

DRAFT SCOPING REPORT

MARCH 2025



**THE PROPOSED
DEVELOPMENT OF A DAM ON
DARTFORD FARM,
UNDERBERG, KWAZULU-
NATAL**

REF NO: DC43/0001/2025

Report Prepared By



Project Title: The Proposed Development of a Dam on Dartford Farm, Underberg, KwaZulu-Natal.

Applicant: Dartford Farming Trust

Project Location: Dartford Farm, Coleford Road, Underberg, KwaZulu-Natal.

Report Prepared By: Green Choice Consulting (Pty) Ltd

Consultant: Sarah Stalberg

Address: 12 Bartle Road, Gillitts, KwaZulu-Natal, 3610

Cell: 071 851 6976

Email: sarah@greenchoiceconsulting.co.za



Website: www.greenchoiceconsulting.co.za

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DOCUMENT CONTROL

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Rev. 0	Author	Reviewer #1
Name	Sarah Stalberg	Kevin Fraser
Company	Green Choice Consulting	Dartford Farming Trust
Signature		
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NEMA REQUIREMENTS FOR SCOPING REPORTS		
Appendix 2	Content as Required by NEMA	Chapter/Section
2(1)	A scoping report must contain the information that is necessary for a proper understanding of the process, informing all preferred alternatives, including location alternatives, the scope of the assessment, and the consultation process to be undertaken through the environmental impact assess process, and must include –	
(a)	(i) details of the EAP who prepared the report; and (ii) details of the expertise of the EAP to carry out scoping procedures.	Section 1.6 & Appendix C
(b)	the location of the activity, including- (i) the 21-digit Surveyor General code of each cadastral land parcel; (ii) where available, the physical address and farm name; (iii) where the required information in items (i) and (ii) is not available, the coordinates of the boundary of the property or properties;	Section 1.4
(c)	a plan which locates the proposed activity or activities applied for 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 is to be undertaken;	Section 1.4 N/A Section 1.4
(d)	a description of the scope of the proposed activity, including- (i) all listed and specified activities triggered; (ii) a description of the activities to be undertaken, including associated structures and infrastructure;	Chapter 1 Section 3.2 Section 1.3
(e)	a description of the policy and legislative context within which the development is proposed including an identification of all legislation, policies, plans, guidelines, spatial tools, municipal development planning frameworks and instruments that are applicable to this activity and are to be considered in the assessment process;	Chapter 3
(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;	Chapter 2
(g)	a full description of the process followed to reach the proposed preferred activity, site and location of the development footprint 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 which have informed the identification of each alternative, including the nature, significance, consequence, extent, duration and probability of such identified 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 identifying 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;	Chapter 4 Section 7.2 & Appendix G Chapter 5 Chapter 6 Section 7.3 Chapter 6

	(viii) the possible mitigation measures that could be applied and level of residual risk;	Chapter 6
	(ix) the outcome of the site selection matrix;	
	(x) if no alternatives, including alternative locations for the activity were investigated, the motivation for not considering such and	Chapter 4
	(xi) a concluding statement indicating the preferred alternatives, including preferred location of the activity;	
(h)	a plan of study for undertaking the environmental impact assessment process to be undertaken, including-	Chapter 7
	(i) a description of the alternatives to be considered and assessed within the preferred site, including the option of not proceeding with the activity;	
	(ii) a description of the aspects to be assessed as part of the environmental impact assessment process;	
	(iii) aspects to be assessed by specialists;	
	(iv) a description of the proposed method of assessing the environmental aspects, including aspects to be assessed by specialists;	
	(v) a description of the proposed method of assessing duration and significance;	
	(vi) an indication of the stages at which the competent authority will be consulted;	
	(vii) particulars of the public participation process that will be conducted during the environmental impact assessment process; and	
	(viii) a description of the tasks that will be undertaken as part of the environmental impact assessment process;	
	(ix) identify suitable measures to avoid, reverse, mitigate or manage identified impacts determine the extent of the residual risks that need to be managed and monitored.	
(i)	an undertaking under oath or affirmation by the EAP in relation to-	Section 1.7, 1.8
	(i) the correctness of the information provided in the report;	
	(ii) the inclusion of comments and inputs from stakeholders and interested and affected parties; and	
	(iii) any information provided by the EAP to interested and affected parties and any responses by the EAP to comments or inputs made by interested or affected parties;	
(j)	an undertaking under oath or affirmation by the EAP in relation to the level of agreement between the EAP and interested and affected parties on the plan of study for undertaking the environmental impact assessment;	
(k)	where applicable, any specific information required by the competent authority; and	N/A
(i)	any other matter required in terms of section 24(4)(a) and (b) of the Act.	N/A
(2)	Where a government notice <i>gazetted</i> by the Minister provides for any protocol or minimum information requirement to be applied to a scoping report, the requirements as indicated in such notice will apply.	

GLOSSARY OF TERMS

Environment	The surroundings (biophysical, social and economic) within which humans exist and that are made up of <ol style="list-style-type: none"> i. The land, water and atmosphere of the Earth; ii. Micro-organisms, plant and animal life; iii. Any part of combination of (i) and (ii) and the interrelationships among and between them; and iv. The physical, chemical, aesthetic and cultural properties and conditions of the foregoing that influence human health and wellbeing.
Environmental Impact Assessment (EIA)	A study of the environmental consequences of a proposed course of action.
Environmental Impact Report (EIR)	A report assessing the potential significant impacts as identified during the Scoping Phase.
Environmental Impact	An environmental change caused by some human act.
Environmental Management Programme (EMPr)	A document that provides procedures for mitigating and monitoring environmental impacts during pre-construction, construction, operation and decommissioning phases of a project.
Public Participation Process	A process of involving the public in order to identify needs, address concerns, to contribute to more informed decision making relating to a proposed project, programme or development.
Scoping	A procedure for determining the extent of and approach to an EIA, used to focus the EIA to ensure that only the significant issues and reasonable alternatives are examined in detail.
Scoping Report	A Scoping Report contains all the information that is necessary for a proper understanding of the nature of issues identified during scoping.

ABBREVIATIONS AND ACRONYMS

AEL	Air Emissions Licence
BRU	BioResource Unit
CBA	Critical Biodiversity Area
DEADP	Department of Environmental Affairs & Development Planning
DEAT	Department of Environmental Affairs & Tourism
DFFE	Department of Forestry, Fisheries & the Environment
DSR	Draft Scoping Report
DWS	Department of Water & Sanitation
EAP	Environmental Assessment Practitioner
EAPASA	Environmental Assessment Practitioners Association of South Africa
ECO	Environmental Control Officer
EDTEA	Department of Economic Development, Tourism & Environmental Affairs
EIA	Environmental Impact Assessment
EIR	Environmental Impact Reporting
EMPr	Environmental Management Programme
ESA	Ecological Support Area
I & AP	Interested & Affected Party
IDP	Integrated Development Plan
IEM	Integrated Environmental Management
IFC	International Finance Corporation
KZN	KwaZulu-Natal
NBA	National Biodiversity Assessment
NDZ	Nkosazana Dlamini-Zuma Municipality
NEMA	National Environmental Management Act (Act No. 107 of 1998)
NEMBA	National Environmental Management: Biodiversity Act (Act No. 10 of 2004)
NWA	National Water Act (Act No. 36 of 1998)
PPP	Public Participation Process
SAHRA	South African Heritage Resources Agency
SAHRIS	South Africa Heritage Resources Information System
SANBI	South African National Biodiversity Institute
WMA	Water Management Area
WULA	Water Use Licence Application

EXECUTIVE SUMMARY

A Scoping and Environmental Impact Reporting (EIR) process is being undertaken for the proposed development of a 1,500,000m³ dam on Dartford Farm, situated along Coleford Road in the Underberg area of KwaZulu-Natal. The dam will cover approximately 37 hectares and is intended to enhance water resource efficiency while supporting existing water use rights.

This Draft Scoping Report, prepared in accordance with the National Environmental Management Act (NEMA), outlines the proposed project, considers alternative options, and identifies potential environmental and socio-economic impacts. It is currently open for a 30-day review and comment period by Interested and Affected Parties (I&APs). Feedback from this process will be incorporated into the Final Scoping Report, which will inform the EIR phase.

Key Findings:

Positive Impacts

- Water resource optimization through improved storage and management.
- Employment creation, benefiting both skilled and unskilled workers, while maintaining existing jobs.
- Limited ecological impact, as the site is not within a Critical Biodiversity Area (CBA) or Ecological Support Area (ESA), and its Drakensberg Foothill Moist Grassland vegetation type is classified as “least threatened.”
- Visual compatibility with the surrounding landscape.
- Wetland rehabilitation measures to offset direct wetland loss, potentially enhancing ecosystem services.
- Biodiversity support, with the dam creating new open-water habitat that may attract waterbirds and other species.

Negative Impacts

- Loss of wetland habitat (approximately 26.94ha of seep wetland).
- Loss of indigenous vegetation due to inundation.
- Habitat fragmentation, reducing suitable environments for local fauna.
- Potential interference with terrestrial ecological corridors along the Ekamanzi River.
- Soil erosion and sedimentation risks during dam construction, affecting nearby wetlands.
- Soil and groundwater pollution risks from construction activities and irrigation use.
- Loss of agricultural land for dam development.
- Nuisance impacts such as noise, dust, and waste generation during construction.

Next Steps:

Further stakeholder engagement through the Public Participation Process will refine the assessment. All additional concerns will be addressed in the Final Scoping Report and undergo a full impact assessment in the Environmental Impact Reporting phase.

CONTENTS

1.	INTRODUCTION & BACKGROUND	1
1.1	Introducing the Project	1
1.2	Background	1
1.3	Description of the Proposed Activity	1
1.4	Project Location	3
1.5	Purpose of This Report	5
1.6	EIA Project Team	5
1.7	Independence	5
1.8	Assumptions, Limitations and Gaps in Knowledge	5
2.	NEED & DESIRABILITY	7
2.1	Need	7
2.2	Desirability	7
2.2.1	Location & Accessibility	7
2.2.2	Compatibility with the Surrounding Area	8
3.	LEGAL AND PLANNING CONTEXT	9
3.1	Relevant Legislation	9
3.1.1	The Constitution of the Republic of South Africa (Act 108 of 1996)	9
3.1.2	National Environmental Management Act (Act No. 107 of 1998), EIA Regulations Published on 7 April 2017 (GN R327, GN R326, GN R325 and GN R324)	9
3.1.3	National Heritage Resources Act (No. 25 of 1999)	10
3.1.4	National Environmental Management: Air Quality Act, 2008 (Act No. 36 of 2008)	10
3.1.5	National Water Act (Act No. 36 of 1998)	11
3.1.6	National Environmental Management: Biodiversity Act, 2008 (Act No. 10 of 2004)	11
3.2	Listed Activities in terms of NEMA	12
3.3	Relevant Policies, Regulations and Guidelines	13
4.	PROJECT ALTERNATIVES	14
4.1	Location Alternatives	14
4.2	Type of Activity Alternatives	15
4.3	Design/Layout Alternatives	15
4.4	The No-Go Alternative	15
5.	BASELINE ENVIRONMENT	16
5.1	Climate	16
5.2	Topography	16
5.3	Vegetation	18
5.4	Fauna	20
5.5	Critical Biodiversity & Ecological Support Areas	21
5.6	Geology & Soils	21

5.7	Surrounding Properties/Land Use.....	21
5.8	Surface Water.....	22
5.9	Cultural Heritage.....	24
5.10	Socio-Economic Context.....	26
5.10.1	Demographics.....	26
5.10.2	Economic Overview.....	26
5.10.3	Access to Water, Sanitation & Energy.....	26
5.10.4	Housing & Tenure.....	27
5.10.5	Transport	27
5.10.6	Community Facilities & Education.....	27
6.	ENVIRONMENTAL ISSUES, POTENTIAL IMPACTS & MITIGATION MEASURES.....	28
6.1	Potential Environmental Impacts which may Occur as a Result of the Development of the Proposed Dam.....	28
6.1.1	Biodiversity.....	28
6.1.2	Groundwater-Related Impacts	29
6.1.3	Hydrology-Related Impacts.....	30
6.1.4	Soil-Related Impacts.....	30
6.1.5	Impact on Wetland Areas.....	31
6.1.6	Destruction of Heritage Resources.....	33
6.1.7	Visual Impact.....	33
6.1.8	Dam Safety.....	34
6.1.9	Loss of Agricultural Land.....	34
6.1.10	Socio-Economic Impacts	34
6.1.11	Nuisance Impacts (Traffic, Noise, Dust & Waste)	34
7.	EIA METHODOLOGY (PLAN OF STUDY).....	35
7.1	Scoping & Environmental Impact Reporting Process.....	35
7.1.1	The Pre-Application Phase.....	36
7.1.2	Application for Environmental Authorization.....	36
7.1.3	The Scoping Phase.....	36
7.1.4	The EIR Phase	37
7.2	Public Participation	37
7.2.1	Stages of the Public Participation Process.....	37
7.2.2	Identification of Stakeholders	38
7.2.3	Summary of Comments & Responses	39
7.3	Environmental Impact Assessment, Significance & Mitigation Methodology.....	39
7.3.1	Impact Assessment Criteria	39
7.3.2	Determining Impact Significance.....	40
7.3.3	Impact Reversibility.....	41
7.4	Specialist Studies.....	41

8. CONCLUDING STATEMENT	43
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LIST OF TABLES

Table 1: Characteristics of the Proposed Dartford Farm Dam.....	2
Table 2: Project Property Location Details	3
Table 3: Summary of Water Uses Authorized	11
Table 4: Listed Activities Applicable to the Proposed Development	12
Table 5: Mean Annual Rainfall & Temperature Data for Underberg (BRU – Xd5 Coleford).....	16
Table 6: Faunal Species Likely to Occur on the Project Property (Source: NatureStamp, 2025).....	20
Table 7: Public Participation Process	37
Table 8: Criteria to be Used for the Rating of Impacts	39
Table 9: Significance Weightings	40
Table 10: Additional Assessment Criteria Considered	41

LIST OF FIGURES

Figure 1: Location of the Dartford Farm with the Proposed Dam footprint Shaded in Blue (©Google Earth Satellite Imagery, Imagery Date: 30/11/2023).....	3
Figure 2: Historical imagery of the proposed project property (Source: NatureStamp, 2025).	4
Figure 3: Location of the proposed Dartford Farm Dam (blue shaded area) in Relation to the Ekamanzi Stream (blue line, ©Google Earth Satellite Imagery, Imagery Date (30/11/2023).	14
Figure 4: North to south elevation profile of the project property with the proposed dam shaded in blue (Source ©Google Earth Satellite Imagery, imagery date: 30/11/2024).....	17
Figure 5: West to east elevation profile of the project property (Source ©Google Earth Satellite Imagery, imagery date: 09/04/2024).....	17
Figure 6: Vegetation types associated with the project property (Source: SANBI GIS, 2014 KZN Biodiversity Sector Plan).....	18
Figure 7: Selected grass species found on the project property (Source: NatureStamp, 2025).	19
Figure 8: Selected herb species found on the project property (Source: NatureStamp, 2025).....	19
Figure 9: Selected tree and shrub species found on the project property (Source: NatureStamp, 2025).	20
Figure 10: The proposed project property in relation to surrounding CBAs, shaded in green (Source: SANBI BGIS).....	21
Figure 11: The location of surface water resources located within and in the vicinity of the project property (Source: Hunts Green, 2024).	22
Figure 12: Wetland systems found within and in the vicinity of the project property (Source: Land Matters Environmental Consulting, 2024).....	23
Figure 13: Diagrammatic representation of a seep system (Source: SANBI, 2013).	23
Figure 14: Wetlands to be directly affected by the proposed dam (Source: Land Matters Environmental Consulting, 2024).	24
Figure 15: Historical sites located in the general area of the proposed project property (Source: Umlando, 2025).....	25
Figure 16: Overhangs located on the project property & stone tool flake (Source: Umlando, 2025).	25
Figure 17: The EIA process in terms of NEMA.....	35

LIST OF APPENDICES

Appendix A: Site Layout Plan
Appendix B: Locality Map
Appendix C: EAP CV & EAPASA Certification
Appendix D: Dartford Farming Trust Water Use Licence
Appendix E: Specialist Studies
Appendix E1: Terrestrial Biodiversity Study & Fish Survey

Appendix E2: Hydrogeological Assessment
Appendix E3: Hydrological Assessment
Appendix E4: Hydropedology Impact Assessment
Appendix E5: Wetland Assessment
Appendix E6: Wetland Offset & Rehabilitation Plan
Appendix E7: Heritage Impact Assessment
Appendix E8: Visual Impact Assessment
Appendix E9: Agricultural Compliance Statement
Appendix F: Pre-Application Meeting Minutes
Appendix G: Public Participation Report
Appendix H: DFFE Screening Report

1. INTRODUCTION & BACKGROUND

1.1 Introducing the Project

Green Choice Consulting (Pty) Ltd have been appointed by Kevin Fraser of The Dartford Farming Trust (the Applicant) to undertake and manage the environmental regulatory compliance process for the proposed development of a dam located on Dartford Farm, Portion 0 of Lot FP 173 No. 8581 in the Underberg area of KwaZulu-Natal.

The Applicant intends on developing a storage dam with a capacity of 1 500 000m³ and covering an area of approximately 37 hectares, to be used for the irrigation of grass pastures. It is anticipated that the proposed dam will have the capacity to irrigate 101 hectares of pasture once operational. Additionally, the neighbouring two properties would benefit from the dam for the irrigation of 190 ha of existing cropland.

1.2 Background

The Dartford Farm is comprised of a number of properties, the majority of which were purchased in the late 1980s. The project property was purchased by the Dartford Farming Trust in the mid-2000s. Dartford Farm is currently operating as a dairy farm which has a capacity to milk 600 dairy cattle, and comprises a total of 115 hectares of pasture, including maize to produce feed. In order for the business to grow and be profitable, the Dartford Farming Trust must at least double its current milking capacity. To do this, additional grass pastures will need to be cultivated and watered to feed additional cattle, resulting in the need for a storage dam for irrigation purposes.

1.3 Description of the Proposed Activity

The Dartford Farming Trust intends on developing an in-stream dam on Portion 0 of Lot FP 173 No. 8581 within the Ekamanzi Stream which flows along the northern boundary of the project property. It is anticipated that at full capacity, the proposed dam will cover an area of 37.5 hectares, and have a total capacity of 1 500 000m³. The dam will have a maximum depth of 8m when at full capacity. The dam wall will be 10.5m in height with two spillway channels located on each end of the dam wall. Access to the proposed dam will be gained by existing farm roads. Two pump houses will be constructed – one adjacent to the dam wall, and one along the western edge of the dam. An intake area will be developed with associated outlet pipelines and outlet valves for irrigation use. The proposed development will comprise the following activities and infrastructure:

- The development of an in-stream dam with a maximum storage capacity of 1 500 000m³, a maximum depth of 8m, and covering an area of 37.5 hectares when at full capacity.
- The construction of an earthen dam wall (embankment), which will have a height of 10.5m, a width of 3m and a length of 242m. Two spillways will be constructed on either end of the dam wall.
- The installation of two drop boxes to allow for seasonal stream flow to flow back into the stream without the water flowing over the spillway. The drop boxes will include the installation of 400mm UPVC pipeline.
- The installation of an intake area, irrigation pipeline of 60m in length and 315mm in diameter, with outlet valve for irrigation use.
- The construction of two pump stations (approximately 150m² each)

The specific dam characteristics are provided in Table 1, and the proposed site plan is attached as Appendix A.

Table 1: Characteristics of the Proposed Dartford Farm Dam

Description	Size/Extent
Runoff catchment	26m ²
Freeboard	2.5 – 2.7m
Water surface area at FSL	37.5ha
Gross capacity	1 500 000m ³
Crest length	220m
Crest width	3 - 3.5m
Wall height	10.5m
Spillway A	120 – 130m
Spillway B	10m
Upstream slope embankment	1:3
Downstream slope embankment	1:2

The following activities are anticipated to take place during the construction phase of the project as per the appointed Engineer's recommendations:

Site Preparation

The area to be occupied by the dam will be cleared of boulders, trees, stumps, grass and topsoil. The latter will be stockpiled and used on the face of the dam to facilitate the establishment of suitable grass cover. Any layers of sand, organic or porous material will be excavated and removed from the construction area.

Foundations

The cut-off trench and base area will be kept free of water during construction. Any porous, organic or loose material will be carefully removed before approved material is placed and compacted. All rock surfaces in the foundation will be excavated to sound rock and washed clean using air and water jets. Joints and cracks that are exposed will be cleaned. Such joints and cracks will be filled with an approved grout. Grout will be broomed and brushed across the top of the joint or crack to ensure that the contact with the fill material will be tight. With the exception of small cracks, the brushing of slush grout to fill a crack is not acceptable.

Embankment

Material with a high clay content will be placed in the central zone of the embankment while material with a higher sand fraction will be placed in the outer zones. All excavations for the earth fill must be below the full supply level of the basin. All embankment material will be free of vegetation, boulders and topsoil. The entire embankment will be constructed in layers not exceeding 300mm and compacted by routing tyred compaction equipment systematically over each layer. An allowance of 5% in height will be made for settlement. Small holes and depressions may occur in the abutments, core trench, or around the outlet pipe will be hand rammed to maximum compaction. The embankment will be topsoiled and planted to Kikuyu grass.

Spillways

Two spillways are required to be constructed at different levels to cater for varying flow scenarios. The spillways and slope downstream of the spillways will be cleared of obstructions such as trees, boulders and vegetation and all depressions filled appropriately. The face of the training wall will be lined with stone to a depth of 250mm. The spillways and slope downstream of the spillways will be topsoiled and grassed with Kikuyu grass. The final thickness of topsoil after compaction will be at least 75mm.

Grassing and Finishing

The entire exposed embankment surfaces will be topsoiled and planted with Kikuyu grass which will be fertilized until growth is firmly established. The embankment area will be sloped slightly backwards towards the dam basin to aid the drainage of rainwater from the crest of the embankment. The embankment and spillway areas will be fenced off for safety reasons.

1.4 Project Location

The proposed project property is located along the P322 Road (Coleford Road) outside Underberg, and is situated within the Nkosazana Dlamini-Zuma Municipality of the Harry Gwala District (refer to Figure 1). The property falls within a valley area of the Ekamanzi River, bordered by steep slopes to the north of the proposed dam. The property has been used mainly for bailing due to the relatively low agricultural value of the land. The project location details are provided in Table 2 below, while a locality map is attached as Appendix B.

Table 2: Project Property Location Details

Name of Landowner	The Dartford Farming Trust
Property Description	Portion 0 of Lot FP 173 No. 8581
SG Code	N0FS00000000858100000
Zoning	Agricultural
Property Size	474ha
Activity Central Co-Ordinates	29° 52' 47.18"S 29° 29' 45.22"E



Figure 1: Location of the Dartford Farm with the Proposed Dam footprint Shaded in Blue (©Google Earth Satellite Imagery, Imagery Date: 30/11/2023).

Historical imagery of the proposed project property shows that it has been used for agricultural activities since 1963 (refer to Figure 2). Natural grassland areas were visible to the west of the proposed dam location between 1973 and 1992, following which it was transformed into crop lands. The proposed dam location has been used for bailing/annual crop lands from 1963 until present day. Agricultural drains are also visible from 1963 to present. An increase in woody plant infestation and alien invasive infestation along the Ekamanzi River has occurred over time.



Figure 2: Historical imagery of the proposed project property (Source: NatureStamp, 2025).

1.5 Purpose of This Report

In terms of the National Environmental Management Act (Act No. 107 of 1998, NEMA), the development of a dam constitutes a listed activity in terms of Government Notice 326 of NEMA i.e. the Environmental Impact Assessment (EIA) Regulations (2014, as amended, hereon referred to as the “EIA Regulations”), which requires that the Applicant apply for Environmental Authorisation for the proposed activity to commence. This report forms a component of the Scoping & Environmental Impact Reporting (EIR) process, as prescribed by the EIA Regulations. The KwaZulu-Natal Department of Economic Development, Tourism & Environmental Affairs (EDTEA) is the Competent Authority which will make a decision on the application.

The purpose of this Draft Scoping Report is to provide the activity background, and outline the Plan of Study proposed to be undertaken in the Environmental Impact Reporting (EIR) phase. Accordingly, this Draft Scoping Report comprises the following chapters:

- Chapter 1 introduces the proposed project, the project location as well as the EIA project team.
- Chapter 2 outlines the need and desirability of the project.
- Chapter 3 outlines the legal framework applicable to this project.
- Chapter 4 provides the project alternatives that have been considered.
- Chapter 5 describes the baseline environment, i.e. current state of the environment on site as well as surrounding the site, and highlights the potential impacts that may be generated as a result of the proposed activity.
- Chapter 6 provides a summary of the key issues identified with potential mitigation measures.
- Chapter 7 focuses on the EIA methodology (Plan of Study), detailing the phases of the EIA as well as the public participation process.
- Chapter 8 provides the concluding statement from the Environmental Assessment Practitioner.

1.6 EIA Project Team

The Dartford Farming Trust has appointed Green Choice Consulting (Pty) Ltd to execute this project in a professional and unbiased manner. Sarah Stalberg of Green Choice Consulting (Pty) Ltd is an EAPASA registered Environmental Assessment Practitioner (EAP) with 15 years' experience in environmental consulting, including the undertaking of Environmental Impact Assessments, feasibility and due diligence studies, construction monitoring (performing the duties of an Environmental Control Officer), and environmental auditing. Sarah's *curriculum vitae* and EAPASA registration certificate are attached as Appendix C.

1.7 Independence

The amended 2014 EIA Regulations pursuant to NEMA, provide general requirements for Environmental Assessment Practitioners (EAPs) and specialists with the intention of reducing the potential for bias in the environmental process. The first requirement is that the EAP should be independent (Regulation 13(1)(a) of GN R982, as amended).

Neither Green Choice Consulting (Pty) Ltd nor any of its sub-consultants are subsidiaries of The Dartford Farming Trust, nor is The Dartford Farming Trust a subsidiary to Green Choice Consulting (Pty) Ltd.

Green Choice Consulting (Pty) Ltd and its sub-consultants do not have any interests in secondary or downstream developments that may arise out of the authorisation of the proposed project.

1.8 Assumptions, Limitations and Gaps in Knowledge

In undertaking this investigation and compiling this Scoping Report, the following has been assumed:

- The information provided by The Dartford Farming Trust is accurate and unbiased, and no information that could change the outcome of the Environmental Authorisation application process has been withheld.
- A site visit has been undertaken to better understand the project location and proposed activities, and to ensure that the information provided by The Dartford Farming Trust is correct, based on site conditions observed.
- The comments received in response to the public participation process are representative of comments from the broader community.
- The Environmental Authorisation application process is based on Best Practice Guidelines which were available at the time of writing this report.

Notwithstanding these assumptions, it is the view of this EAP that this Scoping Report provides a good description of the anticipated impacts associated with the proposed development, and an effective Plan of Study for the EIA phase.

2. NEED & DESIRABILITY

In terms of the National Environmental Management Act, and the EIA Regulations (2014, as amended), the Scoping/EIA Report must describe the need and desirability of the proposed activity. The consideration of “need and desirability” in the EIA decision-making process requires the consideration of the strategic context of the proposed project along with the broader societal needs and the interest of the general public.

While the context of need and desirability relates to the type of development being proposed, essentially, the concept of need and desirability can be explained in terms of the general meaning of its two components in which “need” refers to “time” and “desirability” to “place”. i.e. is this the right time and is this the right place for locating the type of land use being proposed? In other words, need and desirability can be considered as the wise use of land, questioning the sustainability of the proposed land use.

2.1 Need

The proposed development of the dam is required to ensure the long term economic viability and sustainability of the dairy operations undertaken at Dartford Farm, through a reliable water supply from the proposed dam for irrigation.

The Nkosazana Dlamini-Zuma Municipality’s Integrated Development Plan 2020/21 (IDP) identifies and supports efforts made to promote sustainability and growth within the agricultural sector. One of the main issues highlighted by the IDP is the recent drought and the negative implications of drought on the agricultural sector as a result of climate change. A shift in rainfall patterns is evident which results in rainfall being delayed in some areas, whilst in other areas rainfall is occurring more often. According to the IDP, the following effects of climate change can be seen throughout the District:

- Erosion of grazing land;
- Livestock death;
- Damaged crops;
- Water levels in dams receding due to no rainfall;
- Adverse weather conditions resulting in “catastrophic” conditions.

Various climatic drivers, namely higher temperatures and drier conditions further exacerbate the impact of drought events on the agricultural sector, which require careful planning and adequate responses to sustain and grow the sector. Considering that the District is well-known for high agro-ecological potential, and that commercial farms and forestry form the basis of the District’s economy, the effects of climate change are a growing concern.

Agriculture in the Municipality is the largest employer of staff. The proposed development of a dam on Dartford Farm will create approximately 5-7 new unskilled job opportunities during the operational phase of the project, while retaining at least 20 jobs on the farm. Employment opportunities during the construction phase include heavy machinery operators, engineers, project managers, consultants, and general labourers to assist with manual construction work.

In light of the above, it is the EAP’s opinion that there is a need for the proposed dam to ensure agricultural productivity is sustained and improved, along with creating employment opportunities for local community members.

2.2 Desirability

The following factors determine the desirability of the area for the proposed Dartford Dam.

2.2.1 Location & Accessibility

The proposed location of the dam is considered ideally suited for the construction of the proposed dam due to the presence of favourable soil and climatic conditions and lower expected impact on indigenous

vegetation. The location was chosen to ensure that project cycle costs are minimized where the decisive factors typically include basin characteristics with reference to available capacity versus demand, optimal costing of works, risk etc. The location's topography is also considered ideal for the development of a dam. The project location is easily accessible via existing farm roads, and with neighbouring farms being situated on the proposed dam's boundaries, water can be made available to these neighbouring farms for irrigation if required.

2.2.2 Compatibility with the Surrounding Area

The proposed project location is surrounded by agricultural activities. The proposed development will therefore not be "out of character" with the surrounding land use, and is expected to have a negligible impact on the visual character of the area.

3. LEGAL AND PLANNING CONTEXT

The South African regulatory framework establishes well-defined requirements and standards for environmental and social management of industrial and civil infrastructure developments. Environmental protection functions are carried out by different authorities at both national and regional levels.

There are a host of legal and policy documents and guidelines to consider when undertaking a project of this nature. This Chapter outlines the following:

- Current national, provincial and local legislation framework in South Africa as it relates to the project during planning, development and operation, including national policies and standards referred to as guidelines for the identification and management (including mitigation) of impacts.
- Key regulatory authorities and other relevant bodies related to the proposed activities, the Environmental Impact Report, and other permitting requirements.

3.1 Relevant Legislation

The current assessment is being undertaken in terms of NEMA, to be read with Section 24(5): NEMA EIA Regulations. However, the provisions of various other Acts must also be considered. The legislation relevant to this study is outlined below.

3.1.1 The Constitution of the Republic of South Africa (Act 108 of 1996)

The Constitution, which is the supreme law of the Republic of South Africa, provides the legal framework for legislation regulating environmental management in general, against the backdrop of the fundamental human right. Section 24 of the Constitution states that:

- “Everyone has a right:
 - To an environment that is not harmful to their health or well-being; and
 - To have the environment protected, for the benefit of present and future generations through reasonable legislative and other measures that –
- Prevent pollution and ecological degradation;
- Promote conservation; and
- Secure ecologically sustainable development and use of natural resources while promoting justifiable economic and social development”.

Section 24 of the Bill of Rights therefore guarantees the people of South Africa the right to an environment that is not detrimental to human health or well-being, and specifically imposes a duty on the State to promulgate legislation and take other steps that ensure that the right is upheld and that, among other things, ecological degradation and pollution are prevented.

Project Applicability: In support of the above, The Dartford Farming Trust is committed to supporting sustainable development and conserving natural resources, whilst promoting justifiable socio-economic development by generating employment opportunities.

3.1.2 National Environmental Management Act (Act No. 107 of 1998), EIA Regulations Published on 7 April 2017 (GN R327, GN R326, GN R325 and GN R324)

The National Environmental Management Act (Act No. 107 of 1998, NEMA) provides the environmental legislative framework for South Africa and establishes a set of principles which all authorities have to consider when exercising their powers. These include the following:

- Development must be sustainable;
- Pollution must be avoided or minimised and remedied;
- Waste must be avoided or minimised, reused or recycled;
- Negative impacts must be minimised; and

- Responsibility for the environmental consequences of a policy, project, product or service applies throughout its life cycle.

Section 28(1) states that “every person who causes, has caused or may cause significant pollution or degradation of the environment must take reasonable measures to prevent such pollution or degradation from occurring, continuing or recurring”. If such degradation/pollution cannot be prevented, then appropriate measures must be taken to minimise or rectify such pollution. These measures may include:

- Assessing the impact on the environment;
- Informing and educating employees about the environmental risks of their work and ways of minimising these risks;
- Ceasing, modifying or controlling actions which cause pollution/degradation;
- Containing pollutants or preventing movement of pollutants;
- Eliminating the source of pollution.

Project Applicability: The Dartford Farming Trust has a general duty of care and a responsibility to take action to prevent pollution or degradation of the environment in terms of Section 28 of NEMA, and to ensure that the environmental impacts associated with the proposed development are mitigated. Several listed activities in terms of the EIA Regulations are triggered by the proposed development, these are discussed in Section 3.2.

3.1.3 National Heritage Resources Act (No. 25 of 1999)

The National Heritage Resources Act legislates the necessity for cultural and heritage impact assessment in areas earmarked for development, which exceed 0.5 hectares. The Act makes provision for the potential destruction of existing sites, pending the archaeologist’s recommendations through permitting procedures. Permits are administered by the South African Heritage Resources Agency (SAHRA).

It is important to note that in terms of the Act, all historical sites and materials older than 50 years are protected. It is an offence to destroy, damage, alter or remove such objects from the original site, or excavate any such site(s) or material without a permit from the National Monuments Council. Gravesites are subject to the requirements of the National Monuments Act, No. 28 of 1969.

Project Applicability: Due to the potential for there to be heritage/archaeological artefacts located within/in proximity to the study area, a Heritage, Archaeological and Paleontological Impact Assessment will be undertaken.

3.1.4 National Environmental Management: Air Quality Act, 2008 (Act No. 36 of 2008)

The National Environmental Management: Air Quality Act, 2004 has been promulgated with the objective of reforming the law regulating air quality in order to protect the environment. It also aims to comply with general environmental policies and to bring legislation in line with international air quality management practices. All outstanding sections of the Act came into effect on the 1st of April 2010 (Government Gazette, 26 March 2010). The Act has established a National Framework for Air Quality Management with standards.

A revised schedule of Listed Activities and Minimum National Emission Standards was published on the 22nd of November 2013 (GN R 893). Listed activities may only be undertaken after an Air Emissions Licence (AEL) has been obtained and must comply with the prescribed emissions standards set for that activity.

Project Applicability: The proposed development does not call for any air emissions control system, and no component of the proposed development will require authorisation through an AEL.

3.1.5 National Water Act (Act No. 36 of 1998)

The National Water Act (Act No. 36 of 1998, NWA) fundamentally reforms the law relating to water resources, recognising that water is a scarce and unevenly distributed national asset that belongs to the people of South Africa. The NWA provides the Department of Water and Sanitation (DWS) with the mandate to protect, use, develop, conserve, manage and control the country's water resources in an integrated manner. In terms of the Section 21 of the National Water Act, the developer must obtain water use licenses if the following activities are taking place:

- a) Taking water from a water resource;
- b) Storing water;
- c) Impeding or diverting the flow of water in a watercourse;
- d) Engaging in a stream flow reduction activity contemplated in section 36;
- e) Engaging in a controlled activity identified as such in section 37(1) or declared under section 38(1);
- f) Discharging waste or water containing waste into a water resource through a pipe, canal, sewer, sea outfall or other conduit;
- g) Disposing of waste in a manner which may detrimentally impact on a water resource;
- h) Disposing in any manner of water which contains waste from or which has been heated in any industrial or power generation process;
- i) Altering the bed, banks, course or characteristics of a water course;
- j) Removing, discharging or disposing of water found underground if it is necessary for the efficient continuation of an activity or for the safety of people; and
- k) Using water for recreational purposes.

Project Applicability: The Dartford Farming Trust has obtained a Water Use Licence (Licence no.: 11/T51C/ABCEGI/14947) from the DWS for the development of the proposed dam as well as to authorise existing slurry dams located adjacent to the dairy. The authorised water uses are summarized in Table 3.

Table 3: Summary of Water Uses Authorized

Section	Description
21(a)	Taking water from a resource, subject to the conditions set out in Appendices I and II.
21(b)	Storing water, subject to the conditions set out in Appendices I and III.
21(c)	Impeding or diverting the flow of water in a watercourse, subject to the conditions set out in Appendices I and V.
21(e)	Engaging in a controlled activity subject to the conditions set out in Appendices I and V.
21(g)	Disposing of waste in a manner which may detrimentally impact on a water resource subject to the conditions set out in Appendices I and VI.
21(i)	Altering the beds, banks, course or characteristics of a watercourse, subject to the conditions set out in Appendices I and IV.

The Darting Farming Trust Water Use Licence is attached as Appendix D.

3.1.6 National Environmental Management: Biodiversity Act, 2008 (Act No. 10 of 2004)

The National Environmental Management: Biodiversity Act (Act No. 10 of 2004, NEMBA) provides for “the management and conservation of South Africa’s biodiversity within the framework of the NEMA, the protection of species and ecosystems that warrant national protection, and the use of indigenous biological resources in a sustainable manner, amongst other provisions”. The Act states that the State is the custodian of South Africa’s biological diversity and is committed to respect, protect, promote and fulfil the constitutional rights of its citizens.

Furthermore, NEMBA states that the loss of biodiversity through habitat loss, degradation or fragmentation must be avoided, minimised or remedied. The loss of biodiversity *includes inter alia* the loss of threatened or protected species. Biodiversity offsets are a means of compensating for the loss of biodiversity after all measures to avoid, reduce or remedy biodiversity loss have been taken, but residual impacts still remain, and these are predicted to be medium to high. Chapter 5 of NEMBA (Sections 73 to 75) regulates activities involving invasive species, and lists duty of care as follows:

- The landowner/land user must take steps to control and eradicate the invasive species and prevent their spread, which includes targeting offspring, propagating material and regrowth, in order to prevent the production of offspring, formation of seed, regeneration or re-establishment;
- Take all required steps to prevent or minimise harm to biodiversity; and
- Ensure that actions taken to control/eradicate invasive species must be executed with caution and in a manner that may cause the least possible harm to biodiversity and damage to the environment.

An amendment to the NEMBA has been promulgated, which lists 225 threatened ecosystems based on vegetation types present within these ecosystems. Should a project fall within a vegetation type or ecosystem that is listed, actions in terms of NEMBA are triggered.

Project Applicability: Due to the extent of the proposed development, a Terrestrial Biodiversity Impact Assessment will be undertaken – this includes an assessment on both flora and fauna found within the study site.

3.2 Listed Activities in terms of NEMA

In accordance with NEMA, The Dartford Farming Trust is required to apply for Environmental Authorisation for the proposed development of the dam. The listed activities in terms of the EIA Regulations that are applicable to the proposal are provided in Table 4, for which a Scoping & EIR process is being undertaken.

Table 4: Listed Activities Applicable to the Proposed Development

Activity No.	Description	Applicability
GNR327 (LN1, 12)	The development of – (i) Dams or weirs, where the dam or weir, including infrastructure and water surface area, exceeds 100 square metres; or (ii) 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 dam will be located within the Ekamanzi Stream i.e. an in-stream dam, and will comprise a total area of 37 hectares. Therefore, infrastructure such as the dam wall and pump house will be constructed within the watercourse.
GNR327 (LN 1, 19)	The infilling or depositing of any material of more than 10 cubic metres into, or the dredging, excavation, removal or moving of soil, sand, shells, grit, pebbles or rock of more than 10 cubic metres from a watercourse.	The proposed construction of the dam will require the removal of all land cover in the proposed area of inundation. Additionally, material will need to be deposited in the Ekamanzi Stream to construct the dam wall.
GNR325 (LN 2, 15)	The clearance of an area of 20 hectares or more of indigenous vegetation,	The entire area of inundation will be cleared of all land cover, including grassland and wetland vegetation. The maximum area of

Activity No.	Description	Applicability
	excluding 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.	inundation (when the dam is at its fullest) will be approximately 37 hectares in extent.
GNR325, (LN 2, 16)	The development of a dam where the highest part of the dam wall, as measured from the outside toe of the wall to the highest part of the wall, is 5 metres or higher or when the high-water mark of the dam covers an area of 10 hectares or more.	The highest part of the proposed dam wall will be 10.5m in height, and the high-water mark of the proposed dam will cover an area of 37 hectares.
GNR324 (LN 3, 14)	The development of- (i) Dams or weirs, where the dam or weir, including infrastructure and water surface area exceeds 10 square metres; or (ii) Infrastructure or structures with a physical footprint of 10 square metres or more: Where such development occurs- (a) Within a watercourse d. KwaZulu-Natal x. Outside urban areas: (aa) Areas within 10 kilometres from national parks or world heritage sites or 5 kilometres from any terrestrial protected area identified in terms of NEMPAA or from the core area of a biosphere reserve.	The Coleford Nature Reserve is located approximately 7 kilometres from the proposed dam. The proposed dam and associated infrastructure will cover an area of 37 hectares.

3.3 Relevant Policies, Regulations and Guidelines

Various policies, regulations and guidelines relating to environmental management have been published. Those that are relevant to the proposed development are provided below.

- National Biodiversity Offset Guideline (GN3569 of 23 June 2023)
- Guideline on Alternatives (DEADP, 2010)
- Guideline on Need and Desirability (DEADP, 2011)
- Guideline on Public Participation (DEADP, 2011)
- Impact Significance (DEAT IEM Series, 2002)
- Scoping (DEAT IEM Series, 2002)
- Screening (DEAT IEM Series, 2002)

4. PROJECT ALTERNATIVES

Alternatives are different means of meeting the general purpose and need of a proposed activity. Alternatives aid in identifying the most appropriate method of developing the project, taking location, activity, processing or technology, as well as the no-go alternatives into consideration. The consideration of alternatives is also vital in determining the activity that has the least impact on the environment.

This Section discusses the alternatives that were considered for the project proposal. The EIA Regulations provides various alternative options which must be considered during all EIA processes, including:

- The property on which or location where the activity is proposed to be undertaken;
- Type of activity to be undertaken;
- Design or layout of the activity;
- Technology to be used in the activity;
- Operational aspects of the activity;
- The option of not implementing the activity i.e. the no-go alternative.

4.1 Location Alternatives

The proposed development will be located on Portion 0 of Lot FP 173 No. 8581 and is considered the most appropriate and economically feasible site relative to existing conditions (i.e. disturbed vegetation, gravitational benefits etc.) of the area to be developed. The Applicant owns various properties which comprise the Dartford Farm, however the proposed project location is the only portion with a running stream (the Ekamanzi Stream) to allow for the development of an in-stream dam (refer to Figure 3). The alternative properties owned by the Applicant are used for pasture cultivation, whilst the development of the dam on the proposed project property would not result in any loss of pasture fields. Additionally, the Applicant's alternative properties comprise contours which are not suitable for the development of a dam, whilst the proposed project location provides the ideal topography for the development of a dam. In light of these aspects, the proposed project location is considered the only preferred site location.



Figure 3: Location of the proposed Dartford Farm Dam (blue shaded area) in Relation to the Ekamanzi Stream (blue line, ©Google Earth Satellite Imagery, Imagery Date (30/11/2023)).

4.2 Type of Activity Alternatives

No activity alternatives have been considered for this application, as the proposed activity has already been authorised by the Department of Water & Sanitation in terms of a Water Use Licence.

4.3 Design/Layout Alternatives

The purpose of the proposed dam is to provide the Dartford Farm with enough water for its irrigation requirements for future growth of the dairy business. The design/layout of the proposed dam is considered viable in terms of the cost to storage ratio under the circumstances relative to the irrigational requirements of the Dartford Farm and the site conditions. The proposed designed alternative is therefore the preferred alternative.

4.4 The No-Go Alternative

The no-go alternative assumes that the proposed activity will not go ahead. In this case, it would mean that the proposed dam would not be developed, and the status quo of the property will persist with the site remaining as is. Although the no-go alternative would result in there being no environmental impacts, there would also be no rehabilitation of remaining wetland system located on the property, which would result in further degradation, particularly if the property is used for intensive agriculture should the development of the dam not be authorised. The Applicant's plan for future growth of the dairy business would not be realised, with additional job opportunities not created. Should the business no longer remain economically viable and the dairy is forced to go into redundancy, all current staff currently employed by the Dartford Farming Trust would lose their jobs.

5. BASELINE ENVIRONMENT

This section of the Draft Scoping Report provides a description of the receiving environment that may be affected by the proposed development of a dam on Dartford Farm. Aspects of the biophysical, social and economic environment that could be directly or indirectly affected by the proposed activity are described. Much of this section is compiled using information provided in the various specialist studies undertaken for this application, which are attached as Appendix E to this report.

5.1 Climate

The Underberg area is characterized by a warm and temperate climate, with a summer rainfall pattern with intermittent rainfall events in the winter months. The mean annual precipitation according to the BioResource Unit information for the area (BRU – Xd5 Coleford) is approximately 886mm with 74% of that precipitation occurring between the months of November and March. The seasonality of precipitation is a driving factor behind the hydrological cycles of rivers and drainage lines within the area. Typically, rivers and drainage lines have a higher flow rate during the summer months due to the higher volume of rainfall as compared to the winter months. The high intensity rainfall conditions experienced in the area are conducive to high levels of surface runoff and subsequent erosion where soils are shallow, occur on steep slopes or are overgrazed (Mucina & Rutherford, 2006). Temperatures vary throughout the year, with an annual average of 14.6°C. Maximum temperatures range from 17.6°C in June to 25.8°C in January. The area is coldest in June with average minimum temperatures of 0.5°C. Table 5 presents the mean annual rainfall and temperature data for the Underberg area.

Table 5: Mean Annual Rainfall & Temperature Data for Underberg (BRU – Xd5 Coleford)

	January	February	March	April	May	June	July	August	September	October	November	December
Precipitation (mm)	154	148	122	53	21	12	11	23	38	69	101	134
Mean Monthly Max. Temp. (°C)	24.8	24.6	23.5	21.3	19.5	17.6	18.4	20.1	22.0	21.9	23.0	24.3
Mean Monthly Min. Temp. (°C)	12.9	12.8	11.1	7.6	3.6	0.5	0.5	2.9	6.1	8.4	10.3	11.9

5.2 Topography

The proposed property is undulating in nature due to the presence of drainage/wetland features. The property is at its flattest in the far northern portion of the property where the proposed dam is to be located, and steadily rises towards the south of the property. Looking at a cross section from west to east across the project property, the topography is highly undulating due and steep due to the presence of two wetland systems. Figures 4 and 5 depicts the topography of the project property.

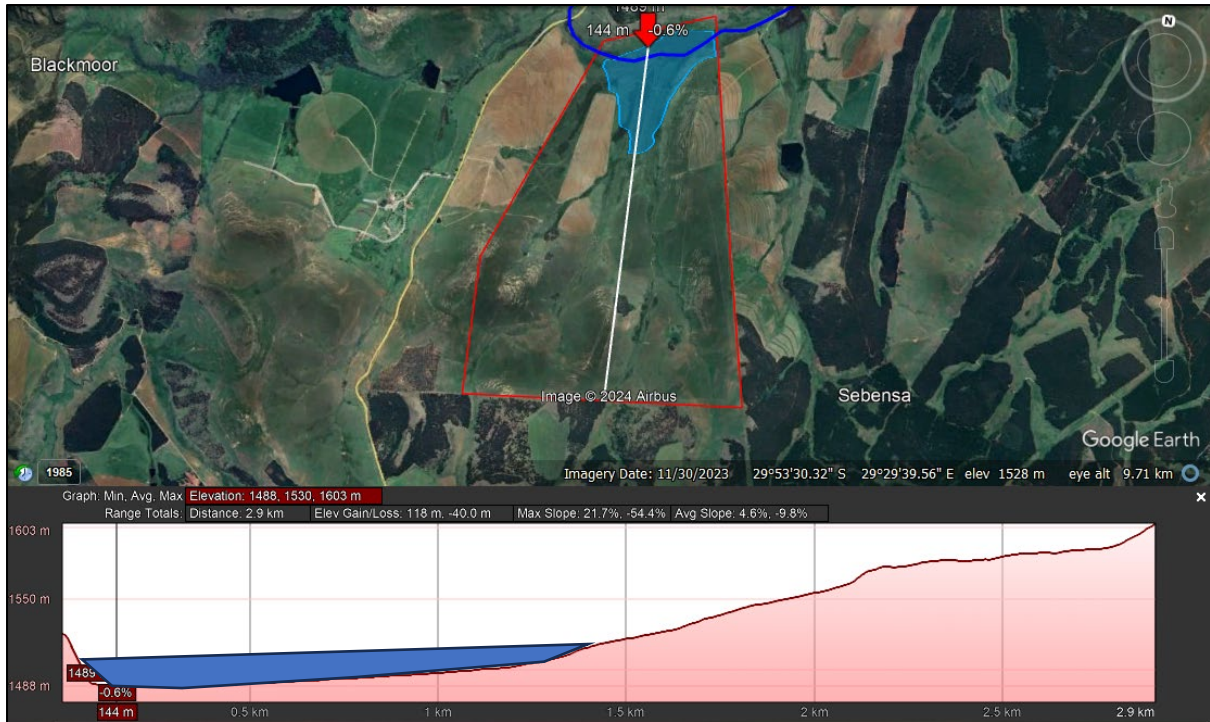


Figure 4: North to south elevation profile of the project property with the proposed dam shaded in blue (Source ©Google Earth Satellite Imagery, imagery date: 30/11/2024).

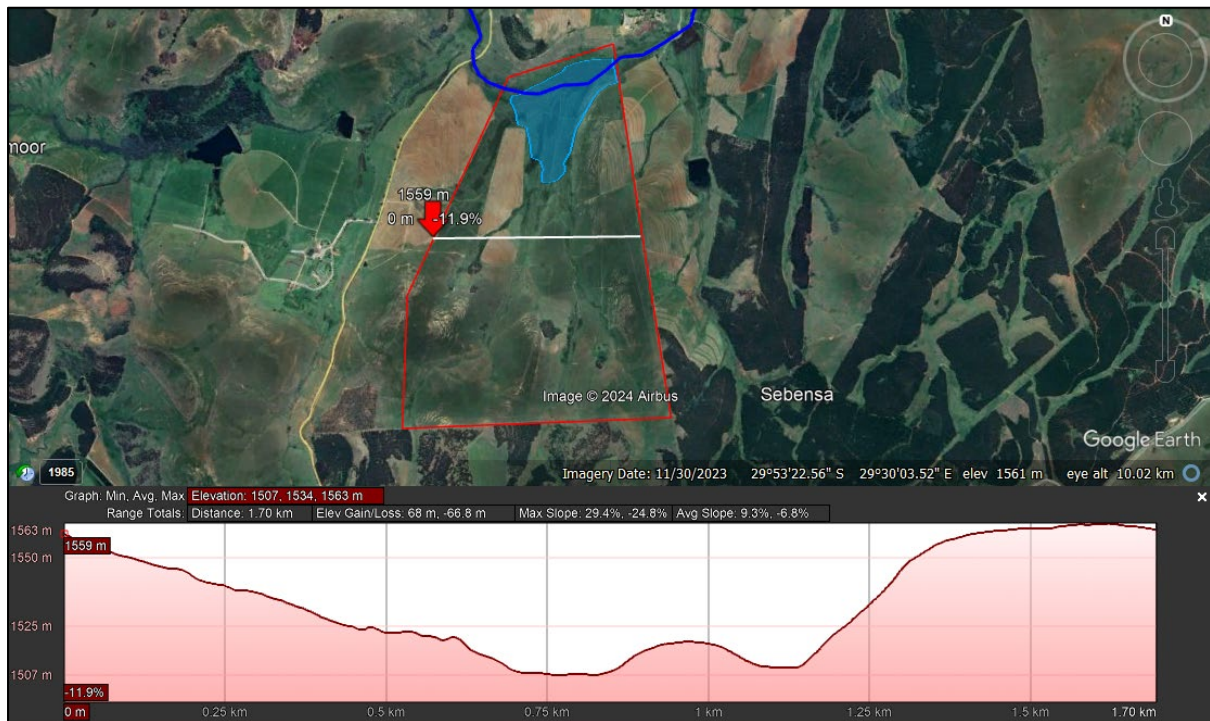


Figure 5: West to east elevation profile of the project property (Source ©Google Earth Satellite Imagery, imagery date: 09/04/2024).

5.3 Vegetation

The project area falls within the Grassland Biome, which is the second largest of the nine biomes in South Africa, and is comprised specifically of the Drakensberg Foothill Moist Grassland (refer to Figure 6). The vegetation type is distributed within the KwaZulu-Natal and Eastern Cape provinces at altitudes between 880m and 1680m above sea level. Drakensberg Foothill Moist Grassland vegetation is comprised of moderately rolling and mountainous terrain covered in forb-rich grasslands dominated by short bush grasses including *Themeda triandra* and *Tristachya leucothrix*. This habitat is often incised by river gorges of drier vegetation types and forested systems. Drakensberg Foothill Moist Grassland is classified as Least Threatened and is statutorily conserved in the uKhahlamba Drakensberg Park, Ntsikeni Wildlife Reserve, as well as in the Karkloof, Mount Currie, Coleford, Fort Nottingham, Impendle, Ngeli, and Umgeni Vlei Nature Reserves. Threats to this vegetation type include loss of habitat for cultivation, plantations and urban sprawl. Woody invasive alien vegetation threatens remaining patches and common species noted include *Rubus* species, *Acacia dealbata* and *Solanum mauritanum*. Temperate alluvial vegetation associated with wetland systems is also found on the project property.

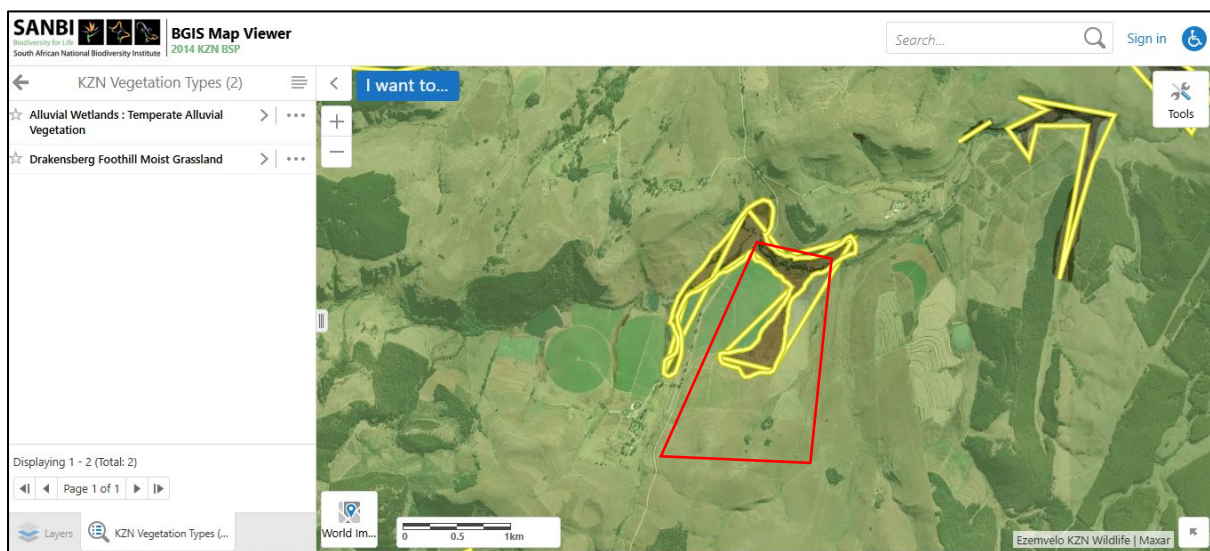


Figure 6: Vegetation types associated with the project property (Source: SANBI GIS, 2014 KZN Biodiversity Sector Plan)

According to the National Biodiversity Assessment (NBA, 2018), the threat status of the Drakensberg Foothill Moist Grassland is considered to be of Least Concern. Drakensberg Foothill Moist Grassland is however classified as endemic and poorly protected, due to the ecosystem type being poorly represented within protected areas.

The majority of the proposed dam footprint is dominated by a mix of *Paspalum distichum*, *Paspalum scrobiculatum* and *Eragrostis curvula* in the historically bailed grassland areas of the property. Both *Paspalum* species are associated with areas where disturbance has occurred, where *Paspalum scrobiculatum* and *Eragrostis curvula* increases in abundance in areas where overgrazing has occurred (in this case bailing acts as grazing). Bramble (*Rubus cuneifolius*) infests the grassland area originating from the Ekamanzi River and floodplain area. Some indigenous forbs and shrubs have been identified in the general area, but in low abundance in comparison to more competitive species previously mentioned. Figure 7 illustrates the grass species noted on the project property.

The forb and herb distribution across site was concentrated more in the ecotones rather than spread evenly across the landscape. A higher density of herbs occurs north of the Ekamanzi River where the land appears to be less utilized than the lands south of the Ekamanzi River. Dominant herbs to the north of the Ekamanzi River consist of *Xysmalobium parviflorum*, *Chenopodium ambrosioides*, *Cicium vulgare*, *Helichrysum aureonitens* and *Searsia discolor*. Other herbs seen on site include *Papaver aculeatum*, *Verbena bonariensis*, *Schizoglossum stenoglossum* and *Hibiscus trionum*. Figure 8 illustrates the herb species noted on the project property.



Figure 7: Selected grass species found on the project property (Source: NatureStamp, 2025).



Figure 8: Selected herb species found on the project property (Source: NatureStamp, 2025).

The riparian zone is largely dominated by Willow Trees (*Salix babylonica*), Bramble and Black Wattle (*Acacia mearnsii*). Stands of Ouhout (*Leucosidea sericea*) were identified, and it is noted that Ouhout often forms thickets on overgrazed, eroded or disturbed areas, particularly on farmlands. Figure 9 illustrates the tree and shrub species found on the project property.

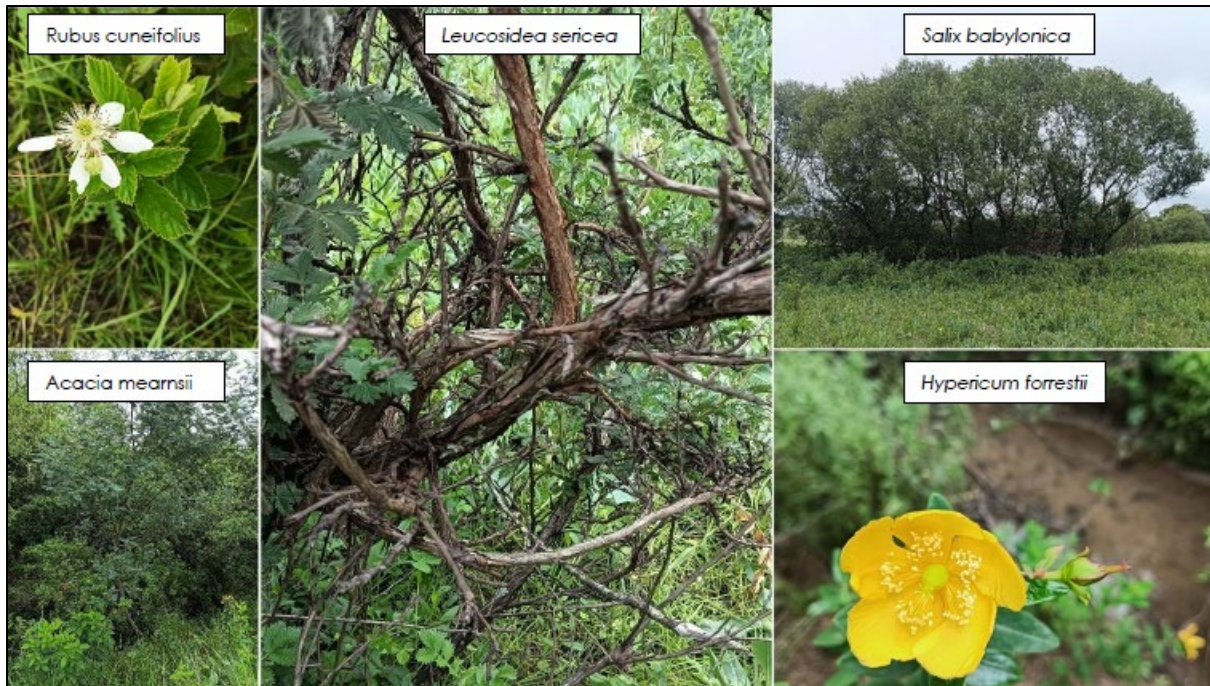


Figure 9: Selected tree and shrub species found on the project property (Source: NatureStamp, 2025).

Some medium sensitivity herbs and bulbs were identified on site, some of which are protected in terms of the KwaZulu-Natal Nature Conservation Ordinance (1974), namely *Hypoxis hemerocallidea* and *Ledebouria ovatifolia*.

5.4 Fauna

The probability of a species occurring on site is related to the availability of habitat on site and the likelihood of the species to occur on site according to historical records. The species that are likely to occur on the project property are presented in Table 6:

Table 6: Faunal Species Likely to Occur on the Project Property (Source: NatureStamp, 2025)

Group	Scientific Name	Common Name
Avifauna	<i>Sagittarius serpentarius</i>	Secretary Bird
	<i>Neotis denhami</i>	Denham's Bustard
	<i>Balearica regulorum</i>	Grey Crowned Crane
	<i>Geronticus calvus</i>	Southern Bald Ibis
	<i>Gyps coprotheres</i>	Cape Vulture
	<i>Bucorvus leadbeateri</i>	Southern Ground- Hornbill
	<i>Geocolaptes olivaceus</i>	Ground Woodpecker
	<i>Monticola explorator</i>	Sentinel Rock Thrush
	<i>Alcedo semitorquata</i>	Half-collared Kingfisher
	<i>Ciconia abdimii</i>	Abdim's Stork
	<i>Anthropoides paradiseus</i>	Blue Crane
	<i>Falco biarmicus</i>	Lanner Falcon
Mammal	<i>Ourebia ourebi</i>	Oribi

Two Blue Cranes were seen by the EAP on the project property but outside of the proposed dam footprint during a site visit in October 2024. The appointed ecologist (Naturestamp) saw one Secretary Bird foraging in the lands to the west of the proposed dam footprint, as well as a Martial Eagle flying high above the natural grassland areas. Additionally, the ecologist noted numerous Reedbuck (*Redunca arundinum*) on the project property in the wetland areas and surrounding farmlands. One Common River Frog (*Amietia angolensis*) was seen by the ecologist whilst a Clicking Stream Frog (*Strongylopus grayii*) could be heard.

The Applicant has indicated that otter (likely a Spotted-Necked Otter) have been seen on occasion on upstream dams. The Ekamanzi River and its tributary was sampled at three sites for fish species within the proposed dam basin and immediate surrounds. One specimen, a juvenile *Enteromius anoplus* (Chubbyhead Barb) was identified within the tributary stream.

5.5 Critical Biodiversity & Ecological Support Areas

Critical Biodiversity Areas (CBAs) are areas required to meet biodiversity targets for ecosystems, species and ecological processes as identified in a systematic biodiversity plan. Ecological Support Areas (ESAs) are not essential for meeting biodiversity targets, however they play an important role in supporting the ecological functioning of ESAs. CBAs and ESAs are important factors to consider in decision making with regards to the location of new developments. According to the 2014 KZN Biodiversity Sector Plan, the proposed project property does not fall within any CBAs or ESAs (refer to Figure 10).



Figure 10: The proposed project property in relation to surrounding CBAs, shaded in green (Source: SANBI BGIS).

5.6 Geology & Soils

The geology of the surrounding area is underlain by Early Triassic-aged sedimentary rock of the Tarkastad Subgroup of the Beaufort Group, Karoo Supergroup. The Tarkastad Subgroup comprises a lower Katberg and upper Burgersdorp Formation, characterised by fine to medium grained sandstone, and maroon, green, and blue mudstone. The Tarkastad Subgroup sediments are associated with a fluvial meandering river environment to lacustrine environment during the Triassic period. The Tarkastad sediments accumulated as channel (sandstone) and overbank (mudstone) deposits from drainage lines that flowed into the ancient inland basin which was present on southern Gondwana during the Carboniferous, Permian, and Triassic periods. Soils identified on the proposed project property are classified as the Hutton, Clovelly, Bloemdal, Pinedene, Glenrosa, Katspruit and Alluvial soil forms.

5.7 Surrounding Properties/Land Use

The surrounding land use is agricultural in nature with neighbouring farms and Applicant-owned farmland surrounding the proposed project property.

5.8 Surface Water

The proposed project property is located within the T51C quaternary catchment within the Pongola-Mtamvuna Water Management Area (WMA 4) and is drained by the Mzimkhulu River downstream. The Ekamanzi River, a perennial river, flows through the northern portion of the project property with various associated non-perennial tributaries flowing in a southerly direction through the project property (refer to Figure 11).

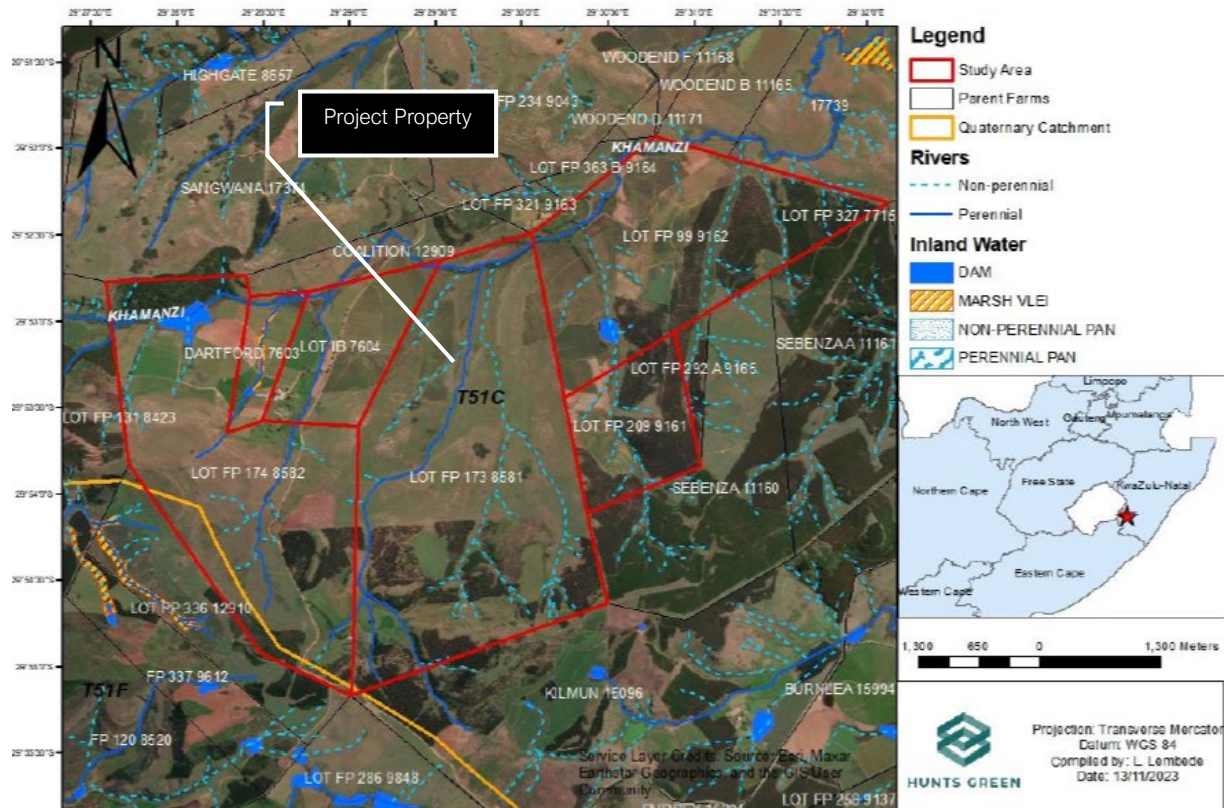


Figure 11: The location of surface water resources located within and in the vicinity of the project property (Source: Hunts Green, 2024).

Three wetlands (HGM1, HGM2 & HGM3) were identified within the boundary of the proposed project property, and will be directly affected by the development of the proposed dam (refer to Figure 12). The identified wetlands are characterized as seep wetlands, which are characterized by their association with topographic positions that either cause groundwater to discharge to the land surface, or rain-derived water to seep down-slope as subsurface interflow. Water movement through seep wetlands is mostly as a result of interflow, with diffuse overland flow often being significant during and after rainfall events. Water inputs are mainly from subsurface flow and outflow is usually via a well-defined stream channel connecting the area directly to a stream channel. A diagrammatic representation of a seep system is provided in Figure 13.

HGM 1, 2 and 3 comprise an extent of 7.08, 21.27, and 23.28 hectares respectively, comprising a total wetland area of 51.63 hectares within the proposed project property (refer to Figure 14). It is anticipated that at full capacity, approximately 26.94 hectares of wetland area will be lost as a result of the development of the proposed dam. These wetlands have all been impacted by various historical and current agricultural activities including cultivation practices, the establishment of alien vegetation, and the construction of dirt roads to access cultivated fields.

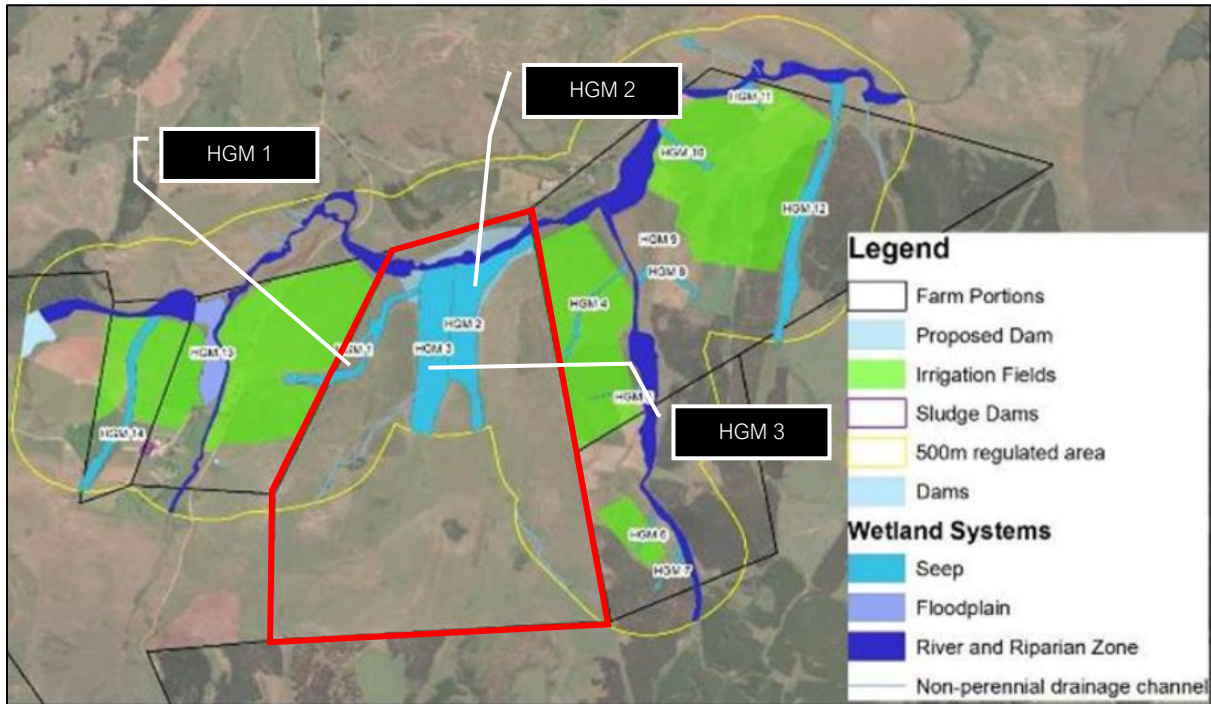


Figure 12: Wetland systems found within and in the vicinity of the project property (Source: Land Matters Environmental Consulting, 2024).

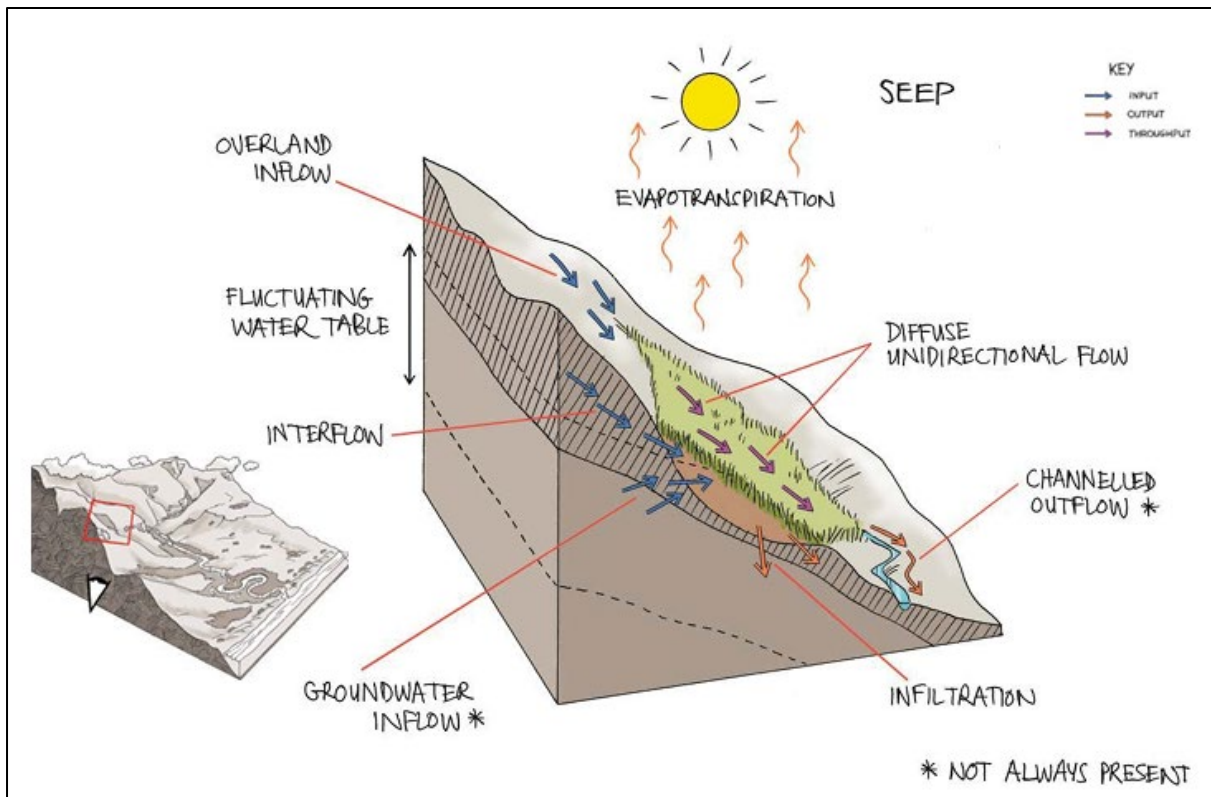


Figure 13: Diagrammatic representation of a seep system (Source: SANBI, 2013).

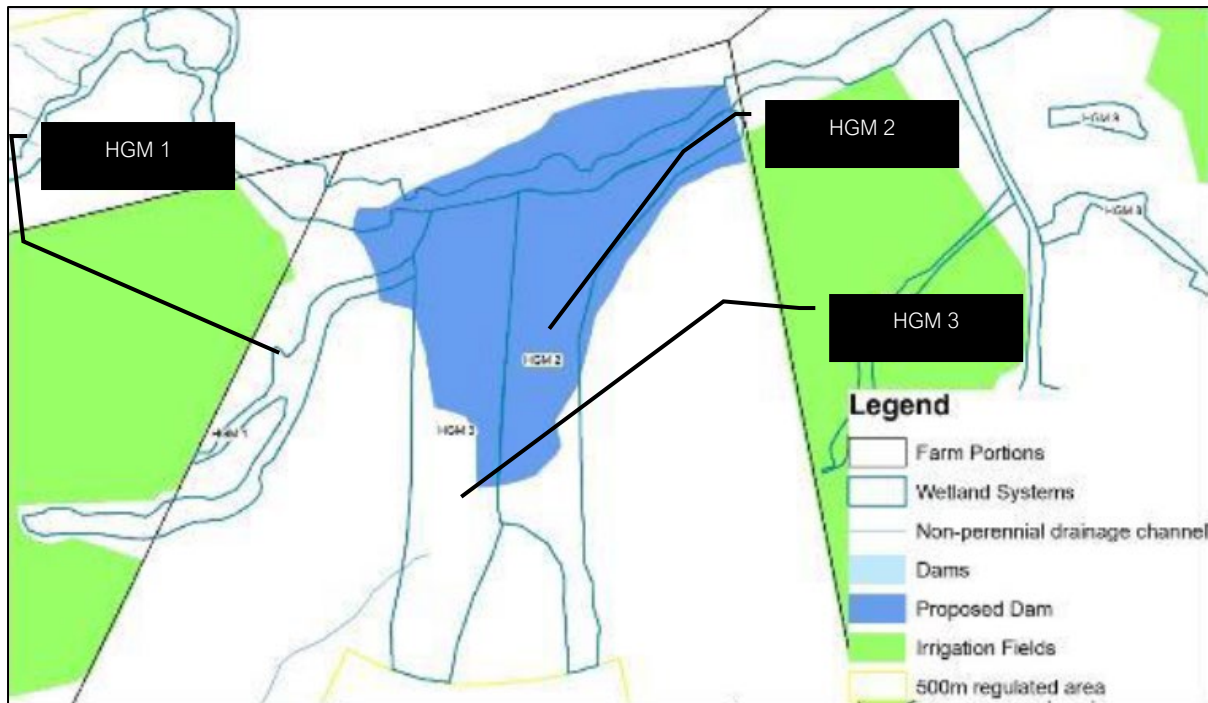


Figure 14: Wetlands to be directly affected by the proposed dam (Source: Land Matters Environmental Consulting, 2024).

5.9 Cultural Heritage

The project property is located in a general area that is known for heritage sites (refer to Figure 15). Many of these sites are open Stone Age scatters of low significance, however it must be noted that many of the sandstone overhangs in the area contain rock art images. Two rock art images occur in the next valley to the north of the project property at the same level of the dam. Other rock art sites occur upstream and south of the Ekamanzi River. The sandstone ridge above the proposed dam therefore has potential for rock art. The Late Iron Age is sparsely represented, however the Historical Period has several sites in the general area.

In terms of palaeontological sensitivity, the project property is located in an area of very high palaeontological sensitivity. Dr. Alan Smith undertook a desktop study of the proposed project area, and noted that “the area concerned is red-flagged by SAHRIS and would normally require a field work Palaeontological Impact Assessment (PIA), however in this case it can be mitigated down to a desktop PIA on the assumption that foundations will not be deeper than 2m, in which case a suitably competent palaeontologist should be called in to survey the excavations. The reasoning is as follows:

The proposed dam site occupies an area which was capped by a thick Dolerite sill prior to erosion to the present topography, consequently any fossils would have been damaged millions of years ago during this intrusion. Further:

1. The proposed dam will occupy land presently under agriculture.
2. The dam follows an existing river system floodplain comprising alluvium flood deposits.
3. The stream shows a meandering pattern indicating deep weathering and a thick soil profile and a high water table which is not favourable for fossil preservation.
4. This earthen dam footprint will be very “lite” and will cause minimum damage to any existing palaeontological material.
5. No further palaeontological work is required unless the foundations are deeper than 2m, or the “Chance Find Protocol” is triggered”.



Figure 15: Historical sites located in the general area of the proposed project property (Source: Umlando, 2025).

A field survey was undertaken by Umlando on the 22nd of January 2025. Three potential shelters were noted on the proposed project property. Many of the overhangs were not suitable for shelter or rock art and/or were eroded, or had water seepage. The three shelters could have housed 1-2 hunter-gatherers, however no evidence for an archaeological deposit nor rock art was found. A single quartzite Late Stone Age flake was noted on the upper cattle track. The stone tool is of low significance and requires no further mitigation. Figure 16 shows the overhangs located on the proposed project property and the stone tool.

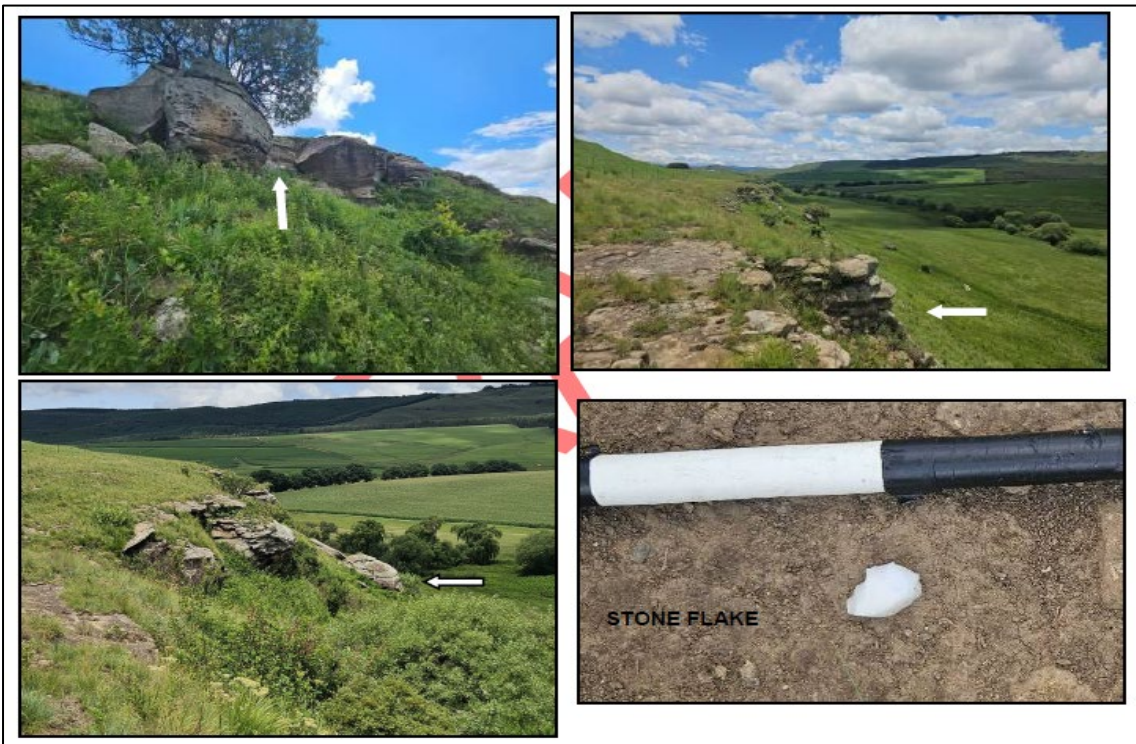


Figure 16: Overhangs located on the project property & stone tool flake (Source: Umlando, 2025).

5.10 Socio-Economic Context

This section provides an overview of the socio-economic environment of the Region. The information provided was sourced from the Dr. Nkosazana Dlamini-Zuma Municipality's (NDZ) Integrated Development Plan (IDP) for 2020/2021 and 2024/2025.

5.10.1 Demographics

The NDZ Municipality is the third largest local municipality in the Harry Gwala District in terms of population due to the merger of the KwaSani & Ingwe municipalities following the 2016 election. The NDZ Municipality is mostly rural in nature with five main towns located within the municipal boundary, namely Creighton, Bulwer, Donnybrook, Underberg and Himeville.

The NDZ Municipality has a total population of 128 565. The population is youthful, with much of the population (40%) under the age of 14, and 54% being of working age between 15 and 59. Senior citizens above the age of 60 make up 7% of the total population. The most spoken language in the Municipality is isiZulu. Females constitute 53% of the population whilst males constitute 47%. This is possibly attributed to males who seek employment opportunities outside the municipal boundaries in urban centers. The majority of the population have never married (74%), with 18% of the population being legally married. The Black African race is the predominant race within the NDZ Municipality (96%) followed by Whites (3%) and Coloureds (1%).

5.10.2 Economic Overview

The NDZ Municipality is well positioned for the exploitation of nature-based tourism, trade with Lesotho and production of potatoes and maize. Natural resources abound within the Municipality including mountains, rare flora and fauna, rivers, wetlands, as well as being in close proximity to the Ukhahlamba Drakensberg World Heritage Site. The Sani Pass provides a linkage with Lesotho, and the proposed upgrade of the Sani Pass Road from gravel to tar will heighten economic benefits due to easy accessibility to both Lesotho and South Africa.

Fourteen percent (15 579) of the municipality's population is employed, while 7% (7 471) is unemployed. A large portion (34 157) of the population is economically inactive. This group includes the people that is available to work, but do not work.

Poverty is defined as the deprivation of wellbeing and further encompasses individual's low income, and the inability to obtain the necessary basic needs for survival. It is estimated that 67% of the population residing within the NDZ Municipality live below the poverty line. These include individuals who have no income, or earn less than R547, which is the inflation-adjusted food poverty line as defined by Stats SA.

5.10.3 Access to Water, Sanitation & Energy

Only 10% of the population of the NDZ Municipality has access to piped water inside their dwellings. This indicates that there is a significant scarcity of water supply facilities within the NDZ Municipality. As a result, a significant number of people rely on natural water resources such as streams and rivers, leaving these resources vulnerable to pollution.

Considering that the municipal area is largely rural, 54% of the population rely on pit latrines as a method of sanitation, whilst 32% have access to flush toilets. Chemical toilets service 9% of the population with bucket toilets serving as the main method of sanitation for 1% of the population.

Many people still rely on the traditional source of energy which is wood and candles; 12 689 households use wood for cooking, 14 234 use wood for water heating, 17 776 for space heating and 4 751 for lighting. A combined strategy/partnership between the NDZ Municipality and Eskom is urgently required to form an integrated and sustainable electrical service delivery within the municipality. However, there is a slight improvement from 2007, as 2016 statistics suggests the municipality uses electricity mostly for lighting

followed by candles and paraffin, which may be also a concern of affordability since this is a rural municipality.

Twenty-three percent of the population receive weekly refuse removal services. The low level of service pertaining to refuse removal is attributed to the rural nature of settlements, undulating topography, and poor road infrastructure within the municipality, making efficient refuse removal impractical. Refuse removal services are therefore only provided to the urban centres.

5.10.4 Housing & Tenure

There are a total of 25 525 households situated within the NDZ Municipality. The rural nature of the Municipality is evident, with 38% of those households comprising formal dwellings. The number of households that are owned and fully paid off account for 36% of the total number of households, followed by households being occupied rent-free (29%), rented from private individuals (10%) and owned but not fully paid off (4%). The remaining households are either rented from public entities and other categories not specified.

5.10.5 Transport

There are four formal Taxi ranks within the jurisdiction of the NDZ Municipality, and there is also a great number of informal taxi rank facilities that exist within the municipality. The municipality completed the upgrading of Underberg Taxi Rank, and are currently upgrading the Centocow Taxi Rank so that it will be able to meet commuter demands, and will include a sheltered area to assist commuters during adverse weather conditions. The public transport system comprises solely of minibus taxis which service the outlying areas once a day.

The R617 is considered to be in poor condition, and many road users opt to use an alternative route. The upgrading/repair of this major route is therefore critical to sustain the efficient movement of goods and services in the area.

5.10.6 Community Facilities & Education

There is relatively good access to community facilities within the NDZ Municipality. However, a significant percentage of the rural communities have poor access to these facilities due to the distance factor. Providing access to basic social infrastructure such as electricity and roads is essential in promoting the development of community facilities, particularly within the rural communities. The NDZ Municipality has cleared its backlog in terms of the development of community halls. Currently, each ward has more than one community hall. Access to social services is limited in terms of clinics and schools. Whilst there are schools in towns and settlements within the municipality, they are in a dilapidated state and lack adequate sanitation and potable water for both learners and educators. The municipality is currently upgrading and developing various community facilities including a community centre in Bulwer.

Much of the population in the NDZ Municipality is currently enrolled in primary and secondary education (38% and 31% respectively) with 17% of the population having never attended school. Members of the population holding a matric certificate comprise 11% of the total population, whilst 2% have a tertiary education.

6. ENVIRONMENTAL ISSUES, POTENTIAL IMPACTS & MITIGATION MEASURES

This section provides a preliminary identification of the anticipated impacts associated with the proposed development of a dam on Dartford Farm. Potential mitigation measures have also been included in this preliminary assessment. Results of the specialist studies will be discussed in detail with a full impact assessment in the Environmental Impact Reporting (EIR) phase of this EIA process.

6.1 Potential Environmental Impacts which may Occur as a Result of the Development of the Proposed Dam

6.1.1 Biodiversity

The proposed project site is comprised of Drakensberg Foothill Moist Grassland, which, according to the National Biodiversity Assessment (NBA, 2018), has a threat status to be of Least Concern. Drakensberg Foothill Moist Grassland is, however, classified as endemic and poorly protected, due to the ecosystem type being poorly represented within protected areas. The proposed site does not fall within a Critical Biodiversity Area, nor Ecological Support Area.

Loss of vegetation will be limited to the dam wall and area of inundation. The presence of alien and invasive species is likely to result on the dam wall and below it, potentially spreading into the new floodback margins. Continued transformation of the land results in habitat fragmentation, where edge effects decrease suitable habitat for a wide range of fauna in the area. This leads to an overall indirect decline in faunal diversity through alien and invasive species and a direct loss through complete hard transformation of habitat. Of particular relevance is loss of secondary grassland for Secretary Bird, however this is deemed as a low impact. Conversely, habitat for Crane species is likely to be created along the proposed dam edge. Potential interference with the terrestrial ecological corridors along the Ekamanzi River may occur.

Soil-related impacts during both the construction and operational phases of the project are recognized, and further discussed in Section 6.1.3. Erosion in particular associated with hard transformation of vegetated land may result in the loss of topsoil, aiding in the establishment of alien invasive species.

It was determined by Alletson Ecologicals that indigenous fish fauna would not be impacted by the proposed dam.

Effectively designed and managed farm dams can attract a variety of birds, insects, and animals to the area which can contribute to the conservation of biodiversity. The proposed dam may provide various waterbirds with additional habitat for breeding and nesting sites.

Mitigation measures which can minimize the abovementioned impacts as recommended by Naturestamp include:

- Progressive rehabilitation with indigenous grass species and the implementation of an alien and invasive programme to limit the spread of alien invasive species.
- Plant permits from Ezemvelo KZN Wildlife must be applied for provincially protected bulb species.
- Where possible, indigenous vegetation must be retained.
- Clearance for construction must be undertaken in a phased approach and progressive rehabilitation must be implemented following completion of construction in each area.
- If possible, construction should commence in the dry season.
- Where possible, manual clearance of vegetation should be undertaken to prevent the unnecessary mobilisation of machinery in sensitive areas.
- Soil stockpiles must be grassed with an indigenous mix or suitably covered to prevent soil loss through wind and water erosion.

- Open excavations must be checked daily for any fauna that may be stranded. Stranded fauna must be caught and released by a suitably qualified and experienced professional.
- Littering is prohibited.
- Areas located outside of the construction zone must be demarcated as “no-go” areas.
- Trapping or hunting of fauna is prohibited.
- Soil stockpiles must be reused as fill with the subsoil being placed first, followed by the topsoil.
- Excavations must be clearly demarcated and fenced off to prevent faunal species from entrapment.
- All stormwater outflows must be protected with reno-mattresses and gabion baskets to reduce the impact of erosion.
- Spraying of the soil surface should occur when working in dusty conditions.
- A post-construction monitoring programme must be implemented to ensure that rehabilitation efforts are successful and that edge effects are reduced.
- Monitoring should take place every two months during the first year following construction to ensure that rehabilitation and control of alien invasive species has been successful.
- A six-monthly check of the area must be conducted for the emergence of erosion gulleys. If erosion gulleys have established, rehabilitation must commence immediately.

The Terrestrial Biodiversity Impact Assessment and Fish Survey are attached as Appendix E1.

6.1.2 Groundwater-Related Impacts

Hunts Green Environmental were appointed to undertake a Hydrogeological Assessment in December 2023 to determine the impact of the proposed activity on groundwater resources as a specialist component of the Dartford Trust's Water Use Licence application. The results of the study indicated that there would be a potential for increased surface runoff and reduced rainfall recharge due to the clearance of vegetation during the construction phase of the project. Increased surface runoff subsequently increases turbidity, resulting in the siltation and deterioration of water quality of downstream water resources such as the wetland seep systems on the property. Excavation activities during construction of the proposed dam would involve excavation below the water table depth, which may impact groundwater quantity and quality. Excavations exposes shallowed weather aquifers increasing the risk of contamination by reducing the contaminant pathway from the surface to the water table. There is also a risk of groundwater contamination from runoff emanating from the construction areas as a result of poor materials management. There are no anticipated impacts to groundwater resources during the operational phase of the proposed dam.

Mitigation measures which can minimise the abovementioned impacts as recommended by Hunts Green Environmental include:

- Clearing of vegetation must be limited to the development footprint. All site clearing activities will take place above the water table.
- Ensure that all construction activities take place above the water table. The water table is approximately 6 m deep below ground level and there is sufficient space for the construction activities to take place without reaching the aquifer.
- Soil stockpiles should be moderately compacted to prevent erosion of the soils into the nearby water resources.
- Dust suppression measures must be undertaken on the cleared areas during construction.
- If possible, construction activities should be prioritized during dry seasons to avoid potential erosion during high rainfall events.
- Concrete batching and mixing should not occur directly on the ground to avoid washing of this material into the stream.
- All storage areas (fuels, paints, chemicals, etc.) should be appropriately bunded. Spill kits are to be maintained at the site office. Any spills must be cleaned immediately.
- Ensure that all oil changes, refuelling and lubrication of equipment is not conducted in close proximity to the waterbody, and in a manner such that any spillage will not enter the waterbody.
- Mobile chemical ablutions for construction workers must be provided and regularly serviced. General waste bins for the collection of domestic waste must be provided.

- Environmental Control Officer (ECO) should be appointed to ensure implementation of the recommended mitigation/management measures during construction.

The Hydrogeological Assessment is attached as Appendix E2.

6.1.3 Hydrology-Related Impacts

The potential impact of the proposed development of the dam on Dartford Farm, in particular runoff into the Ekamanzi River and potential impact this may have on downstream users has been identified. A Hydrological Assessment was undertaken by Hunts Green Consulting (Pty) Ltd to determine the impact of the proposed dam on the hydrological functioning of the Ekamanzi River. Results of the hydrological analysis indicate a Mean Annual (adjusted) Runoff into the proposed dam of 5.2Mm³ per year. The irrigation requirement of perennial pastures is estimated to be approximately 570mm. The average annual dam yield to irrigate 155 ha of pastures was calculated at 860 500m³. The dam simulation accounts for 90mm per month released during summer. These water demands are met by the proposed dam with an Assurance of Supply of 70% (the dam remains more than 75% full and there are no curtailments of supply to meet demands for at least 70% of the time). This means that there is more than enough water available in the Ekamanzi River and from the proposed storage dam to justify the water use.

The Hydrological Assessment is attached as Appendix E3.

6.1.4 Soil-Related Impacts

A Hydropedology Impact Assessment was undertaken by Hunts Green Environmental in January 2024 to determine the soil-related impacts of the proposed dam. The results of the study indicated that there would be a potential for increased soil erosion and sedimentation as a result of the construction of the dam wall and flooding of the aforementioned seep systems on the property. Additionally there is an increased potential for the pollution of soil and water resources if fertilizers, pesticides and/or herbicides are used on the cultivated fields.

The construction of the dam wall will alter the soil profile, exposing it to environmental elements such as rain and wind. This exposure leads to sediment removal and deposition into the wetland seep systems on the property, risking the integrity of the seeps and Ekamanzi River by increasing water turbidity and compacting the soil. Compacted soil alters water flow from subsurface to overland as water is not able to infiltrate the soil profile quickly, impeding hydrological flow and causing wetland degradation.

The development of a dam commonly impacts the frequency of downstream flooding and sediment cycling. This includes the timing, water quantity, and chemical composition of the water associated with the flows into and through the river system as well as the seep systems. This means that in the long term i.e. operational phase of the proposed dam, an increase in the flooded area of the dam will hold back a greater quantity of water and sediments that would naturally replenish the downstream ecosystems, particularly the Ekamanzi River.

Sediment release into downstream aquatic environments is a common source of waterborne pollution. Construction of the dam wall will result in sediments being released into the seep and river systems. Mismanagement of waste and pollutants from heavy machinery during construction such as hydrocarbons and hazardous chemicals, can pollute water resources through surface runoff or subsurface water movement. This contamination will affect downstream users and degrade water quality, impacting biodiversity and ecological corridors.

Mitigation measures which can reduce overland flow, encourage the recharge of the soils, and prevent soil contamination as recommended by Hunts Green Environmental (2024) include:

- The use of sediment traps downstream of the dam wall to minimise the flow of sediment into the river and seep areas outside of the dam.
- Prevent surface water from over-irrigation to be concentrated, or to flow down slopes created within any pivot areas without erosion protection measures being in place.

- Erosion control measures must be implemented throughout areas susceptible to erosion such as the use of sand bags, hessian sheets, silt fences, retention or replacement of vegetation and geotextiles such as soil cells, which must be used in the protection of slopes.
- Any vegetation clearance, soil preparation and planting must be scheduled to coincide with the low rainfall season.
- Soil compaction (where encountered) can be alleviated by lightly ripping the soils to at least 45 cm below ground surface to physically loosen the soil prior to re-vegetating the soil.
- No release of any substance i.e. cement, oil, fertilisers or pesticides that could be toxic to fauna or faunal habitats. Furthermore, the washing of any containers, wheelbarrows, spades, picks or any other equipment that may be used and that has been contaminated with cement or chemicals within any of the wetland and river systems or dams must be strictly prohibited.
- Spillages of fuels, oils and other potentially harmful chemicals must be cleaned up immediately and contaminants properly drained and disposed of using proper solid/hazardous waste facilities (not to be disposed of within the natural environment). Any contaminated soil must be removed, and the affected area rehabilitated immediately – consult with a wetland/aquatic specialist if spills occur.
- The duration of the irrigation cycles should be monitored to establish a baseline timing according to soil type in order to avoid excessive saturation and surface runoff, which would increase the erosion hazard and sedimentation of downstream wetlands as well as release of excess nutrients/pollutants.
- Should any waste be generated during day-to-day agricultural activities, these must be disposed of and not dumped in open land. Monitor all sites disturbed by construction activities for colonisation by exotics or invasive plants and control these as they emerge. This requirement is in fulfilment of the terms of the National Environmental Management: Biodiversity Act (Act 10 of 2004).

The Hydropedology Impact Assessment is attached as Appendix E4.

6.1.5 Impact on Wetland Areas

Hunts Green Environmental in consultation with Land Matters Environmental Consulting were appointed to determine the impact of the proposed activity on the wetland systems located on site, as well as within the 500m regulated area as a specialist component of The Dartford Trust's Water Use Licence application. The impacts described below are only applicable to the proposed development of a dam on Dartford Farm.

The development of the proposed dam will result in a direct, permanent loss of 26.94 hectares (ha) of wetland areas (portions of HGM1, HGM2 and HGM3) as per the following:

- 0.39 ha of HGM1 will be lost;
- 11.97 ha of HGM2 will be lost; and
- 15.18 ha of HGM3 will be lost.

The proposed construction of the dam will occur in the Ekamanzi River as well as within a portion of HGM2. Therefore, the loss of the entire 26.94 ha of wetland area will only occur if the dam reaches full capacity. Loss will include both the construction of the dam wall in the HGM2 seep, as well as the inundation of portions of HGM1, HGM2 and HGM3. Loss of the portions of the seep systems through inundation will change these areas of the systems to permanently saturated, leading to a loss in the existing vegetation, as well as altering the geomorphological characteristics of these systems, as previously discussed.

The loss of a portion of the identified wetland systems cannot be avoided or mitigated. As a result, Land Matters Environmental Consulting was appointed to compile a Wetland Offset & Rehabilitation Plan to compensate for the loss of wetland habitat. The Plan considered the location of the wetland systems, their present ecological state, and functional integrity and the methodology was based on the Wetland Offsets: Best Practice Guideline for South Africa. Results of the study determined that the remaining extent of HGM1, HGM2 and HGM3 not affected by the proposed development equates to 24.28 ha, and is deemed more than sufficient to rehabilitate the areas as the Offset Plan for the proposed dam. It was recommended that the Offset Plan rehabilitate the remaining portions of the seep systems, in particular HGM2 and HGM3

to more functional wetland habitat that will enhance the ecosystem services already provided by these wetlands.

Apart from the direct loss of wetland habitat, results of the study indicate that there will be a possibility of soil erosion, sedimentation, and degradation of the seep systems during construction of the dam wall, as described in Section 6.1.3 (refer to soil-related impacts). These impacts may also come about as a result of irrigation of the cultivated fields during the operational phase of the project. Similarly, additional impacts to the wetland systems include the potential for pollution of water and soil resources during the construction of the dam wall as well as a result of irrigation of the cultivated fields during the operational phase. This impact was described in Section 6.1.3 (refer to soil-related impacts). The similarity of impacts which may arise during construction and operation on groundwater resources, soil and wetland systems illustrate how interlinked and interdependent these resources are to each other.

An impact not previously discussed is the potential for the encroachment of alien invasive species. Any disturbance to a vegetation community throughout the proposed project area increases the likelihood of the encroachment and colonisation of alien invasive species into the area. Alien species already identified on the property, particularly *Rubus sp.* (American Bramble) will colonise newly disturbed sites. This is applicable to both the construction and operational phases of the proposed project. Alien species out-compete indigenous species for water, light, space, and nutrients as they are adaptable to changing conditions, and are able to easily invade a wide range of ecological niches. Alien invasive plant species pose an ecological threat as they alter habitat structure, lower biodiversity (both the number and “quality” of species), change nutrient cycling and productivity, and modify food webs.

Additional mitigation measures that have not already been discussed in previous sections are provided below:

- Whilst constructing the required structures for the dam, frequent monitoring of the shape of the dam wall must be enforced to ensure there is no failure of the wall. Once at the correct height the wall must be convex in shape with more soil laid in the centre of the wall, where more settlement will take place, and the crest must have a slight slope towards the less erodible upstream side to permit surface water drainage which will be full of sediment to not be washed downstream.
- The last soil layers to be laid on the wall must be good quality topsoil so as to encourage rapid vegetation growth to minimise the movement of soil in the long term.
- If it is not possible to establish vegetation on the wall, other erosion protection measures must be taken. These include stone pitching the wall or placing rip-rap on areas of high risk such as the ends of the wall that are likely to be affected by erosion and then to place loose stone and rock on the rest of the wall.
- The duration of the irrigation cycles should be monitored to establish a baseline timing according to soil type in order to avoid excessive saturation and surface runoff, which would increase the erosion hazard and sedimentation of downstream wetlands.
- Any irrigation pipelines installed must be buried at a sufficient depth so that they do not interfere with surface water movement leading to erosion.
- When soil is excavated for the pipeline trench, the topsoil and subsoil must be separated and placed back in the trench in the correct order.
- Schedule soil preparation and planting activities, such that there are no unprecedented delays, to ensure that the soil exposure duration is reduced to an absolute minimum.
- An invasive alien management programme must be incorporated into the management of the farm.
- Ongoing alien plant control must be undertaken. Areas which have been disturbed will be quickly colonised by invasive alien species. An ongoing management plan must be implemented for the clearing/eradication of alien species.
- Monitor all sites disturbed by construction activities for colonisation by exotics or invasive plants and control these as they emerge. This requirement is in fulfilment of the terms of the National Environmental Management: Biodiversity Act (Act 10 of 2004).

The Wetland Assessment and Wetland Offset and Rehabilitation Plan are attached as Appendices E5 and E6 respectively.

6.1.6 Destruction of Heritage Resources

Although there are three overhangs located within the proposed project property, they did not contain rock art or artifacts. The chances of cultural heritage sites occurring within the study area are therefore very low according to the heritage specialist, and no further mitigation is required. In contrast, the chances of palaeontological heritage sites occurring within the study area is high if the excavations for the proposed dam wall exceed 2m in depth. No further mitigation is required, however a Chance Find Protocol will be initiated and will form part of the EMPr in the event that any items of palaeontological significance are unearthed. The Chance Find Protocol states that should the Environmental Control Officer (ECO) or Site Manager become aware of suspicious looking paleo material, the following mitigation measures must be implemented:

- Construction must be halted in that specific area and a suitably qualified Palaeontologist must be given enough time to reach the site and remove the material before excavation continues.
- Mitigation will involve the attempt to capture all rare fossils and systematic collection of all fossils discovered. This will take place in conjunction with descriptive, diagrammatic and photographic recording of exposures, also involving sediment samples and samples of both representative and usual sedimentary or biogenic features. The fossils and contextual samples will be processed (sorted, sub-sampled, labelled and boxed) and documentation consolidated, to create an archive collection from the excavated sites for future researchers.

The Heritage Impact Assessment is attached as Appendix E7.

6.1.7 Visual Impact

The potential impact on the visual impact and sense of place of the proposed dam has also been considered. A Visual Impact Assessment was undertaken by Geonest for the proposed development in December 2024. The surrounding area is characterized by agricultural activities, as well as many farm dams in the local area. The proposed development is therefore not in conflict with the existing landscape nor will it conflict with the existing farming sense of place. The locally based people who are likely to be most significantly impacted by the proposed dam are both the proponents of the dam and beneficiaries of the water supplied by the dam, and are thus unlikely to see these impacts in a negative light. The proposed development is considered to have a zero to very low negative impact on the visual amenity value of the Ekamanzi Valley. The proposed dam will not negatively affect views of the area from the Drakensberg or for tourists visiting the local Coleford Reserve. On the contrary, the proposed development is considered more likely to have a net positive local impact in terms of local scenic value.

To retain the existing farming sense of place in the area, the following mitigation measures are recommended:

- As little vegetation as possible should be removed from site, particularly below and to the sides of the dam wall.
- All cleared areas not contained within the inundation area must be revegetated as soon as possible.
- When not in use, all materials stock piles should be covered using shade cloth or other earthy coloured material.
- Construction vehicles should refrain from reversing as far as possible in order to minimise the sounds of reverse warning which can reduce the peaceful sense of place in this farming landscape.
- If construction work is carried out at night, the use of flashing lights on vehicles should be kept to a minimum.
- Any lights placed on the dam/pump infrastructure must be fully shielded and focused downward to ensure they are not visible from the P322 and do not create any artificial skyglow/lighting of the surrounding landscape.

The Visual Impact Assessment is attached as Appendix E8.

6.1.8 Dam Safety

Due to the size of the dam and dam wall, the proposed dam is a safety risk in terms of Chapter 12 of the National Water Act and will require registration from the Department of Water & Sanitation. An application for the safety classification of the proposed dam will be submitted, after the NEMA process has been concluded and Environmental Authorisation has been issued. This will therefore not form part of the Environmental Impact Report.

6.1.9 Loss of Agricultural Land

Results of an Agricultural Impact Assessment (downgraded to an Agricultural Compliance Statement) undertaken by EcoAssist in January 2025 indicate that the project area has a low sensitivity in terms of an agricultural sensitivity analysis, with the agricultural potential of the project area dominated by non-arable soils. The land capability of the project area was ultimately determined as non-arable with severe limitations, mostly due to the presence of hydromorphic soils, which severely limit crop production. Potential impacts associated with the proposed development of the dam identified by the specialist align with the impacts previously discussed in this section, including soil erosion, hydrocarbon contamination from the use of heavy machinery, waste generation, proliferation of alien vegetation and increased runoff with resulting altered surface and sub-surface flow dynamics.

Mitigation measures recommended by EcoAssist include:

- Erosion control during the construction and operational phases of the project.
- The use of appropriate ablution facilities for construction staff.
- Stormwater management.
- Risks from oil/hydrocarbon spills from vehicles and equipment should be mitigated.

The mitigation measures provided in this section are deemed suitable to minimise the aforementioned impacts during construction as well as operation of the proposed dam.

The Agricultural Compliance Statement is attached as Appendix E9.

6.1.10 Socio-Economic Impacts

The construction phase of the proposed project will create the following job opportunities:

- Engineers, consultants, project managers (skilled workers).
- Various construction staff to undertake manual construction activities and operate machinery.
- Other service providers such as waste removal and chemical toilet servicing.

The development of the proposed dam will also retain and indirectly secure additional jobs during the operational phase. The proposed development of the dam forms part of The Dartford Trust's plan to double the productive hectares of the farm's agricultural output (i.e. pastures) in order to double milk output. This increase in productivity will retain at least 20 jobs, whilst creating 5-7 permanent unskilled jobs at the dairy and for general farm work.

6.1.11 Nuisance Impacts (Traffic, Noise, Dust & Waste)

Due to the rural and isolated location of the proposed project, as well as the lack of residential receptors in its vicinity, it is not anticipated that significant nuisance impacts will arise as a result of the commencement of the proposed project. Mitigation measures however, will be provided in the Environmental Management Programme, which will be included in the Environmental Impact Reporting phase of this EIA process.

7. EIA METHODOLOGY (PLAN OF STUDY)

7.1 Scoping & Environmental Impact Reporting Process

As outlined in Figure 17, there are three distinct phases in the Environmental Impact Assessment (EIA) process namely the Pre-Application Phase, the Scoping phase and the Environmental Impact Reporting (EIR) phase. A description of the activities which have been, and will be undertaken during each phase is provided in the following sections. Note that this report covers the second phase i.e. the Scoping phase.

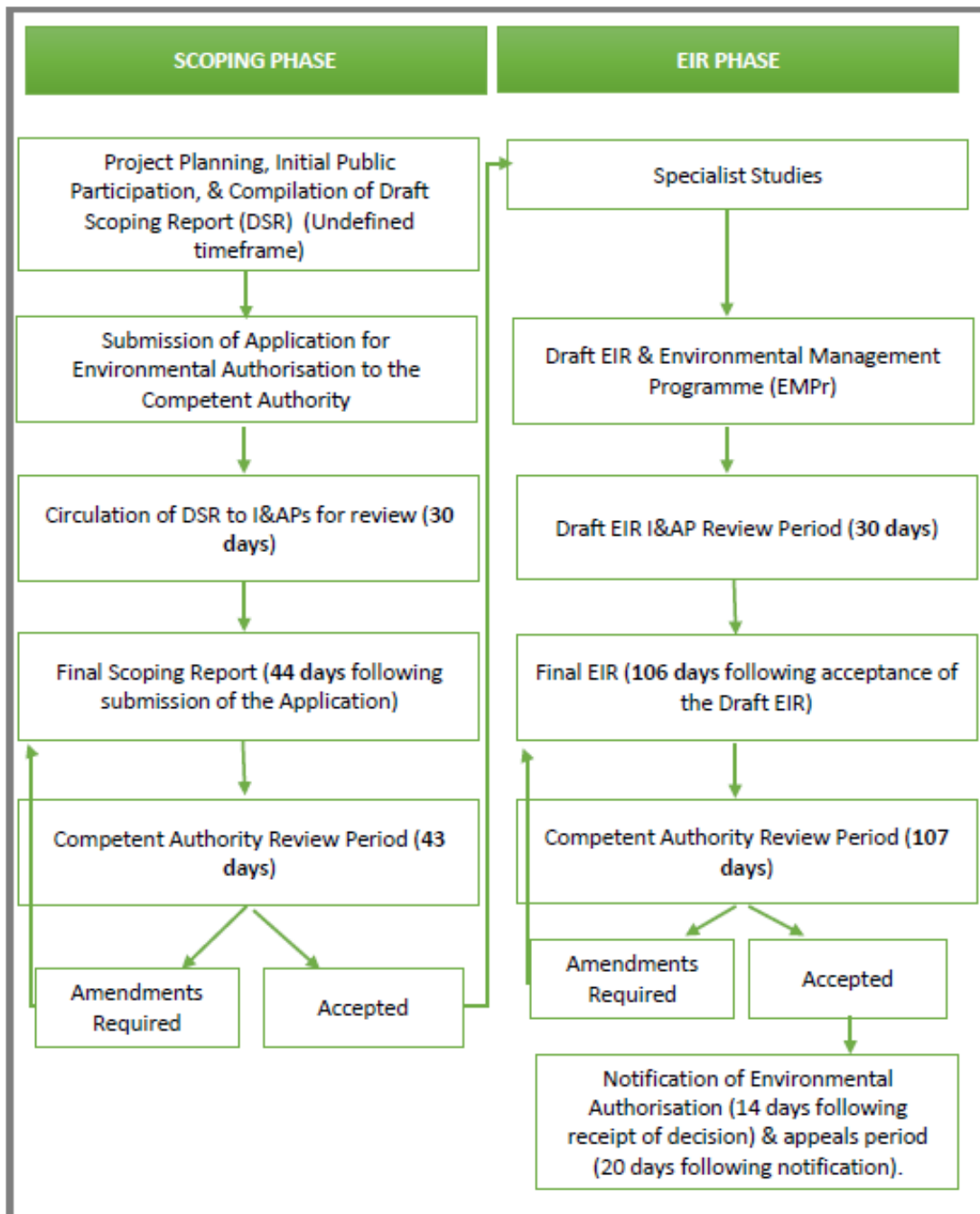


Figure 17: The EIA process in terms of NEMA

As illustrated in Figure 17, three stages of public participation are included in the EIA process – at the Pre-Application, Scoping and EIR phase respectively. The Public Participation Process is discussed in detail in Section 7.2.

7.1.1 The Pre-Application Phase

The pre-application phase consists of a pre-application meeting with the Competent Authority i.e. EDTEA, which was held via Microsoft Teams on the 18th of September 2024. The proposed project was discussed with the EDTEA official, and the public participation plan was agreed upon. The listed activities in terms of NEMA applicable to the proposal as well as the need for specialist studies were also confirmed. The meeting minutes were approved by the EDTEA, and are attached as Appendix F.

7.1.2 Application for Environmental Authorization

An application form for the project was submitted to EDTEA to register the project on the Department's databases. A reference number was allocated to the project which will be used on all correspondence.

7.1.3 The Scoping Phase

Scoping in the EIA process is the procedure used for determining the extent of, and approach, to the EIR phase, and involves the following key tasks as stipulated in Appendix 2(2)(1)(g) of the EIA Regulations (2014, as amended).

- Identification and involvement of relevant authorities and interested and affected parties (I&APs) in order to elicit their interest in the project;
- Description of the baseline environment and environmental attributes of the proposed site;
- Details of the public participation process undertaken in terms of Regulation 41 of the amended EIA Regulations (2014, as amended);
- Provision of a summary of any issues raised by I&APs to date, and how they will be incorporated into the Final Scoping Report, if required;
- Identification and selection of feasible alternatives to be taken through to the EIR phase;
- Identification of significant issues/impacts associated with each feasible alternative to be examined in the EIR, and mitigation measures that could be applied;
- Determination of methodology for assessment used in quantifying and ranking the nature, significance, consequences, extent, duration and probability of the potential impacts; and
- Determination of specific terms of reference for any specialist studies required in the EIR, if applicable.

Various methods and sources were utilised to identify the potential social and environmental aspects associated with the proposed project. The sources of information consulted for the preparation of this report include the following:

- Collection of information specific to the project, as provided by The Dartford Trust, including:
 - Project description;
 - Methodology and requirements for the development of the proposed dam;
 - Methodology during construction and operation;
 - Maps and figures pertaining to the proposed dam; and
 - Technical information relating to design.
- Desktop studies and surveys for the site and surrounding area;
- Review of specialist studies; and
- Consultation with the project team.

Once the Scoping Report has been drafted, it will be circulated to all registered I&APs and relevant authorities for a 30-day comment period (we are currently at this stage). Any comments received will be recorded and responded to in a Comments & Responses section of a Public Participation Report, and the Scoping Report will be updated to address I&AP comments, where appropriate, to create the Final Scoping Report. Both the Draft and Final Scoping Report will be submitted to the EDTEA for review and comment.

Following receipt of the Final Scoping Report EDTEA must, within 43 days, consider the report and either accept the report following which the EAP may proceed with the EIR phase, or reject the report. If the Scoping Report is rejected, the Applicant will be provided with an opportunity to amend the report as per EDTEA's requirements.

7.1.4 The EIR Phase

The Scoping Phase will be followed by the Environmental Impact Reporting (EIR) Phase, which will be informed by the specialist investigations. The proposed development may be refined and adjusted based on the findings of the specialist assessments. This phase will culminate in a comprehensive EIR that documents the outcome of the impact assessments. The Draft EIR will be circulated once again to registered I&APs and relevant authorities for a 30-day review period. All comments received during that period will be included and addressed in the Final EIR, which will be submitted to EDTEA for review. EDTEA has a 107-day decision-making period once the Final EIR (inclusive of an Environmental Management Programme, EMPR) is submitted. Should EDTEA decide to issue Environmental Authorisation to the Applicant, the Applicant (via the EAP) will notify all registered I&APs of the decision and their right to appeal. In this regard, registered I&APs must be notified within 14 days from the date of the decision, where after I&APs have a 20-day period from the date of notification to submit an appeal.

7.2 Public Participation

Stakeholder engagement has been described by the International Finance Corporation (IFC) of the World Bank Group as a broad, inclusive and continuous process of communication between a Proponent of a project, and those potentially affected by the activities of the proposed development. This can include a wide range of activities that are relevant to the entire life of a project. The aim of stakeholder engagement differs at different stages of the project lifecycle. During the EIA process, the aim is to provide an opportunity for stakeholders to be informed of projects occurring in their area and that may affect them directly or indirectly. It also aims to provide an accessible and meaningful opportunity for stakeholders to ask questions, raise concerns or grievances and to ensure that these are used to guide the proposed development in a responsible manner, that complements the local socio-economic environment and enhances the benefit of a given project.

South African legislation and guidelines have formalised stakeholder engagement in the EIA process and refers to it as the Public Participation Process (PPP). PPP forms an integral component of this investigation and enables interested and affected parties (I&APs) to identify their issues, concerns, and suggestions during the EIA process. This PPP has been structured to provide I&APs with an opportunity to gain more knowledge about the proposed project, to provide input through the review of documents/ reports, and to voice any issues of concern at various stages throughout the EIA process.

A Public Participation Report has been attached as Appendix G, and provides details of the public participation process that has been followed to date. The Public Participation Report will be updated as the EIA process progresses.

7.2.1 Stages of the Public Participation Process

The public participation process for this project is summarized in Table 7.

Table 7: Public Participation Process

Phase	PPP Activities Undertaken/To Be Undertaken
Pre-Application Phase	<ul style="list-style-type: none"> ❖ A pre-application meeting was held on the 18th of September 2024 with EDTEA to ensure that an appropriate EIA process for the proposed development will be followed. The nature and scale of the PPP was also confirmed. ❖ The Applicant is the landowner, therefore the need for landowner notification was not applicable.

Phase	PPP Activities Undertaken/To Be Undertaken
	<ul style="list-style-type: none"> ❖ A newspaper advertisement in English and isiZulu was placed in The Mountain Echo on the 18th of October 2024 to notify the general public of the proposed project and inviting them to register as I&APs for the project. ❖ Site notices in English and isiZulu were placed at the entrance to the Dartford Farm on the 21st of October 2024 to notify the general public of the proposed project and inviting them to register as I&APs for the project. ❖ Circulation of a notification letter and Background Information Document to landowners located within a 100m radius of the project property. ❖ Circulation of a notification letter and Background Information Document to identified stakeholders and relevant authorities.
Scoping Phase (current stage)	<ul style="list-style-type: none"> ❖ The Draft Scoping Report will be circulated to registered I&APs and identified stakeholders and authorities for a 30-day comment period. ❖ I&APs will be notified on the availability of this report via email. ❖ Electronic copies of the Scoping Report will be made available for download on the Green Choice Consulting website (www.greenchoiceconsulting.co.za/publicparticipation), or via flash drives to be delivered to I&APs via courier by request. Hard copies of the report may also be delivered to I&APs via courier by request. ❖ Translations of the report may be conducted by request. ❖ Following the closure of this comment period, the Scoping Report will be updated where appropriate. All comments submitted will be recorded and responded to in a Comments and Responses table included in the Public Participation Report.
EIR Phase	<ul style="list-style-type: none"> ❖ The Draft EIR will be made available to I&APs for a 30-day comment period. ❖ Registered I&APs will be notified of their opportunity to review the report and provide comment via email. ❖ Electronic copies of the EIR will be made available for download on the Green Choice Consulting website (www.greenchoiceconsulting.co.za/publicparticipation), or via flash drives to be delivered to I&APs via courier by request. Hard copies of the report may also be delivered to I&APs by request. ❖ Translations of the report may be conducted by request. ❖ Following the closure of this comment period, the EIR will be updated where appropriate. All comments submitted will be recorded and responded to in a Comments and Responses table included in the Final Public Participation Report.

7.2.2 Identification of Stakeholders

A database of I&APs has been developed for the proposed application for environmental authorisation. This database was compiled using the details of the following affected parties:

- Adjacent landowners;
- Relevant district and local municipalities and ward councillors;
- Relevant national and provincial government officials; and
- Organisations in the area.

This I&AP database will be continually updated as new I&APs are identified during the EIA process. The I&AP database is included in the Public Participation Report, attached as Appendix G.

7.2.3 Summary of Comments & Responses

At the time of compiling this Draft Scoping Report, one private request to register as an I&AP for the project was received following project advertising. In response to the distribution of a Background Information Document to relevant authorities and stakeholders, Amafa KZN responded indicating that a Form J application needs to be lodged on the SAHRIS portal in order to obtain comment on the proposal following completion of the EIA. Similarly, Ezemvelo KZN Wildlife acknowledged receipt of the Background Information Document, and awaits the Draft Scoping Report with Plan of Study for review. The KZN Department of Agriculture and Rural Development acknowledged receipt of the Background Information Document and confirmed the nature of the proposed activity, as well as the applicable NEMA listed activities. Following a site inspection conducted by the Department of Agriculture and Rural Development, it was concluded that the proposed dam is location on Category A land, and the Department awaits the Draft Scoping Report (mistakenly referred to in their correspondence as a “Basic Assessment Report”) for further comment. The Department of Agriculture and Rural Development requires that a Wetland Assessment & Rehabilitation Plan, and a Soil and Agricultural Assessment be undertaken for the proposed project. The Department also requires that the Applicant submits an application when the Applicant intends on cultivating any virgin land.

The Comments & Responses table is included in the Public Participation Report, attached as Appendix G.

7.3 Environmental Impact Assessment, Significance & Mitigation Methodology

7.3.1 Impact Assessment Criteria

The method for assessing impact is guided by the requirements of the NEMA EIA Regulations. The broad approach to the significance rating methodology is to determine the environmental risk or significance of the impact (S) by considering the consequence of each impact. The consequence of each impact comprises the nature (N), extent (E), duration (D) and magnitude of the impact (M) and relate this to the probability (P) of the impact occurring. The criteria are defined follows:

- Nature: A brief written statement of the environmental aspect being impacted upon by a particular action or activity. Scoring does not apply, the impact will either be negative or positive.
- Extent: The area of which the impact will be expressed.
- Duration: Indicates the anticipated lifespan of the impact.
- Magnitude: Describes whether an impact is destructive or benign.
- Probability: Describes the likelihood of an impact actually occurring.

Each aspect in the determination of consequence is represented by a rating scale, as defined in Table 8.

Table 8: Criteria to be Used for the Rating of Impacts

Description	Score	Definition
Nature		
Negative	N/A	Likely to result in a negative impact.
Positive	N/A	Likely to result in a positive impact.
Extent		
Activity	1	Limited to the area applicable to the specific activity.
Site	2	Within the development property boundary.
Local	3	The area within 5 km of the site.
Regional	4	Extends between 5 and 50 km from the site.
Provincial	5	Extends beyond 50 km from the site.
Duration		
Immediate	1	<1 year.
Short term	2	1 – 5 years.
Medium term	3	6 – 15 years.
Long term	4	15 – 65 years, the impact will cease after the operational life span of the project.

Description	Score	Definition
Permanent	5	>65 years, no mitigation measure will reduce the impact after construction.
Magnitude		
Minor	1	Where the impact affects the environment in such a way that natural, cultural and social functions and processes are not affected.
Low	2	Where the impact affects the environment in such a way that natural, cultural, and social functions and processes are slightly affected.
Moderate	3	Where the affected environment is altered, but natural, cultural and social functions and processes continue albeit in a modified way, moderate improvement for positive impacts.
High	4	Where natural, cultural or social functions or processes are altered to the extent that it will temporarily cease, high improvement for positive impacts.
Very high / Unsure	5	Where natural, cultural or social functions or processes are altered to the extent that it will permanently cease, substantial improvement for positive impacts.
Probability		
Highly Improbable	1	Impact will probably not occur.
Improbable	2	Some possibility of the impact occurring, but the likelihood is low.
Probable	3	There is a distinct possibility that the impact will occur.
Highly Probable	4	It is highly probable that the impact will occur.
Definite	5	The impact will occur regardless of the implementation of prevention measures.

7.3.2 Determining Impact Significance

The significance (S) of each impact is determined by combining the aforementioned criteria into the following formula:

$$S = (E+D+M) \times P$$

Where: S = Significance of impact M = Magnitude P = Probability
 E = Extent D = Duration N = Nature

The significance weightings applied in assessing each potential impact are described in Table 9 below:

Table 9: Significance Weightings

Total score	Impact Significance	Description
<10 points	Negligible	The impact is not substantial and does not require any mitigation
11 - 20 points	Low	The impact is of little importance, but may require limited mitigation.
21 – 40 points	Medium	The impact is of importance and therefore considered to have a negative impact. Mitigation is required to reduce the negative impacts to acceptable levels.
41 – 60 points	High	The impact is of great importance. Failure to mitigate, with the objective of reducing the impact to acceptable levels, could render the entire project proposal unacceptable.

Total score	Impact Significance	Description
>60 points	Very High	The impact is significant with recovery not possible following mitigation. The impact presents a fatal flaw.

In addition to determining the individual impacts against the various criteria, the element of mitigation, where relevant, will also be brought into the EIR. In such instances, the impact will be assessed with a statement on the mitigation measure that could/should be applied. Specialist recommendations and mitigation measures will also be included. A more detailed assessment will be carried out in the EIR phase.

7.3.3 Impact Reversibility

The EIA Regulations also call for the consideration of the reversibility of impacts, as well as the degree to which the impact can cause irreplaceable loss of resources. These criteria are described in Table 10 below:

Table 10: Additional Assessment Criteria Considered

Criteria Description	Description
Reversibility of Impact	
The extent to which the impacts are reversible	Yes The impact is reversible within two years following construction
	No The impact is reversible within 2 to 10 following construction
Loss of Resources	
The degree to which the impact can cause irreplaceable loss of resources	Low The impact results in the loss of resources but the natural, cultural and social processes/functions are not affected.
	Medium The loss of resources occurs but natural, cultural and social processes continue, albeit in a modified manner.
	High The impact results in the irreplaceable loss of resources.

7.4 Specialist Studies

As previously mentioned, a number of specialist studies were undertaken in 2024 as a requirement of The Dartford Trust's Water Use Licence Application (WULA) for the proposed development of the dam. These studies included:

- Wetland Impact Assessment;
- Wetland Offset & Rehabilitation Plan;
- Hydropedology Impact Assessment;
- Geohydrological Impact Assessment; and
- Hydrological Study.

It is important to consider that the abovementioned studies were conducted for the specific property where proposed dam is to be located, as well as the broader 500m regulated area required for the Applicant's WULA. Additionally, the studies addressed the farm's existing sludge dams which have been used to irrigate pastures, and were previously not authorised under the NWA. Therefore, for the requirements of this application for Environmental Authorisation, studies and specific information applicable to the proposed development of the dam is being used to inform this EIA process.

Additional specialist studies required for this application for Environmental Authorisation identified by the DFFE Screening Tool (attached as Appendix H), and agreed upon during the pre-application meeting with EDTEA are as follows:

- Terrestrial Biodiversity Impact Assessment;
- Visual & Landscape Impact Assessment;
- Agricultural Assessment; and
- Heritage Impact Assessment.

The abovementioned studies have been completed and briefly discussed in Section 6 of this report. The results of all specialist studies will be discussed in detail in the EIR. It is not anticipated that additional specialist studies will be required. The specialist studies are attached as Appendix E.

8. CONCLUDING STATEMENT

A Scoping & EIR process is being followed for the proposed development of a dam on Dartford Farm, located along the Coleford Road in the Underberg area of KwaZulu-Natal. The proposed dam will have a full capacity of 1 500 000m³, and will cover an area of approximately 37ha. This Draft Scoping Report is currently being circulated to interested and affected parties (I&APs) for a 30-day review and comment period. This Draft Scoping Report was undertaken to present a description of the proposed activity, and to identify potential environmental and socio-economic issues associated with the project. Comments raised by I&APs following review of this report will be incorporated in the Final Scoping Report, and will subsequently be addressed in the EIR phase.

This Draft Scoping Report being undertaken in terms of NEMA, summarises the EIA process to be undertaken as part of the application for Environmental Authorisation, considered alternatives, and any comments raised to date by I&APs. The positive and negative impacts of the proposal are summarised as follows:

Positive Aspects/Impacts:

- The proposed dam development will contribute to the efficient use of a scarce resource as well as the existing water use right;
- The creation of new employment opportunities, both skilled and unskilled, and the retainment of existing jobs;
- As per the Terrestrial Biodiversity Impact Assessment as well as the Wetland Assessment, the proposed project property is not located within a CBA or ESA, and the grassland type, Drakensberg Foothill Moist Grassland is classified as "least threatened". The vegetation occurring on the project property is considered disturbed due to historical and current agricultural practices.
- The proposed dam will fit into the visual character of the area;
- As per the Wetland Offset & Rehabilitation Plan, it is proposed that the remaining portions of the unaffected seep wetlands be rehabilitated to offset the direct wetland loss, potentially improving the quality of ecosystem services already provided by the wetlands; and
- The proposed dam will create a new open water habitat attracting waterbirds and other water-loving species. Effectively designed and managed farm dams can attract a variety of birds, insects, and animals to the area which can contribute to the conservation of biodiversity.

Negative Impacts:

- Loss of wetland habitat (approx. 26.94ha of seep wetland area);
- Loss of indigenous vegetation within the Drakensberg Foothill Moist Grassland vegetation type due to water inundation;
- Habitat fragmentation as a result of landscape transformation, decreasing suitable habitat for a wide range of fauna in the area;
- Potential interference with the terrestrial ecological corridors along the Ekamanzi River;
- Potential for soil erosion and sedimentation particularly during the construction of the dam wall, leading to deterioration of the remaining wetland portions located within the project property;
- Potential for soil and groundwater pollution during construction of the dam wall as well as during irrigation of the cultivated pastures during the operational phase of the dam;
- Loss of agricultural land for the development of the proposed dam;
- Nuisance impacts such as noise, dust, and waste generation during the construction phase.

Any further issues raised during the Public Participation Process will be incorporated into the subsequent Final Scoping Report and will be addressed during the EIR phase. A full impact assessment will be conducted during the EIR phase.

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