2000ha impacted / Linear developments affected >3000m
4	Regional	Regional within 5 km of the site boundary / < 2000ha impacted / Linear developments affected < 3000m
3	Local	Local area/ within 1 km of the site boundary / < 5000ha impacted / Linear developments affected < 1000m
2	Larger site boundary	Development specific/ within the site boundary / < 100ha impacted / Linear developments affected < 100m
1	Immediate site	Activity specific/ < 5 ha impacted / Linear developments affected < 100m

Score	Rating	Description
Duration – relates to the duration of the impact		
5	Permanent	The impact will continue indefinitely and is irreversible
4	Long term	Life of operation
3	Medium term	One year to five years
2	Medium short	One month to one year
1	Short term	One day to one month
Likelihood Descriptors		
Probability – relates to the likelihood of the impact occurring		
5	Definite	More than 75% chance of occurrence. The impact is known to occur regularly under similar conditions and settings
4	Highly likely	The impact has a 41 - 75% chance of occurring and thus is likely to occur. The impact is known to occur sporadically in similar conditions and settings
3	Likely	The impact has a 10 - 40% chance of occurring. This impact may / could occur and is known to occur in low frequencies under the similar conditions and settings
2	Possible	The possibility of the impact occurring is low with less than 10% chance of occurring. The impact has not been known to occur under similar conditions and settings
1	Highly unlikely	The possibility of the impact occurring is negligible and only under exceptional circumstances
Severity of Impact		
5	Natural, cultural, social aspect very highly sensitive/important	
4	Natural, cultural, social aspect highly sensitive/important	
3	Natural, cultural, social aspect moderately sensitive/important	
2	Natural, cultural, social aspect limited sensitivity/importance	
1	Natural, cultural, social aspect not sensitive/important	

Significance is determined through a synthesis of impact characteristics (**Table 28**). Significance is also an indication of the importance of the impact in terms of both physical extent and time scale, and therefore indicates the level of mitigation required. The total number of points scored for each impact indicates the level of significance of the impact. Impact significance is expressed as:

Significance = Likelihood (Frequency of the activity + Frequency of impact) x Consequence

(Severity + Extent + Duration)

Table 28: Significance rating matrix

	CONSEQUENCE (Severity + Spatial Scope + Duration)														
LIKELIHOOD (Frequency of activity + Frequency of impact)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
	2	4	6	8	10	12	14	16	18	20	22	24	26	28	30
	3	6	9	12	15	18	21	24	27	30	33	36	39	42	45
	4	8	12	16	20	24	28	32	36	40	44	48	52	56	60
	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75
	6	12	18	24	30	36	42	48	54	60	66	72	78	84	90
	7	14	21	28	35	42	49	56	63	70	77	84	91	98	105
	8	16	24	32	40	48	56	64	72	80	88	96	104	112	120
	9	18	27	36	45	54	63	72	81	90	99	108	117	126	135
	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150

Table 29: Impact significance categories

Significance Rating	Value	Impact Management Recommendation	Positive Impact Management Recommendation
Very High	126-150	Critically consider the viability of proposed projects. Improve current management of existing projects significantly and immediately	Maintain current management
High	101-125	Comprehensively consider the viability of proposed projects. Improve current management of existing projects significantly	Maintain current management
Medium-high	76-100	Consider the viability of proposed projects. Improve current management of existing projects.	Maintain current management
Medium-low	51-75	Actively seek mechanisms to minimise impacts in line with the mitigation hierarchy.	Maintain current management and/or proposed project criteria and strive for continuous improvement
Low	25-50	Where deemed necessary seek mechanisms to minimise impacts in line with the mitigation hierarchy	Maintain current management and/or proposed project criteria and strive for continuous improvement
Very Low	1-25	Maintain current management and/or proposed project criteria and strive for continuous improvement.	Maintain current management and/or proposed project criteria and strive for continuous improvement
Neutral	/	Impact is neither positive or negative	

9.2 Impacts and Significance

The section below describes the significance and impacts of the proposed development during the construction, operational and decommissioning phase. In addition, provision has been made for the no-go alternative and the cumulative impacts.

9.2.1 Construction Phase

Table 30: Impacts associated with the proposed development during the construction phase

Potential impacts:	Significance rating of impacts (positive or negative):	Proposed mitigation:	Significance rating of impacts after mitigation:
Activity: Site preparation prior to construction **Impact**: ▪ Exposure of soils, leading to increased runoff, erosion and stream incision, and thus increased sedimentation of the watercourse; ▪ Increased sedimentation of freshwater habitat, leading to smothering of flora and benthic biota and potentially further altering surface water quality; and ▪ Decreased ecoservices provision; and ▪ Proliferation of alien vegetation as a result of disturbances.	Significance: 54 / Rating: Medium Low / Negative	▪ Existing dirt road should be used to gain access to the site. Crossing wetlands must be minimized. ▪ Removal of vegetation must be minimized, and indigenous vegetation must be kept as much as possible. ▪ It is preferable that construction takes place during the dry season (as much as possible) to reduce the erosion potential of the exposed surfaces;	**Low**
Activity: ▪ Clearing of vegetation to facilitate the development infrastructure. **Impact** ▪ Removal of existing vegetation community which includes the loss of an Ecological Support Area (ESA) and a vulnerable ecosystem during construction.	Significance: 54 / Rating: Medium Low / Negative	▪ The footprint area associated with the infrastructure construction must be minimised, avoiding sensitive habitat where possible. Areas earmarked for the infrastructure must be marked to ensure a controlled disturbance footprint area. ▪ The removal of vegetation must be limited to the perimeter of the development footprint of the project area; ▪ Demarcating all footprint areas during construction activities; and ▪ All areas outside of the project area are to be considered as a No-Go area, to limit the development footprint ▪ Erosion prevention and sediment control measures are imperative and need to be implemented throughout the entire project footprint area of the proposed pipeline, access roads and temporary	**Low**

Potential impacts:	Significance rating of impacts (positive or negative):	Proposed mitigation:	Significance rating of impacts after mitigation:
		laydown / storage sites. Temporary erosion control methods may include silt fences, interceptor ditches, seeding and sodding, riprap of exposed embankments, erosion mats, and mulching. These control measures are only applicable for the section of the wetland and ▪ Contamination of the river system with unset cement or cement powder should be negated as it is detrimental to aquatic biota. It is preferable that on-site mixing is avoided and that only prefabricated materials are used.	
Activity: Stripping and stockpiling topsoil **Impact:** ▪ altering hydromorphic soils	Significance: 96 / Rating: Medium High / Negative	▪ The first 300 mm of soil must be stockpiled separate from the soil excavated deeper than 300 mm	**Low**
Disturbance and mortality of faunal species due to habitat loss	Significance: 96 / Rating: Medium High / Negative	▪ Construction and Operational Phase activities must be limited to the development footprint area within the project area. The areas where vegetation and habitat remain undisturbed, should be avoided for faunal and floral habitat to be maintained in their present state.	**Low**
Further infestation of alien and invasive plant species	Significance: 70 / Rating: Medium High / Negative	▪ Carefully regulate / limit access by vehicles and materials to the construction site. Demarcate or fence in the construction area. ▪ Prohibit the introduction of domestic animals such as dogs and cats. ▪ Remove any woody alien species that germinate. ▪ Plant only locally indigenous flora if landscaping needs to be done ▪ Keep construction activities neat and tidy. When complete, remove all sand piles and landscape all uneven ground while re-establishing a good topsoil layer. ▪ Remove Category species using mechanical methods, and minimize soil disturbance as far as possible.	**Low**
Displacement of flora and faunal community due to habitat loss, direct mortalities and disturbance	Significance: 50 / Rating: Medium Low / Negative	▪ Areas that are denuded during construction need to be re-vegetated with indigenous vegetation to prevent erosion during flood events. This will also reduce the likelihood of encroachment by alien invasive plant species; ▪ If any faunal SSC are recorded during construction, activities should temporarily cease, and time permitted for the species to move away. In the event the species do not move away (voluntarily), the species must be removed safely from the area and relocated to a suitable area that will not be directly disturbed by the project; ▪ Fauna species such as frogs and reptiles that have not moved away should be carefully and safely removed to a suitable location beyond the extent of the development footprint by a suitably qualified ECO trained in the handling and relocation of animals; ▪ All termite mounds within the project area should be protected, as these provide habitat for potentially occurring reptile SCC (namely the Striped Harlequin Snake); and ▪ The intentional killing of any animals including snakes, insects, lizards, birds or other animals should be strictly prohibited.	**Low**

Potential impacts:	Significance rating of impacts (positive or negative):	Proposed mitigation:	Significance rating of impacts after mitigation:
		▪ General waste must be collected into suitable water, wind and animal proof waste containers so that it can be removed to a disposal site on a regular basis; ▪ Filter waste must be composted and not disposed of via postproduction water resources; ▪ A suitable bulk service provider must be contracted to remove processing waste; and ▪ Waste must be removed to a recognized disposal site equipped to deal with the waste type of animal waste	
Soil erosion	Significance: 60 / Rating: Medium High / Negative	▪ Soil erosion preventative structures should be built around erosive activities, such as the avoidance of water runoff, and the construction of a drainage system; and ▪ Where vegetation has been cleared, a rough ground cover structure must be created, to avoid runoff but still permitting infiltration, such as 'Rock Ground Cover Landscaping Rocks' or similar structures built.	**Low**
The loss of floral, faunal and aquatic species due to flooding or the mismanagement of the close aquaculture system	Significance: 78 / Rating: Medium High / Negative	▪ Monitor for any malfunctioning of the closed system infrastructure on a regular basis; and ▪ A buffer zone must be established around the development footprint, to absorb any malfunctions which may occur during the operational phase and may affect the surrounding environment; and ▪ A concrete wall must be built around the development footprint structures, to create a barrier from the surrounding environment.	**Low**
An increase of pests due to the mismanagement of waste and bad odours	Significance: 60 / Rating: Medium High / Negative	▪ General waste must be collected into suitable water, wind and animal proof waste containers so that it can be removed to a disposal site; ▪ Old feed should be disposed of via composting (for small volumes) or via a formalized waste disposal system (for large volumes). ▪ Filter waste must be composted and not disposed of via postproduction water resources; ▪ A suitable bulk service provider must be contracted to remove processing waste; and ▪ Waste must be removed to a recognized disposal site equipped to deal with the waste type	**Low**
Waste generation	Significance: 80 / Rating: Medium High / Negative	Storage areas for material and equipment shall be situated in a position as agreed in consultation with the ECO. These areas shall be secured to prevent unintended damage or pollution to the environment. All hazardous substances shall be stored within a secured storage area, with impervious lining and bunding. Drip trays must be used where appropriate. **General Waste** ▪ Solid waste generated must be disposed of at the registered landfill site. Bins and / or skips shall be provided at convenient intervals for disposal of waste along the work areas and in the construction camp. ▪ Recyclable waste shall be separated, reused and recycled at approved facilities. Proof shall be available. ▪ Different waste bins, for different waste streams, shall be provided to ensure correct waste separation.	**Low**

Potential impacts:	Significance rating of impacts (positive or negative):	Proposed mitigation:	Significance rating of impacts after mitigation:
		Sewage/ waste water and infrastructure ▪ Discharge of waste from temporary chemical toilets into the environment must be strictly prohibited. ▪ Ensure that adequate containment structures are provided for the storage of construction materials on site. ▪ Ensure the adequate removal and disposal of construction waste and material **Hazardous waste** ▪ Hazardous waste is to be disposed at a Permitted Hazardous Waste Landfill Site. The contractor must provide proof of disposal ▪ Hazardous waste bins must be clearly marked, stored in a contained area (or have a drip tray) and covered (either stored under a roof or the top of the container shall be covered with a lid).	
Reduction in air quality due to the generation of dust caused by construction activities	Significance: 56 / Rating: Medium Low / Negative	▪ All exposed surfaces must be re-vegetated and/or stabilized as soon as is practically possible. ▪ No burning of waste, such as plastic bags, cement bags and litter, must be permitted at the contractor or restoration sites ▪ A complaints register is provided on the EMPr to report any excessive dust incidents ▪ The Contractor must make alternative arrangements (other than fires) for cooking and / or heating requirements. LPG gas cookers may be used provided that all safety regulations are followed.	**Very Low**
Increase in run off due to the removal of vegetation and paving	Significance: 60 / Rating: Medium Low / Negative	▪ The storm water management plan must be incorporated into the site plan of the proposed development site to prevent erosion and the associated sedimentation located in the riparian and instreams areas since this area contains the aquatic macroinvertebrate species that rely on this aquatic ecosystem. ▪ The runoff from the paved surface, access roads, and cleared areas need to be curtailed. ▪ The runoff from the paved surface should be slow down by using the strategic plan of placement of beams. ▪ The erosion beam should be installed to prevent siltation of the riparian resources and gully formation. The following points should be used as the guide when placing the erosion berms: ❖ When the track slope is less than 2%, beams should be installed every 50m. ❖ When the track slope is between 2% and 10%, beams should be installed every 25m. ❖ When the track slope is between 10% and 15%, beams should be installed every 20m. ❖ When the track slope is more than 15%, beams should be installed every 10m.	**Low**
Impact on the aquatic system	Significance: 60 / Rating: Medium Low / Negative	▪ All the riparian areas that have been affected during the construction should be rehabilitated upon the completion of the proposed development by reseeding the area with the indigenous grasses. All the rehabilitated areas should be rehabilitated to a point that the natural processes	**Low**

<table>
<tr><th>Potential impacts:</th><th>Significance rating of impacts (positive or negative):</th><th>Proposed mitigation:</th><th>Significance rating of impacts after mitigation:</th></tr>
<tr><td></td><td></td><td>will allow the predevelopment ecological functioning and biodiversity of the area that has been re-instated.
▪ The ongoing biomonitoring of the aquatic macroinvertebrate species found around the proposed development area should occur. It should take place in a point located upstream and downstream of the activities. The biomonitoring should take place on a 6-monthly basis in the spring and autumn of each year. It should take place using the SASS5. This is to ensure that the runoff from the proposed site does not affect the water quality and biota found in Lephalale River.
▪ The toxicity testing of any features located in the proposed development site which contain water that may come into contact with the receiving environment as well as the areas indicating pollution plume as a result of the proposed development project must be tested on a 6 monthly basis together with the biomonitoring surveys.
▪ All the designated roadways must be tarred to prevent runoff and soil erosion that will results from the vehicles driving in the proposed development area.
▪ The refueling of a vehicle taking place in the site must be done on a sealed surface area that is surrounded by the beams to prevent the ingress of hydrocarbons into the topsoil and all the vehicles must be regularly inspected for any leaks.
▪ All hazardous and non-hazardous waste either from construction phase or operation phase must be properly labelled or transported to the designated waste area or landfill site for disposal.
▪ As far as practically possible, vehicles must not be serviced/repaired on site. However, should it not be possible to take the vehicle to a service center in town for repair, the contractor must ensure that the vehicles are serviced/repaired on a sealed surface and that drip trays are utilized.
▪ Chemical toilets must be provided for use by the site workers. These must be serviced on a regular basis. No long drop toilets may be allowed.
▪ The waste management measures must be implemented.
▪ Potable water must be made available to site workers.
▪ Sufficiency water for construction must be available to prevent or avoid any unlawful abstraction of water from the river.</td><td></td></tr>
<tr><td>Social Impacts (Residents)</td><td><table><tr><th>Significance</th><th>Rating</th><th rowspan="2">Positive</th></tr><tr><td>150</td><td>Very High</td></tr></table></td><td>Residents living adjacent to the construction site must be notified of the existence of the hazardous storage area during construction.

Local communities or local community organizations shall be given preference in supplying services and labor to the construction activities. A roster of “temporary labor” must be kept indicating “origin” of employee.

Temporary structures on site must be located such that they have as little visual impact on local residents as possible. Lighting on site is to be set out to provide maximum security and to enable easier policing of the site, without creating a visual nuisance to local residents or businesses.</td><td>Very Low</td></tr>
</table>

Potential impacts:	Significance rating of impacts (positive or negative):	Proposed mitigation:	Significance rating of impacts after mitigation:
		Lighting on the construction site must be pointed downwards and away from oncoming traffic and nearby houses.	
Noise Pollution	<table><tr><td>**Significance**</td><td>**Rating**</td><td rowspan="2">**Negative**</td></tr><tr><td>70</td><td>**Medium Low**</td></tr></table>	▪ Construction activities must be undertaken according to working hours stipulated by the Applicant i.e. during daylight hours only. ▪ Construction vehicles and equipment generating excessive noise must be fitted with appropriate noise abatement measures ▪ Construction workers must be provided with the appropriate PPE i.e. ear plugs. ▪ A complaints register shall be provided to record any complaints regarding excessive noise. All complaints received must be investigated and a response given to the complainant within 14 days.	**Low**
Water Pollution	<table><tr><td>**Significance**</td><td>**Rating**</td><td rowspan="2">**Negative**</td></tr><tr><td>80</td><td>**Medium High**</td></tr></table>	**Storm water** ▪ To prevent storm water damage, the increase in storm water run-off resulting from construction activities must be estimated and if necessary, the drainage system must be assessed accordingly. A drainage plan must then be submitted by the Applicant for approval by the ECO. ▪ Temporary cut off drains and berms may be required to capture storm water and promote infiltration. ▪ Storm water must be disposed of without causing soil saturation, erosion, sloughing and without affecting the integrity of the stream. ▪ The storm water leaving the site premises must in no way be contaminated by any substance, whether such substance is a solid, liquid, vapor or gas or a combination thereof which is produced, used, stored, dumped or spilled on the premises. **Water Quality** ▪ Storage areas that contain hazardous substances must be bunded with an approved impermeable liner ▪ Spills in bunded areas must be cleaned up, removed and disposed of safely from the bunded area as soon after detection as possible to minimize pollution risk and reduced bunding capacity ▪ Mixing / decanting of all chemicals and hazardous substances must take place either on a tray or on an impermeable surface. Waste from these should then be disposed of to a suitable waste site. ▪ Every effort should be made to ensure that any chemicals or hazardous substances do not contaminate the soil or ground water on site ▪ Site staff shall not be permitted to use the stream for the purposes of bathing, washing of clothing or for any construction or related activities. Municipal water (or another source approved by the Applicant) should instead be used for all activities such as washing of equipment or disposal of any type of waste, dust suppression, concrete mixing, compacting etc.	**Low**

Potential impacts:	Significance rating of impacts (positive or negative):	Proposed mitigation:	Significance rating of impacts after mitigation:
		▪ Deterioration of water quality needs to be avoided and the current PES must be maintained or improved upon ▪ Ensure that adequate containment structures are provided for the storage of construction materials on site. ▪ Ensure the adequate removal and disposal of construction waste and material	
Disturbance and loss of heritage resource	Significance: 60 / Rating: Medium low / Negative	▪ A Chance finds procedure (CFP) should also be implemented in the event that stone tools are identified underground ▪ Should skeletal or archaeological remains be exposed during development and construction phases, all activities must be suspended and the relevant heritage resources authority contacted. ▪ Section 36 (6) of the National Heritage and Resources Act, 25 of 1999 also states that should culturally significant material be discovered during the course of the said development, all activities must be suspended pending further investigation by a qualified archaeologist	**Low**
Visual Impacts	Significance: 56 / Rating: Medium low / Negative	▪ No specific mitigation measures are required other than standard construction site housekeeping and dust suppression. These are included below: ▪ The contractor(s) should maintain good housekeeping on site to avoid litter and minimise waste. ▪ Litter and rubble should be timeously removed from the construction site and disposed at a licenced waste disposal facility. ▪ The project developer should demarcate construction boundaries and minimise areas of surface disturbance. ▪ Appropriate plans should be in place to minimise fire hazards and dust generation. ▪ Night lighting of the construction site should be minimised within requirements of safety and efficiency.	**Low**
Health and safety	Significance: 56 / Rating: Medium low / Negative	▪ Ensure that a skilled and competent Contractor is appointed during the construction phase. The Contractor must be evaluated during the tender/appointment process in terms of safety standards. ▪ The Contractor must ensure that all construction personnel are provided with adequate PPE for use where appropriate. ▪ The Contractor must undertake a Construction Phase Risk Assessment. ▪ A Construction Site Manager or Safety Supervisor should be appointed, in conjunction with the project manager, to monitor all safety aspects during the construction phase. This could be the same person that is assigned to co-ordinate the construction traffic.	**Low**
Traffic, congestion and potential for collisions	Significance: 56 / Rating: Medium low / Negative	▪ Ensure that roads are not closed during construction, which may restrict access for emergency services. ▪ The Contractor must ensure that all construction personnel are provided with adequate PPE for use where appropriate.	**Low**

9.2.2 Operational Phase

Table 31: Impacts associated with the proposed development during the operational phase

Potential impacts:	Significance rating of impacts (positive or negative):	Proposed mitigation:	Significance rating of impacts after mitigation:
Impact on natural vegetation	Significance: 60 / Rating: Medium low / Negative	▪ Development should be contained within the development footprint of the development and unnecessary disturbance remainder of the site should be avoided. ▪ The indigenous vegetation, and especially the trees, should be retained as far as possible and buildings should be placed between trees. Protected trees should be conserved and not destroyed. The denuded and disturbed areas should be re-vegetated with indigenous species as soon as possible. ▪ No trees may be damaged or cut. ▪ No exotic trees may be planted in the gardens, use only indigenous plants. ▪ Existing and dedicated roads should be marked and utilised by vehicles	**Low**
Dewatering the borehole	Significance: 56 / Rating: Medium Low / Negative	▪ Groundwater depletion may take place at the abstraction borehole if not managed correctly as such the borehole should be managed constantly ▪ Groundwater levels should be monitored regularly ▪ Discharge water from the processing operations should be disposed of in a safe manner, should the water become contaminated over time it should either be stored in dedicated PCD's for reuse at the processing plant or treated prior to discharging into the environment.	**Low**
Hydrocarbon spills	Significance: 80 / Rating: Medium High / Negative	▪ Farm employees and supervisors at workshops, yellow metal laydown areas and fuel storage areas should be trained in hydrocarbon spill response and each of these areas should be equipped with the appropriate spill response kits ▪ Contaminated soil must be disposed of correctly at a suitable location. Should these management measures be put in place the impact on the receiving environment would be reduced to a low impact.	**Low**
Contamination from waste water produced and fish waste	Significance: 80 / Rating: Medium High / Negative	▪ Ensure that the facility is designed in accordance with international best practice norms, and with advice from an appropriate specialist, to ensure that there is no environmental contamination from effluent, fodder, carcasses and other waste, and to ensure that there is also effective storm water management. ▪ Adhere to best practice of waste disposal norms. ▪ Establish appropriate emergency procedures for accidental contamination of the surroundings. Waste recycling must be incorporated into the facility's operations as far as possible. Designate a secured, access restricted, signposted room for the storage of potentially hazardous substances such as herbicides, pesticides dips and medications. All hazardous waste should be disposed of at an appropriate licensed facility for this.	**Low**

Potential impacts:	Significance rating of impacts (positive or negative):	Proposed mitigation:	Significance rating of impacts after mitigation:
		▪ Rehabilitate contaminated areas immediately in accordance with advice from appropriate contamination and environmental specialists. ▪ Educate workers regarding the handling of hazardous substances and about waste management and emergency procedures with regular training and notices and talks. ▪ Faeces from the fish tanks should flow immediately to the mechanical filter without being crushed on the way. ▪ The higher the rate of recirculation the less new water will be used, and the less discharge water will need to be treated	
Sewerage waste management	Significance: 80 / Rating: Medium High / Negative	▪ All wastewater application on land must be in accordance with the DWS's guidelines in terms of wastewater use. ▪ Ensure adherence to wetland buffer zones and soil quality monitoring requirements as stipulated in these guidelines. ▪ The depth to aquifer must be more than 5m for dewatered sludge application and must be more than 10m for liquid sludge application. The distance from surface water or borehole must be more than 400m. ▪ Mortalities must be stored in an enclosed area prior to being taken to the mortality pit. ▪ The mortality pit must be regularly monitored and maintained, avoiding exceeding the capacity of the pit.	**Low**
Soil and water pollution due to poor waste management	Significance: 70 / Rating: Medium High / Negative	▪ Waste containers must be available on site at all times. ▪ A waste management plan must be adopted and implemented. This plan should consider the type of waste, storage, disposal method and facility as well as methods to reduce waste on site. ▪ Ensure compliance with waste management legislation. ▪ Faeces from the fish tanks should flow immediately to the mechanical filter without being crushed on the way. ▪ The higher the rate of recirculation the less new water will be used, and the less discharge water will need to be treated ▪	
Spread of diseases during to operational activities	Significance: 50 / Rating: Medium Low / Negative	▪ Eggs, or fish stocked in the facility must be absolutely disease free and preferably from a certified disease free strain. ▪ Water used must be disease free or sterilised before going into the system; it is far better to use water from a borehole, as well, or a similar source than to use water coming directly from the sea, river or lake. ▪ No visitors or stuff should enter the farm sick ▪ Fish mortalities must be identified and removed immediately from the fish tank. ▪ Training of workers to effectively handle sick and dead animals.	**Low**

Potential impacts:	Significance rating of impacts (positive or negative):	Proposed mitigation:	Significance rating of impacts after mitigation:
		▪ Emergency procedures that aim to address the potential for disease outbreaks must be developed and implemented where applicable. ▪ Maintain appropriate pest control measures ▪ Effectively maintain and seal all pipes and reservoirs containing slurry, to prevent animals from accessing the effluent.	
Soil erosion due to loss of natural ground cover	Significance: 60 / Rating: Medium High / Negative	▪ Soil erosion preventative structures should be built around erosive activities, such as the avoidance of water runoff, and the construction of a drainage system; and ▪ Where vegetation has been cleared, a rough ground cover structure must be created, to avoid runoff but still permitting infiltration, such as 'Rock Ground Cover Landscaping Rocks' or similar structures built.	**Low**
Stormwater management	Significance: 60 / Rating: Medium High / Negative	▪ Stormwater management measures must be evaluated frequently to ensure proper functioning of stormwater structures. ▪ An operational phase Stormwater Management Plan must be designed and implemented, with a view to prevent the passage of concentrated flows from hardened surfaces and onto natural areas.	**Low**
Introduction of alien species	Significance: 78 / Rating: Medium High / Negative	▪ limit access by vehicles and materials to the site ▪ Prohibit the introduction of domestic animals such as dogs and cats. ▪ Plant only locally indigenous flora if landscaping needs to be done. ▪ Employ best practices regarding tilling of soil and weed management ▪ Minimize the accumulation or dispersal of excess fodder on site. ▪ Remove Category species using mechanical methods, and minimize soil disturbance as far as possible. Alien debris could be donated to a local community.	**Low**
An increase of pests due to the mismanagement of waste and bad odours	Significance: 60 / Rating: Medium High / Negative	▪ General waste must be collected into suitable water, wind and animal proof waste containers so that it can be removed to a disposal site; ▪ Old feed should be disposed of via composting (for small volumes) or via a formalised waste disposal system (for large volumes). ▪ Filter waste must be composted and not disposed of via postproduction water resources; ▪ A suitable bulk service provider must be contracted to remove processing waste; and ▪ Waste must be removed to a recognised disposal site equipped to deal with the waste type	**Low**
Local economy enhancement	Significance: 78 / Rating: Medium High / Positive	▪ Ensure that the proposed infrastructure is maintained appropriately to ensure that all facilities and infrastructure operate within its design capacity to deliver as the market requires. ▪ Enhance the use of local labour and local skills as far as reasonably possible. ▪ Where the required skills cannot be acquired locally, and where appropriate and applicable, ensure that relevant local individuals are trained.	**Low**

Potential impacts:	Significance rating of impacts (positive or negative):	Proposed mitigation:	Significance rating of impacts after mitigation:
		▪ Ensure that an equitable percentage allocation is provided for local labour employment as well as specify the use of small to-medium enterprises and training specifications in the Contractors contract. ▪ Ensure that goods and services are sourced from the local and regional economy as far as reasonably possible	
Reduction in air quality due to the operational activities	**Significance** 56 / **Rating** Medium Low / **Negative**	▪ Portable fire extinguishers and fire water hydrants (i.e. appropriate fire-fighting equipment) must be provided at the terminal as required. Mobile fire-fighting equipment should be provided at the berths as a safety precaution during the vessel offloading process. It should be noted that the products planned to be stored at the terminal have high flash points and low volatility. As a result, fires are unlikely, unsustainable, and can be extinguished with basic fire water and portable fire extinguishers. ▪ Efficient movement of traffic through the entrance and exit in order to reduce congestion and vehicle emissions. ▪ Ensure that the facility is operated in such a manner whereby potential odours are minimised	**Very Low**
Health and Safety	**Significance** 60 / **Rating** Medium Low / **Negative**	▪ An Emergency Plan must be drafted and approved in order to deal with potential spillages and fires. Records of practices should be kept on site. ▪ Frequent inspections must be implemented by operating personnel in order to assure and verify the integrity of hoses, piping and other structures. ▪ Portable fire extinguishers and fire water hydrants (i.e. appropriate fire-fighting equipment) should be provided at the facility as required.	**Low**

9.2.3 Cumulative Impacts

Additional infrastructure development, for example, water pipelines, power lines and access roads and the spread of alien invaders due to loss of natural vegetation will exacerbate the negative impact of the development on the vegetation and will lead to a loss of habitat for indigenous fauna and flora.

9.2.4 No-go alternative

Table 32: Description of the No-Go alternative

Potential impacts:	Significance rating of impacts (positive or negative):	Proposed mitigation:	Significance rating of impacts after mitigation:
▪ The No-Go alternative involves not developing the proposed aquaculture farm with the aim of uplifting local economy.	**Significance** 150 / **Rating** Very High / **Negative**	Implementation of proposed development	**Low**

9.2.5 Closure Phase and rehabilitation

Table 33: Impacts associated with the proposed development during the closure phase

Potential impacts:	Significance rating of impacts (positive or negative):	Proposed mitigation:	Significance rating of impacts after mitigation:
Introduction and proliferation of alien species	Significance: 60 / Rating: Medium low / Negative	▪ Remove Category species using mechanical methods, and minimize soil disturbance as far as possible	Low
Soil erosion	Significance: 56 / Rating: Medium Low / Negative	▪ Limit vehicles to the construction site ▪ Closure activities must commence in winter where soil erosion is limited ▪ Revegetate exposed areas with locally indigenous flora immediately ▪ Implement erosion protection measures on site to reduce erosion and sedimentation of the local drainage system. ▪ Implement effective and environmentally-friendly dust control measures, such as mulching or periodic wetting of the entrance road ▪ Discharge water from the processing operations should be disposed of in a safe manner, should the water become contaminated over time it should either be stored in dedicated PCD's for reuse at the processing plant or treated prior to discharging into the environment.	Low
Disturbance of fauna due to noise	Significance: 80 / Rating: Medium High / Negative	▪ Commence (and preferably complete) demolition / rehabilitation during winter, when the risk of disturbing active (including breeding and migratory) animals, should be least. ▪ Minimize noise to limit its impact on sensitive fauna. ▪ Limit demolition activities to day time hours ▪ Minimize or eliminate security and other lighting, to reduce the disturbance of nocturnal fauna	Low
Stormwater management	Significance: 80 / Rating: Medium High / Negative	▪ The appointed Contractor should compile a Method Statement for Stormwater Management during the closure phase. ▪ Provide secure storage for oil, chemicals and other waste materials to prevent contamination of stormwater runoff.	Low
Dust emissions	Significance: 70 / Rating: Medium High / Negative	▪ Ensure that cleared (excavated) areas and unpaved surfaces are sprayed with water (obtained from an approved source) to minimise dust generation. ▪ Approved soil erosion mitigation measures may be utilised to limit dust generation. ▪ Ensure that closure vehicles travelling on unpaved roads do not exceed a speed limit of 40 km/hour.	Low
Noise generation	Significance: 70 / Rating: Medium High / Negative	▪ A method statement, including detailed procedures, must be drawn up prior to any closure of existing tanks. ▪ Decommissioning personnel must wear proper hearing protection, which should be specified as part of the ▪ Decommissioning Phase Risk Assessment carried out by the Contractor. ▪ The Contractor must ensure that all decommissioning personnel are provided with adequate PPE, where appropriate	Low

9.3 Environmental Impact Statement

9.3.1 Key Findings

9.3.1.1 Aquatic and Wetland Assessment

The aquatic macroinvertebrate species that are found that the water quality results shown indicate that the water quality in the Lephalala River is in a good condition. The aquatic macroinvertebrate species that are found near the proposed development site have already been significantly disturbed by the agricultural activities occurring upstream and downstream of the proposed development site. Most of the impacts that occur within the local area will have a permanent impact and has a high potential of increasing the existing impact on the Lephalala River as the receiving environment. Therefore, if the mitigation measures are implemented, the likelihood of the consequence of the impacts will be significantly reduced to low levels in most cases. No wetlands were found on the proposed development footprint.

9.3.1.2 Terrestrial Biodiversity Assessment

The terrestrial study conducted for the proposed development of the Dihlaping Farm aquaculture system and agricultural systems, is based on thorough desktop and field verification along with an evaluation of the current state of the environment.

Based on the field survey conducted on the 19th of May 2021 for the site, no species of conservation concern were noted, and it is evident that the area has been disturbed by anthropogenic activities. However, a South African protected tree, *Boscia albitrunca*, was identified within the project site area. The proposed project area shows signs of bush encroachment and the presence of alien invasive species, due to overgrazing, regular clearing of vegetation, ploughing lines and vehicle paths which traverse through the project area.

Even though the project area is noted to be a CBA 2, the current impacts within the project site and surrounding region as mentioned above has altered the natural state of the environment in a manner that has decreased the ecological function of the project area.

All impacts are noted to have a high, medium-high, medium or medium-low significance before mitigation measure can be implemented. These significance ratings are due to the removal of vegetation from the development footprint size, causing soil erosion, habitat loss, faunal and floral disturbance, and the infestation of alien invasive species. The generation of waste caused by the type of activity (agriculture), causes a higher significance rating, leading to bad odours in and around the study area and the potential transmission of disease-causing microbes. This aspect and related impacts affect the site as well as neighbouring areas, should the waste enter the watercourse. In addition to the above, the spread of invasive fish species into the nearby river system and the Limpopo catchment and the loss of floral, faunal and aquatic species due to flooding or the mismanagement of the close aquaculture system, is very important to consider as it is noted to have a high significance with regards to the impact on the environment. All impacts are however noted to have a low or very low significance rating if all mitigation measures are strictly adhered to.

9.3.1.3 Heritage Impact Assessment

The proposed project directly contributes to South African government of empowering the farming industry. It is therefore important that the provincial heritage authority exercise its discretion and offer the project the green light as it is beneficial to the community.

In terms of the site significance the Waterberg district offers thousand-year-old rock art and sites of critical archaeological and paleontological significance. The region also offers a critical piece of South African coal mining history. However the proposed development site did not yield any cultural heritage resources.

9.3.1.4 General

in addition, to the impacts noted by the specialist assessment, it has been noted that additional impacts are anticipated with regards to the proposed development for all phases of development and have been summarised as below;

- Poor waste management;
- Poor stormwater management;
- Lack of air quality control;
- Soil Erosion;
- Alien invasive control; and
- Traffic control.

Successful implementation of mitigation measures reduces most of the impacts to Low and Very Low impacts.

9.3.2 Sensitivity Mapping

A cumulative sensitivity map has been drafted for the proposed development.

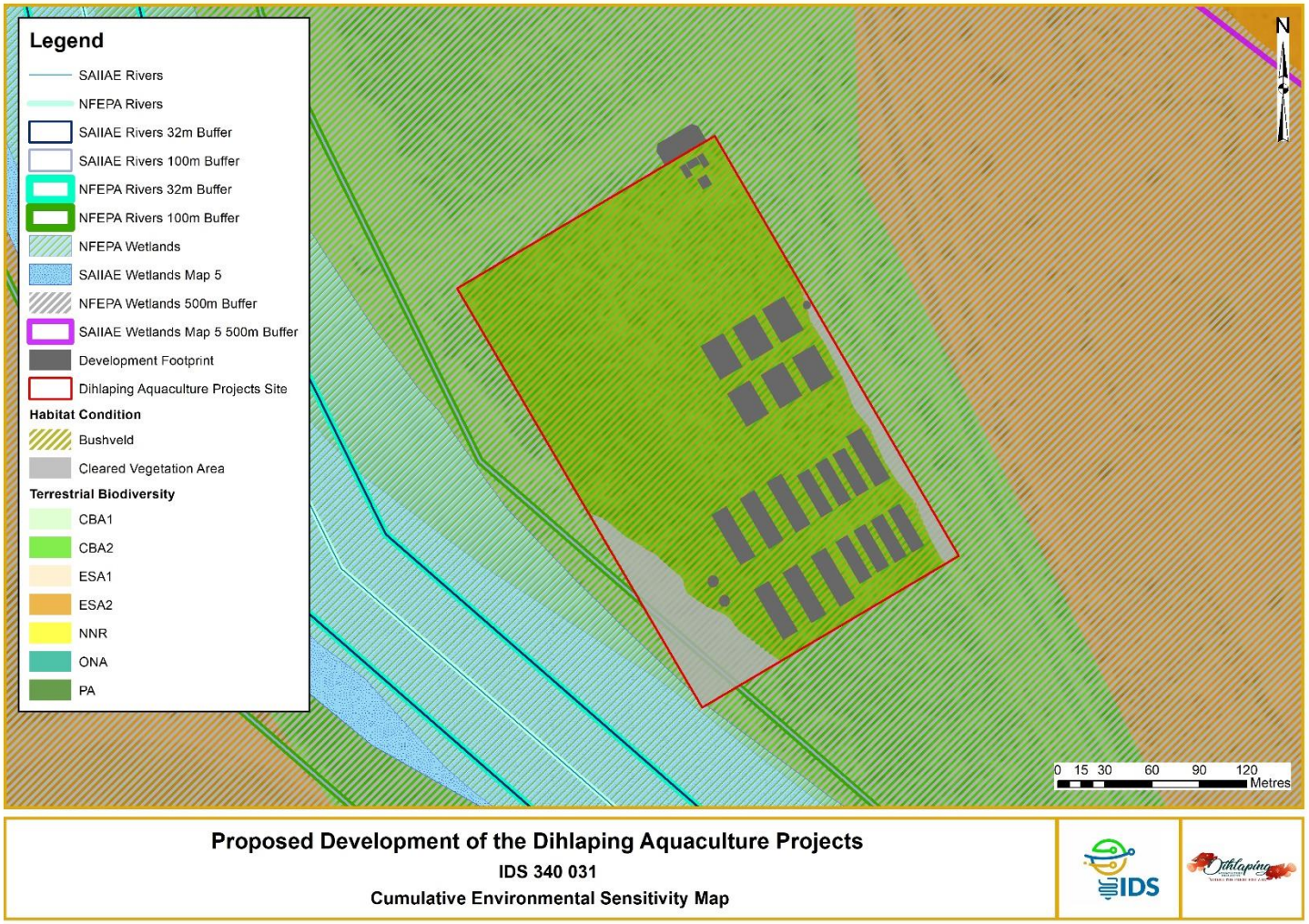


Figure 30: Cumulative sensitivity mapping

9.4 Assumptions, uncertainties or gabs in knowledge

9.4.1 Aquatic and Wetland Assessment

- The water resource assessment was based on the results of a single low flow season survey only. Therefore, temporal trends of the system could not be generated and interpreted. Furthermore, the biota collected during the survey does not represent a comprehensive list of species potentially found within the reach, this is due to time constraints in the field;
- Field assessments were completed to assess as much of the site as possible with focus on the proposed directly impacted and downstream areas;
- Only wetlands that were likely to be impacted by proposed development activities were assessed in the field. Wetlands located within a 500 m radius (or regulation area) of the project area but not in a position within the landscape to be measurably affected by the developments were not considered as part of this assessment;
- Areas characterised by external wetland indicators have been the focus for this study. Areas lacking these characteristics, i.e. built up areas, disturbed areas etc., have not been focused on;
- The GPS used for water resource delineations is accurate to within five meters. Therefore, the wetland delineation plotted digitally may be offset by at least five meters to either side;
- Only defined watercourses by NFEPA and SAIIAE were considered in the aquatic assessment study; and
- The presence of crocodiles and hippos in the river presented safety restrictions for the SASS5 and water quality assessments, safety precautions were taken. Only one (1) assessment point was considered due to the safety risk.

9.4.2 Terrestrial Biodiversity Assessment

- Due to the nature of fauna and flora, not all species were likely to have been seen and recorded during the time of the survey. It is for this reason that existing literature is consulted in conjunction with field survey results; and
- The information represented in this report is based on a site survey conducted on the 21st of May (winter season). For more accurate results, it is feasible to conduct site surveys during each season, especially the flowering season in summer.
- The field investigations and findings are restricted to the project site.

9.4.3 Heritage Impact Assessment

No assumptions were noted.

9.5 Recommendations

The recommendation below were developed to address and mitigate impacts associated with the proposed development. These recommendations also include general management measures which apply to the proposed development as a whole. Mitigation measures have been developed to address issues in all phases throughout the life of the operation from planning, through to construction and operation.

- The development of an alien invasive vegetation control and removal plan, which will be implemented during construction and the operational phase of the project;
- Undertaking water quality monitoring (bi-annual) during the operational phase of the project to ensure the waste generated is not affecting nearby water courses and aquatic faunal species;
- The development of a Storm water management plan; and
- The development of a Fire management plan.
- Borehole monitoring on a bi-annual period, for water quality management, during the construction and operational phase.
- A permit application must be lodged for the removal and relocation of any *Boscia albitrunca* individuals occurring within the developmental footprint.
- A relocation plan and offset strategy must be developed for the relocation of *Boscia albitrunca* individuals.
- No construction or surface structure to occur near any riverine systems in the proposed development area and it must ensure that the impact on the ecology downstream of the site of the river system does not occur. The special mention is made to the following:
- The river flow downstream still needs to be maintained of any disturbed areas to ensure the ongoing viability of aquatic macroinvertebrate species in these areas.
- The water quality parameters as mentioned in section 2.1.1 need to be managed and monitored especially the pH and DO. This is done to ensure that reasonable water quality occurs downstream of the proposed development site. This will allow the ongoing survival of aquatic macroinvertebrate species diversity and reasonable sensitivity.

- Make sure that all the activities that are taking place within the proposed development area take the wetland and riverine boundaries into account. No activities should take place within the riverine and wetland boundaries unless it is unavoidable.
- No construction should take place within the 100m buffer from the river as this area is considered a riparian area.
- No infrastructure should be placed within the 32m buffer from any aquatic resources because this area is considered a riparian area.
- Demarcate all the riverine and wetland boundaries.
- No vehicle to drive through or enter the demarcated area except when there is a designated roadway.
- The vehicles should be also restricted from traveling only on the designated roadways to limit the ecological footprint of the proposed development activities.
- No dumping or any other materials is allowed within or on the boundary of the wetland and riverine system.
- No activities should take place on the riverine and wetland boundary. If this is unavoidable, a relevant authorisation must be obtained according to the National Environmental Management Act (NEMA) 107 of 1998 and Section 21 c and i of the National Water Act 36 of 1998.
- No dirty water from the runoff should reach the drainage features in the proposed development area and the requirement of regulation GN 704 of the National Water Act (Act 36 of 1998) needs to be clarified and strictly adhered to.

10 FINANCIAL PROVISION

No financial provision is required for this type of development in terms of Chapter 2 of the EIA Regulations 2014 as amended. Chapter 2 section 4 states that an applicant or holder of a right or permit must determine and make financial provision to guarantee the availability of sufficient funds to undertake rehabilitation and remediation of the adverse environmental impacts of prospecting, exploration, mining or production operations, as contemplated in the Act and to the satisfaction of the Minister responsible for mineral resources.

11 EAPS CONCLUDING STATEMENT

Based on the findings of the Basic Assessment process for Dihlaping Farm Aquaculture project, it is the opinion of the EAP that the project is authorised on condition that the mitigation measures provided within this report and the EMPr are met and complied with. The EMPr therefore has been identified as an extension of the Environmental Authorisation which the applicant must adhere to. The attention of the applicant is also drawn to the mitigation measures provided by the specialist assessments and the Aquaculture generic model for Mossambicus Tilapia by the DFFE Aquaculture Directorate to ensure financial sustainability of the project.

The project applicant, i.e. Dihlaping (Pty) Ltd, is being assisted under the DFFE Special Needs Programme on a pro bono basis as the applicant qualifies as having “special needs”, in particular, in that they do not have the financial means to conduct with BA process without financial support. In addition, the applicant has been included within the Operation Phakisa programme which further confirms sustainability. However, the applicant does not have financial resources to consider site alternatives as the process would require due to the land being tribal land.

Due to the site having low impacts following implementation of mitigation measures, it is therefore recommended by the EAPs that the proposed layout and preferred site (this proposal) be included in the Environmental Authorisation (should such authorisation be granted for the proposed project).

Provided that the specified mitigation measures outlined in the EMPr are applied effectively, it is the opinion of the EAP that the benefits of the project outweigh the negative impacts and the project should receive Environmental Authorisation in terms of the EIA Regulations 2014 promulgated under the NEMA.

12 DECLARATION BY EAP

Declaration by Environmental Assessment Practitioner

I, **VENESSA NKOSI (**Name of person representing EAP) of **INFORMATION DECISION SYSTEMS** (name of company) declare that;

- I act as the independent environmental practitioner in this application
- I will perform the work relating to the application in an objective manner, even if this results in views and findings that are not favourable to the applicant
- I declare that there are no circumstances that may compromise my objectivity in performing such work;
- I have expertise in conducting environmental impact assessments, including knowledge of the Act, regulations and any guidelines that have relevance to the proposed activity;
- I will comply with the Act, Regulations and all other applicable legislation;
- I will take into account, to the extent possible, the matters listed in Regulation 1**8** of the regulations when preparing the application and any report relating to the application;
- I have no, and will not engage in, conflicting interests in the undertaking of the activity;
- I undertake to disclose to the applicant and the competent authority all material information in my possession that reasonably has or may have the potential of influencing - any decision to be taken with respect to the application by the competent authority; and - the objectivity of any report, plan or document to be prepared by myself for submission to the competent authority;
- I will ensure that information containing all relevant facts in respect of the application is distributed or made available to interested and affected parties and the public and that participation by interested and affected parties is facilitated in such a manner that all interested and affected parties will be provided with a reasonable opportunity to participate and to provide comments on documents that are produced to support the application;
- I will ensure that the comments of all interested and affected parties are considered and recorded in reports that are submitted to the competent authority in respect of the application, provided that comments that are made by interested and affected parties in respect of a final report that will be submitted to the competent authority may be attached to the report without further amendment to the report;
- I will keep a register of all interested and affected parties that participated in a public participation process; and
- I will provide the competent authority with access to all information at my disposal regarding the application, whether such information is favourable to the applicant or not
- all the particulars furnished by me in this form are true and correct;
- *will perform all other obligations as expected from an environmental assessment practitioner in terms of the Regulations; and*
- I realise that a false declaration is an offence in terms of Regulation 48 and is punishable in terms of section 49B (2) of the Act.

1. **Disclosure of Vested Interest (delete whichever is not applicable)**

- I do not have and will not have any vested interest (either business, financial, personal or other) in the proposed activity proceeding other than remuneration for work performed in terms of the Environmental Impact Assessment Regulations, 2014;
- I have a vested interest in the proposed activity proceeding, such vested interest being:

Signature of the Environmental Assessment Practitioner

INFORMATION DECISION SYSTEMS (PTY) LTD

Name of company

2021/07/29

Date

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