BURLINGTON FARMING (PTY) LTD

EXPANSION OF DAIRY FARM (2004 – 2009)

S24G REPORT

5th JUNE 2023

DRAFT S24G REPORT

CLOSING DATE FOR REVIEW AND SUBMISSION OF COMMENTS 11th JULY 2023

SUPPORTING DOCUMENT TO THE APPLICATION FOR THE REGULARISATION OF UNLAWFUL COMMENCEMENT OR CONTINUATION OF A LISTED ACTIVITY OR WASTE MANAGEMENT ACTIVITY IN TERMS OF SECTION 24G OF THE NATIONAL ENVIRONMENTAL MANAGEMENT ACT, 1998 (ACT NO. 107 OF 1998), AS AMENDED

ENVIRONMENTAL ASSESSMENT PRACTITIONER	**APPLICANT**
isi-Xwiba Consulting (C J Bradfield) 16 Milner Street Queenstown 5319 Contact: Chris Bradfield	Burlington Farming (Pty) Ltd PO Box 50 Cookhouse 5820 Contact: Mr J Every
Tel: 083 441 1189	Tel: 082 652 5105
Email: isix@lcom.co.za	Email: jeff@ACS360.co.za

DEDEAT REFERENCE No.:

PROJECT DETAILS

DEDEAT REF NO: …….

TITLE: BURLINGTON FARMING (PTY) LTD – EXPANSION OF DAIRY FARM (2004 – 2009) – S24G REPORT

AUTHOR: CHRIS BRADFIELD

APPLICANT / CLIENT: BURLINGTON FARMING (PTY) LTD

REPORT STATUS: S24G REPORT – FOR REVIEW

SUBMISSION DATE: 5th JUNE 2023

C. J. Bradfield

.....
CHRIS BRADFIELD

CONTENTS

LIST OF ANNEXURES

ABBREVIATIONS

ABSP	Addo Bioregional Sector Plan
CARA	Conservation of Agricultural Resources Act, 1983 (Act 43 of 1983)
CBA	Critical Biodiversity Area
DAFF	Department of Agriculture, Forestry and Fisheries
DEA	Department of Environmental Affairs
DEDEAT	Department of Economic Development, Environmental Affairs & Tourism
DIR	Draft Impact Report
DALRRD	Department Agriculture, Land Reform & Rural Development
DRDAR	Department of Rural Development & Agrarian Reform (Eastern Cape)
DWS	Department of Water & Sanitation
EA	Environmental Authorisation
EAP	Environmental Assessment Practitioner
ECBCP	Eastern Cape Biodiversity Conservation Plan, 2007
ECO	Environmental Control Officer
EC PHRA	Eastern Cape Provincial Heritage Resources Agency
EIA	Environmental Impact Assessment
EIR	Environmental Impact Report
EMPr	Environmental Management Programme
ha	Hectare
I&APs	Interested and Affected Parties
NEMA	National Environmental Management Act, 1998 (Act 107 of 1998), as amended
NEM: BA	National Environmental Management: Biodiversity Act, 2004 (Act 10 of 2004)
NHRA	National Heritage Resources Act, 1999 (Act 25 of 1999)
NWA	National Water Act, 1998 (Act 36 of 1998)
PPP	Public Participation Process
SAHRA	South African Heritage Resources Agency
SANRAL	South African National Roads Agency Limited
ToR	Terms of Reference

1 INTRODUCTION

1.1 INTRODUCTION

Burlington Farming (Pty) Ltd purchased the property registered as Remainder Portion 1 (Burlington) of Farm Doorndraai No. 144 and took over the dairy farming operations on 2nd February 2004 and subsequently expanded the farming operations to make the enterprise economically viable.

In 2019 Burlington Farming (Pty) LTD made the decision to change the farming operation from dairy to citrus. The farm while remaining in the same company has seen periodic changes in ownership since purchase and the original shareholders who did the initial development (2004 – 2009) had mostly sold their shares and the new shareholders amalgamated with a citrus operation. An EIA process was initiated in October 2019 in order to apply for an Environmental Authorisation (EA) to clear and cultivate an additional ±82 ha of natural vegetation and to construct associated irrigation infrastructure. The PPP in terms of the Regulations together with pre-application draft SR was conducted over a 2-year period as various development options were considered and discarded until finalizing the development plan.

However prior to submission of the application for an EA, the current shareholders realized that the previous shareholders may have unintentionally transgressed in terms of NEMA when implementing the historic development (2004-2009). The current shareholders wish to ensure that the historical as well as the proposed citrus development is compliant with all the relevant legislation As a result the current Directors of Burlington Farming (Pty) LTD have taken the decision to approach DEDEAT to rectify any illegal activity that might have been unintentionally transgressed.

Note: It remains the intention of Burlington Farming (Pty) LTD to submit an application for an EA for the planned citrus development after rectification of the historic development via this application in terms of Section 24G.

At the time of purchase the primary land use was dairy farming with cultivated pastures under flood irrigation and Center pivot irrigation covering an estimated area of 233.3 ha. The remainder of the farm being 626.5111 ha was natural grazing area, servitude areas viz. railway line and the canal area for the Hougham Abrahamson irrigation Scheme (HAIS).

The expansion programme over the period February 2004 to end 2009 of the dairy infrastructure and pastures to milk 1 600 cows included the following:

- Clearance of indigenous vegetation and cultivation of virgin land on an area 271.9 ha in extent for the establishment of pastures under center pivot and sprinkler irrigation including farm access cattle walk-ways/roadways for dairy cows and farm machinery (2004 – 2009)
- Construction of a dairy parlour with rotary platform, administration office, tanks for storage of milk prior to collection, dairy cow feed storage, ablution facility for the employees, water storage tanks and two steel tanks for effluent water (2004)
- Construction of effluent storage dams for disposal of animal waste and waste water from washing the dairy (2004)

- Construction of 6 pump stations on the Hougham Abrahamson Irrigation Scheme canal, being a registered water source for the farm (2004 – 2007)

1.2 PURPOSE OF THE IMPACT REPORT

The purpose of this report is to:

(i) Identify the activities requiring regularisation in terms of section 24G of NEMA;

(ii) assess the potential impact on the environment resulting from the development;

(iii) determine remedial actions that may be required; and

(iv) set out operational and management activities for continuation of the farming enterprise.

1.3 STRUCTURE OF THIS ENVIRONMENTAL IMPACT REPORT

Government Notice 326 dated 7th April 2017 titled, Amendments to the Environmental Impact Assessment Regulations, 2014 and Appendix 3(3) thereof explicitly requires specific content to be addressed in the Environmental Impact Report. The Table hereunder indicates the contents of a typical EIR.

Contents of a typical Environmental Impact Report

CONTENT AS REQUIRED BY NEMA	SECTION
EAP and expertise of the EAP	2
Location of the activity	3
Plan indicating the location of the activity(ies)	4
Description of the proposed activity(ies) with associated NEMA activities	5
Description of the policy and legislative context within which the development is proposed	6
Motivation for the need and desirability for the development	7.1
Motivation for the development footprint within the approved site	7.2
Full description of the process followed to reach the development footprint	7.3
Full description of the process undertaken to identify, assess and rank the impacts the activity and associated structures and infrastructure will impose on the development footprint on the approved site	11
An assessment of each identified potentially significant impact and risk	13
Summary of the findings and recommendations of any specialist report complying with Appendix 6 to these Regulations and an indication as to how these findings and recommendations have been included in the final assessment report	1
An environmental impact statement	16
Based on the assessment, and where applicable, recommendations from specialist reports, the recording of proposed impact management outcomes for the development	17

Final proposed alternatives which respond to the impact management measures, avoidance, and mitigation measures identified through the assessment	
Any aspects which were conditional to the findings of the assessment either by the EAP or specialist which are to be included as conditions of authorisation	17
A description of any assumptions, uncertainties and gaps in knowledge which relate to the assessment and mitigation measures proposed	18
A reasoned opinion as to whether the proposed activity should or should not be authorised, and if the opinion is that it should be authorised, any conditions that should be made in respect of that authorisation	19
Where the proposed activity does not include operational aspects, the period for which the environmental authorisation is required and the date on which the activity will be concluded and the post construction monitoring requirements finalised	20
Undertaking under oath by the EAP	Annexure A
Where applicable, details of any financial provision for the rehabilitation, closure, and ongoing post decommissioning management of negative environmental impacts	21
Specific information that may be required by the competent authority	22
Any other matters required in terms of section 24(4)(a) and (b) of the Act	23

1.4 EIA PROCESS TO DATE

To date, the EIA process has unfolded as set out hereunder.

1.4.1 Pre-S24G - Proposed Citrus & Associated Works

Actions in terms of EIA process

Action	Date
Meet with client to discuss the project and identify possible I&APs	16th October 2019
Pre-inception meeting with DEDEAT	25th October 2019
Initiate the public participation process by placing an advert in the local newspaper, erecting a project sign board at a conspicuous place and providing notices of intent to all identified I&APs	7th November 2019
Consultation with screening desk (Pretoria)	6th January 2020
Run screening test	13th January 2020
Public meeting and site inspection for I&APs	14th January 2020
Consultation with DEDEAT re: Screening Report	16th January 2020
Compilation and submission of DSR (1st Iteration) to I&APs for comment	28th February 2020
Consultative meeting with DWS, GFRWUA and HAIS Board	9th October 2020
On-going consultation between Applicant and HAIS re: proposed hydro-electric plant	9th October 2020 to 18th January 2021
Consultative meeting between Applicant and GFRWUA	25th February 2020
Compilation and submission of DSR *(Pre-Application Version II)* to I&APs for review and comment	4th May 2021

1.4.2 Application in terms of S24G

Actions in terms of S24G process

Action	Date
Decision by Directors to withhold application for EA for the proposed Citrus project and to submit an application in terms of S24G for rectification of unauthorised development	19th November 2021
Pre-inception meeting with DEDEAT to advise of decision	16th March 2022
Advise identified I&APs (proposed Citrus project) of withholding of application for EA for proposed Citrus project and envisaged submission in terms of S24G	6th December 2022
Submission of application in terms of S24G	22nd February 2023
DEDEAT Compliance & Enforcement site inspection	26th May 2023
Submission of Draft S24G Report to Stakeholders and I&APs for 30-day review	7th June 2023

2 ENVIRONMENTAL ASSESSMENT PRACTITIONER

2.1 APPOINTMENT

isi-Xwiba Consulting CC (Mr C. J. Bradfield) is appointed by Burlington Farming (Pty) LTD to implement the application in terms of S24G of the National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended.

2.2 EXPERTISE

The EAP, Mr Chris Bradfield is a registered as an:

(i) Environmental Assessment Practitioner (member no. 2022/4543) with the Environmental Assessment Practitioners Association of South Africa;

(ii) Professional Natural Scientist (member no. 400354/04) with the South African Council for Natural Scientific Professions (Agricultural Science); and

(iii)Member of the Chamber of Engineering Technology (member no. 200230145); and

(iv) former member of ECSA - Professional Engineering Technician (**Retired**)

The *Curricula Vitae* of the Environmental Assessment Practitioner is included in **Annexure B.**

2.3 INDEPENDENCE

The requirement for independence of the environmental consultant is aimed at reducing the potential for bias in the environmental process. isi-Xwiba Consulting CC does not have any current interest in secondary or downstream developments that may arise out of the authorisation of the proposed project. Individual project members do not have any personal or business interests in the development except as part of their functions as described in their employment agreement with isi-Xwiba Consulting CC.

The details of the EAP and declaration of interest in terms of Regulations 12 and 13 of the Amendments to the Environmental Impact Assessment Regulations, 2014 as amended is included in **Annexure A**.

3 LOCATION OF THE DEVELOPMENT

3.1 SURVEYOR-GENERAL CODE

Surveyor-General 21-digit code - C01000000000014400001

3.2 TITLE DEED INFORMATION

Land owner: Burlington Farming (Pty) LTD

Description: Remainder Portion 1 (Burlington) of the farm Doorndraai No. 144 located in the Nxuba Municipality, Registration Division of Bedford, Eastern Cape Province.

Title Deed: T000023192/2004, dated 2nd February 2004 in the name of Zelpy 2208 (Proprietary) Limited with Registration No. 2003/027734/07. The company name Zelpy 2208 (Pty) Ltd has subsequently been changed to Burlington Farming (Pty) Ltd with registration No. 2003/027734/07.

Changes by the Municipal Demarcation Board have resulted in the farm now being located within the Blue Crane Route Local Municipality area of jurisdiction and not Nxuba Municipality as indicated in the Title Deeds.

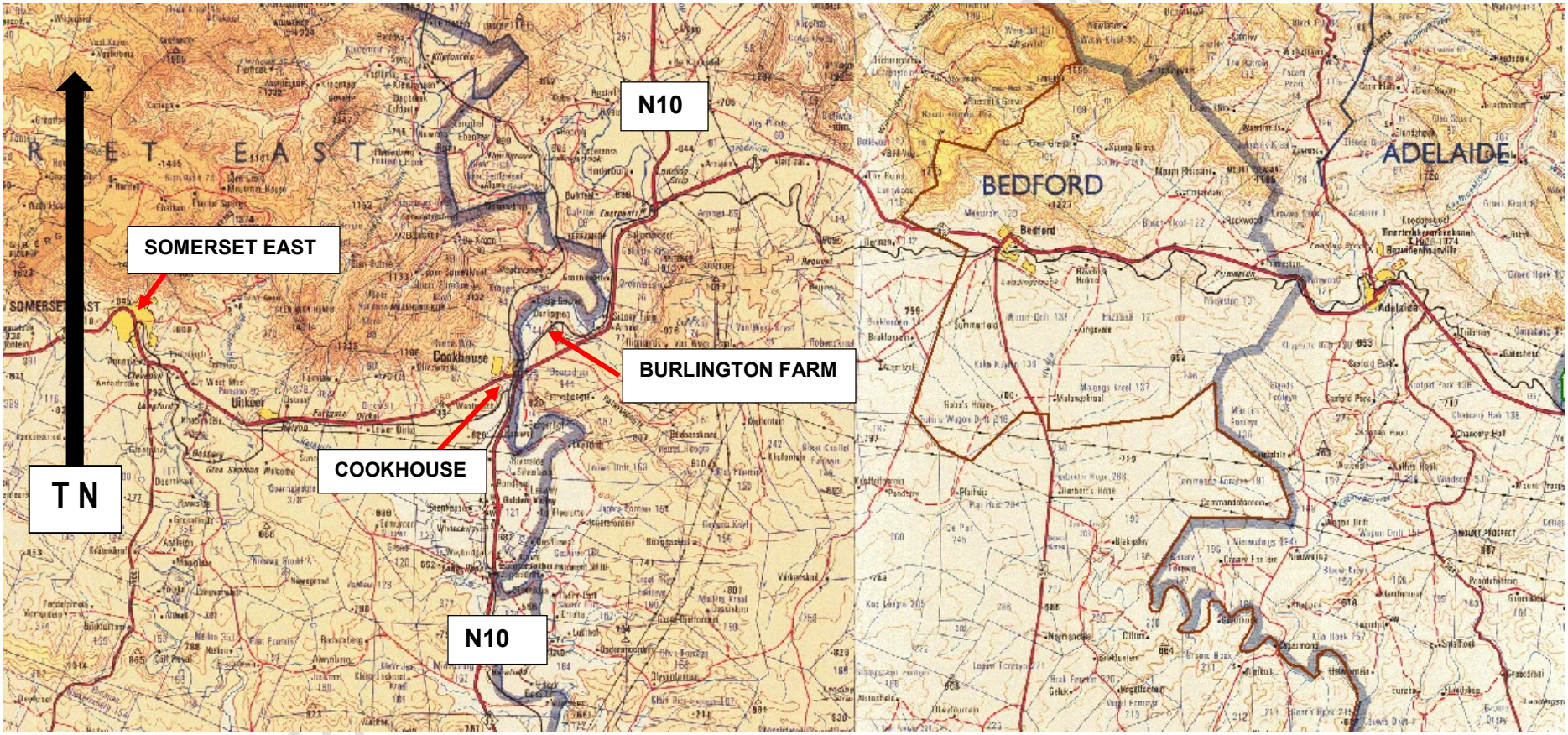
Extent: 859.8111 hectare

3.3 WATER MANAGEMENT AREA

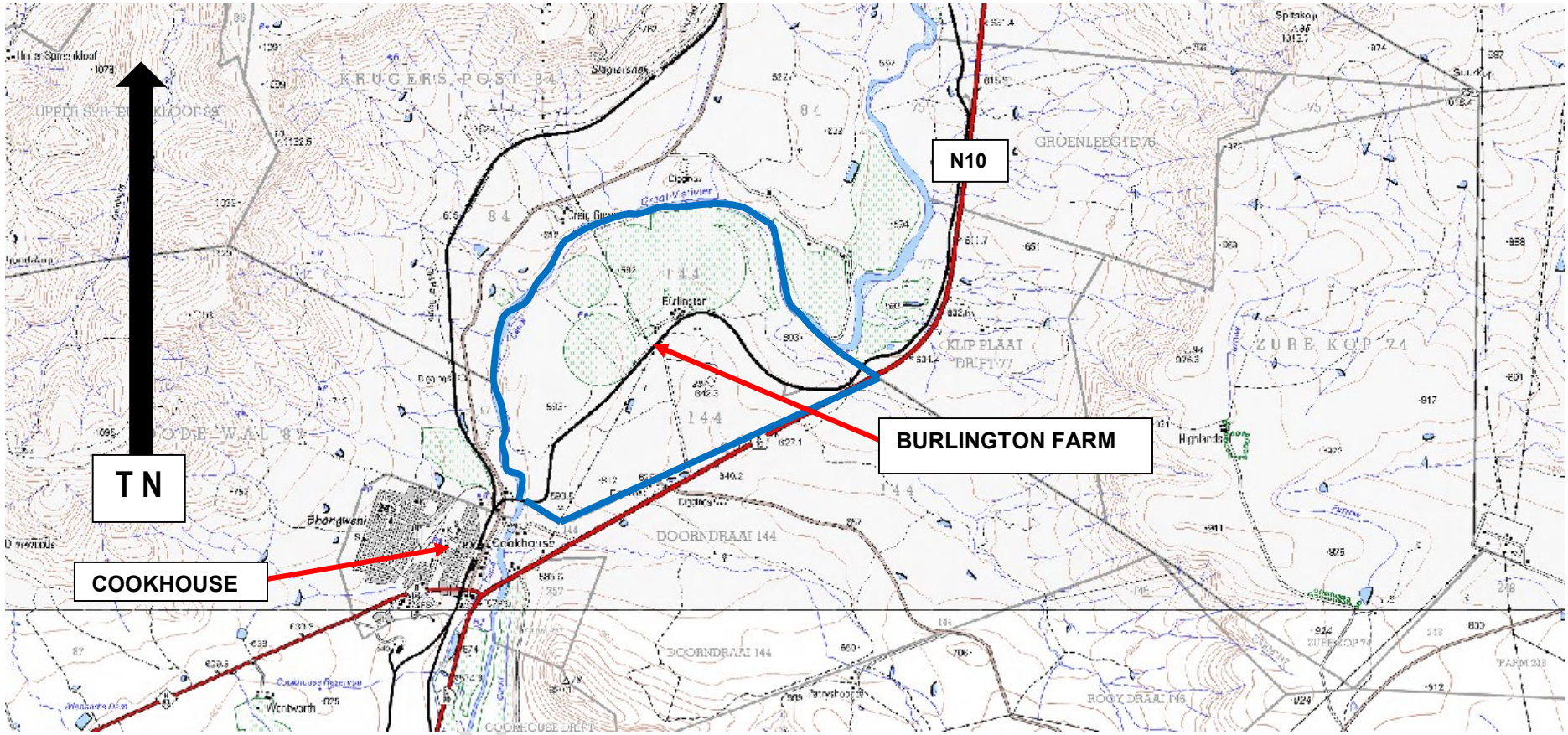
The Water Resources of South Africa, 2012 (WR2012) indicates that the study area is located within the Fish to Tsitsikamma WMA (15) and quaternary catchment Q70A.

4 LOCALITY MAPS - FOOTPRINT, FLOODLINE, DEVELOPMENT TIMELINE

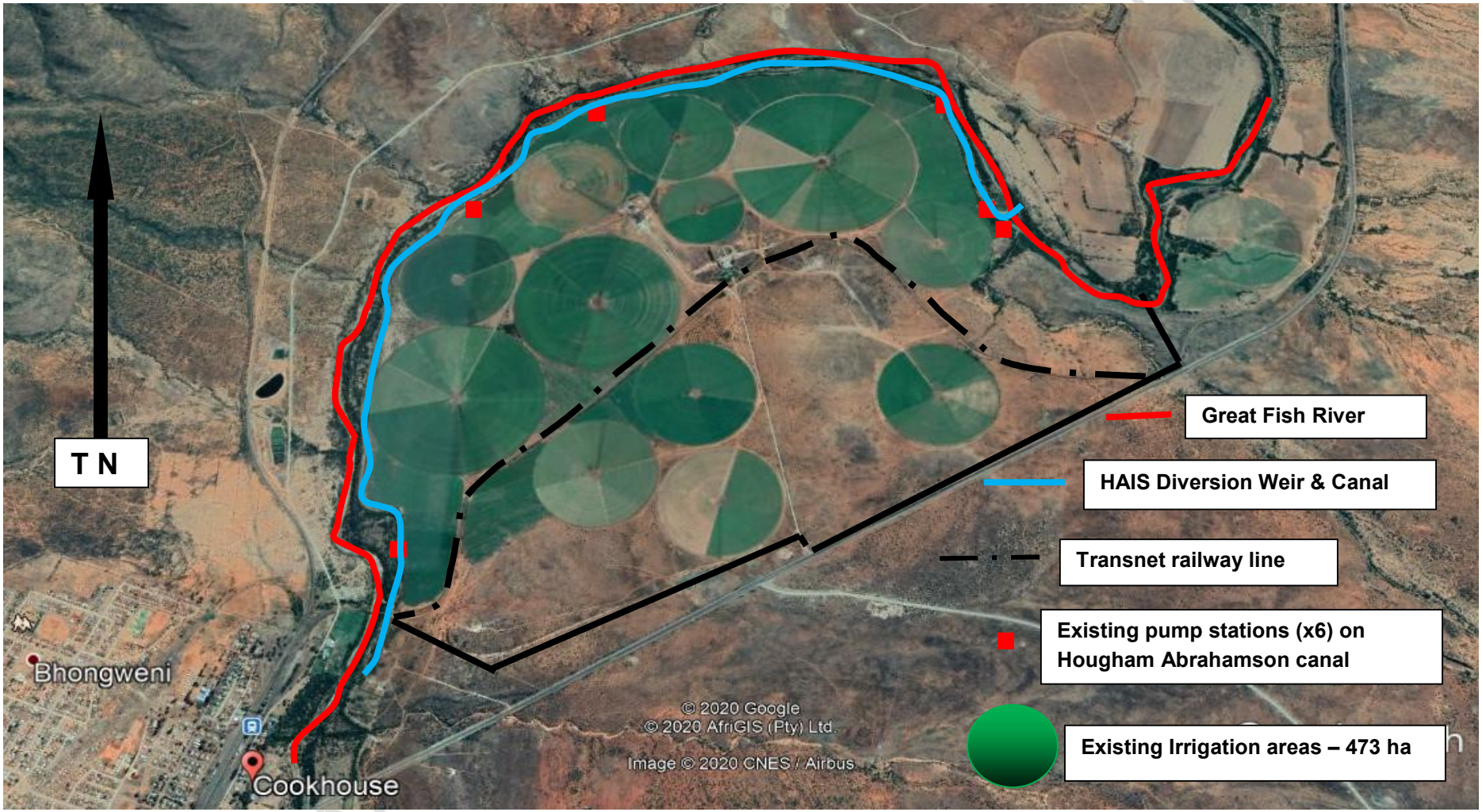
4.1 LOCALITY MAP (1:250 000)



4.2 LOCALITY MAP (1:50 000)

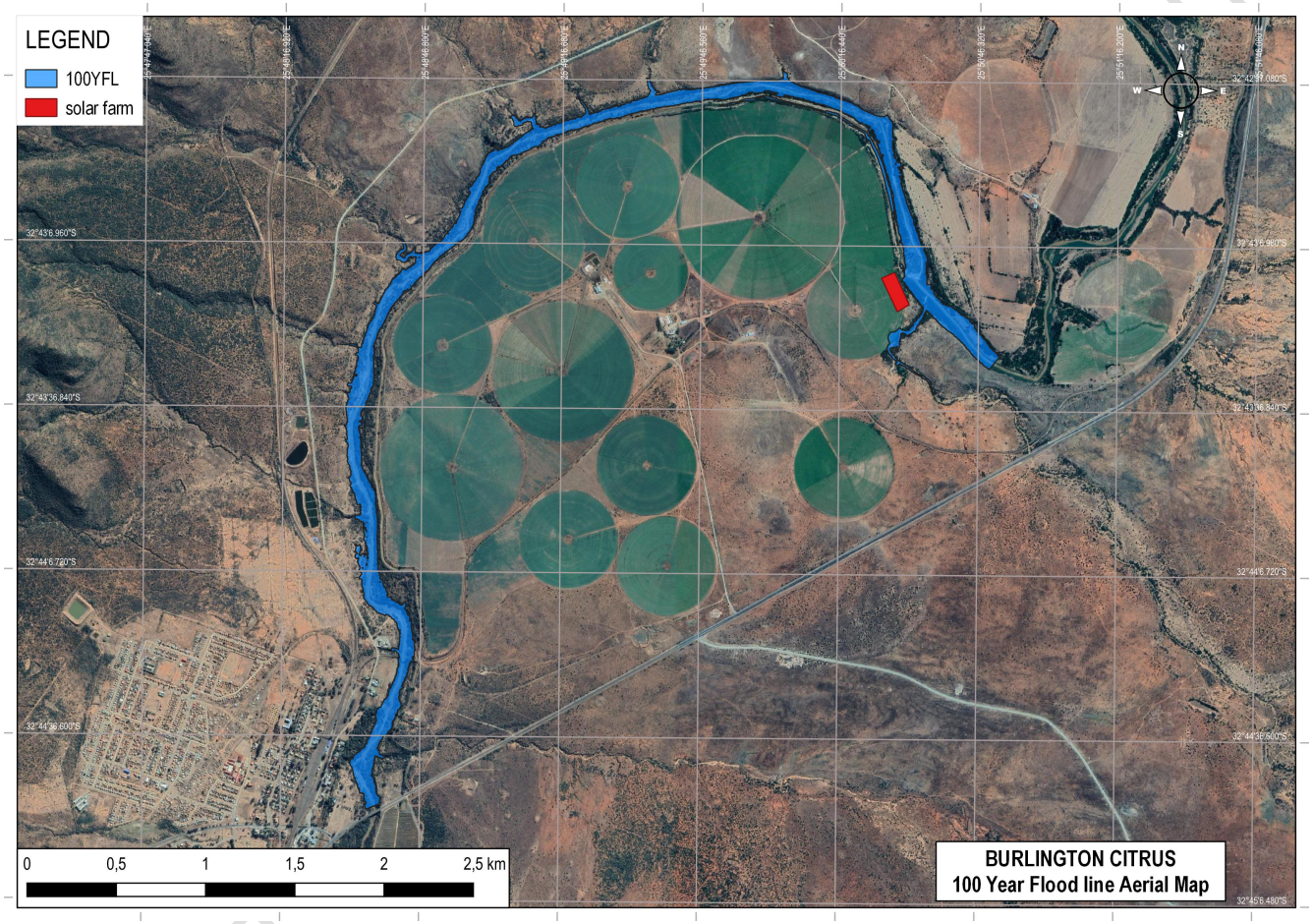


4.3 DEVELOPMENT FOOTPRINT



4.4 PASTURE LAYOUT

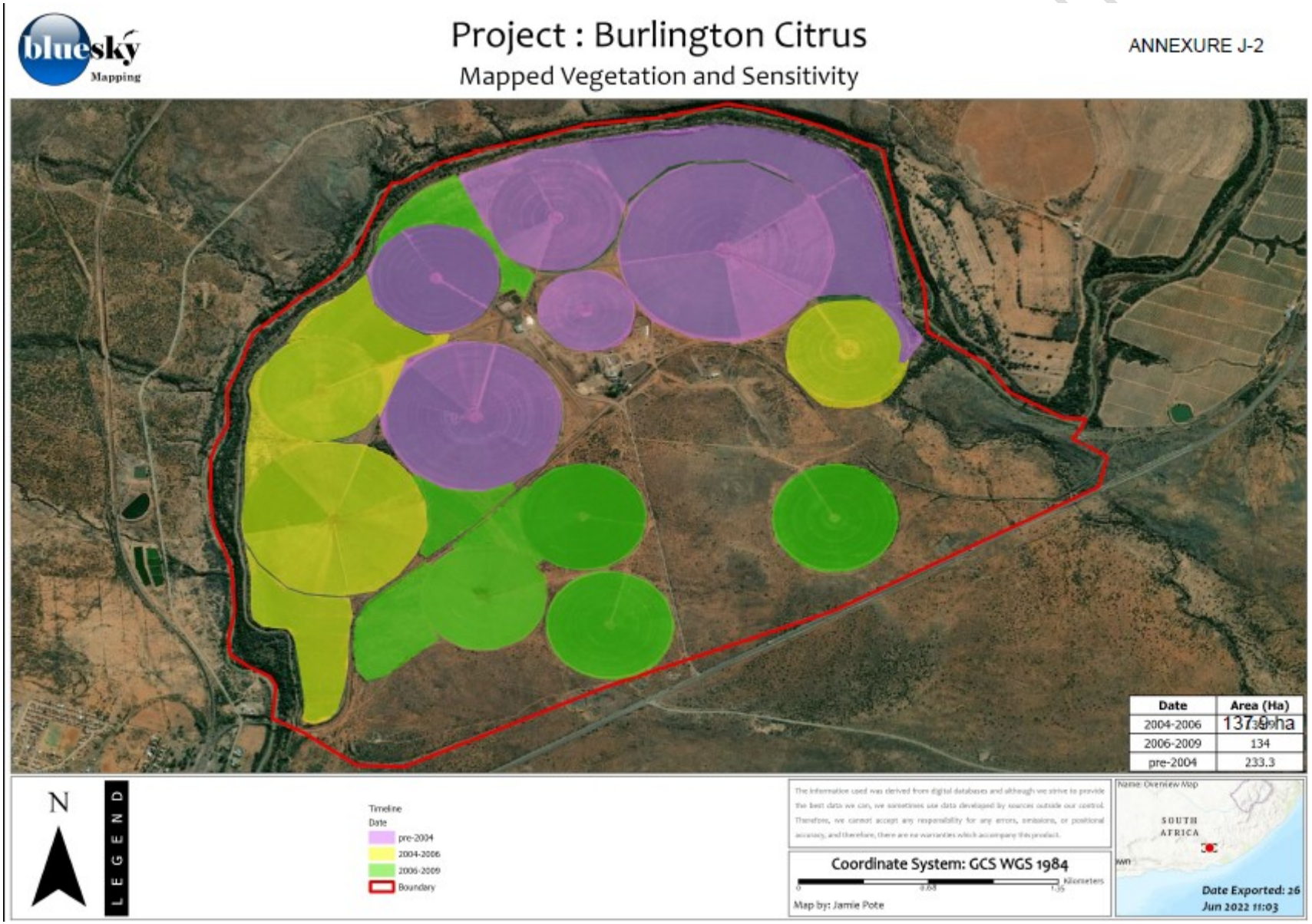
4.5 FLOOD LINE (1-IN-100 YEAR)



Compiled by Bosch Projects (2021)

NOTE: Pasture development did not ingress into the 100-year flood line, which is delineated as being below the Hougham Abrahamson Irrigation Canal

4.6 DEVELOPMENT TIMELINE



5 DESCRIPTION OF DEVELOPMENT ACTIVITIES IN TERMS OF ENVIRONMENTAL LEGISLATION

5.1 LISTED ACTIVITIES

5.1.1 ECA, Act No 73 of 1989, as amended

ECA EIA Contraventions : Between 10 May 2002 and before end of day 02 July 2006	
Activities unlawfully commenced with on or after 10 May 2002 and before end 02 July 2006: EIA Regulations promulgated in terms of the ECA, Act No 73 of 1989, as amended	
Listed Activity(ies)	**Details of Activity(ies)**
2(d)	Change in land use from natural grazing to cultivated pastures under irrigation, including clearance for on-farm access road ways/tracks as walk-ways for dairy cows and use by farm machinery and construction of effluent dams covering a total area of 137.9 ha.
8	The disposal of animal waste (organic) and effluent water into earth storage dams where the effluent water is linked to the washing out of the dairy parlour and "standing apron" twice per day after milking. The final effluent water is used to irrigate pastures and the dried animal waste spread over cultivated lands
10	The cultivation or any other use of virgin ground linked to Activity 2(d) and on an area of 137.9 ha in extent

5.1.2 NEMA, Act No 107 of 1998, as amended

NEMA EIA Contraventions : Between 03 July 2006 and before end of day 01 August 2010	
Activities unlawfully commenced with in terms of the EIA Regulations promulgated in terms of the NEMA, Act No 107 of 1998, as amended on or after 03 July 2006 and before end of day 01 August 2010	
Government Notice No. R386 Activity No(s):	**Details of Activity(ies) requiring Basic Assessment**
Government Notice No. R387 Activity No(s):	**Details of Activity(ies) requiring a Scoping Report and EIA**
2	Any development activity, including associated structures and infrastructure, where the total area of the developed area is, or is intended to be, 20 hectares or more where the actual development area cleared, cultivated and erection of irrigation systems covers an area of 134 ha

5.2 DESCRIPTION OF ASSOCIATED STRUCTURES AND INFRASTRUCTURE ASSOCIATED WITH THE DEVELOPMENT

Burlington Farming (Pty) Ltd purchased the property as a going concern (dairy farm) in February 2004 and immediately initiated an expansion and development programme in order to milk 1 600 cows. This development included the following:

(i) Clearance of indigenous vegetation and cultivation of virgin land and expansion of existing flood irrigation areas for the establishment of pastures under center pivot and sprinkler irrigation including farm access roadways for dairy cows and farm machinery on 271.9 ha of land. Areas developed as follows:

- February 2004-end of day on 2nd July 2006 – 137.9 hectares
- 3rd July 2006 to 2009 – 134 hectares

(ii) Construction of a dairy parlour with rotary platform, administration office, bulk tanks for storage of milk prior to collection, ablution facility for the employees, feed storage silos, erection of water storage tanks, erection of steel effluent water tanks (2004). This development did not require clearance of natural vegetation as it had been cleared and impacted upon, prior to the farm being purchased by Burlington Farming (Pty) Ltd. Development included:

- Steel frame structure housing rotary milking parlour with brick and cement administrative office, room for bulk milk tanks, staff canteen and ablution facility measuring ±918 m²
- Outside concrete floor area for cows pre- and post-milking measuring ±1 242 m²
- Five (5) x 10 000 litre “Jojo” water tanks
- Spray dip
- Three (3) feed storage silos
- Two (2) steel tanks to store effluent water pumped from the dairy floor
- Five (5) pump stations constructed on the existing Hougham Abrahamson Irrigation Scheme Canal and one (1) at the weir
- Seven (7) centre pivot irrigation systems covering an area of 196.9 ha
- Permaset irrigation systems on an area of 74 ha
- The cattle walk-way/farm machinery access roads are not considered to be “Roads” as defined in ECA or NEMA 2006 Regulations as there are no engineered designed layer works. These areas are included under the “areas cleared” – see “Other activities” hereunder

(iii) Construction of effluent storage dams for the disposal of animal waste and waste water from washing the dairy floor (2004). This development did not require clearance of natural

vegetation as it had been cleared prior to the farm being purchased by Burlington Farming (Pty) Ltd. These effluent water/animal (organic) waste storage dams cover an area of ±7 000 m² and consists of three (3) dams with overflow water leading to a fourth dam from which water is irrigated onto the pastures.

- Effluent water discharge from the dairy and floor stand area is estimated at 40 m³ per day
- Animal waste (manure) washed into the effluent dams is estimated at 1 600 kg/day

(iv) Construction of 6 pump stations on the Hougham Abrahamson Irrigation Scheme canal, being a registered water source for the farm (2004 – 2007). Development did not require clearance of original riparian habitat as pump station footprints are within areas impacted upon by the original construction of the Hougham Abrahamson Irrigation Scheme canal.

6 APPLICABLE LEGISLATION AND GUIDELINES

6.1 LEGAL REQUIREMENTS

The legal framework within which this project occurs, includes, but may not be not limited to:

(i) The Environmental Conservation Act, 1989 (Act 73 of 1989) ("ECA"), as amended, 2002

(ii) The National Environmental Management Act, 1998 (Act 107 of 1998) ("NEMA"), as amended, 2006, 2010 and 2014;

(iii) The National Environmental Management: Biodiversity Act, 2004 (Act 10 of 2004) ("NEM: BA");

(iv) The National Environmental Management: Waste Act, 2008 (Act 59 of 2008) ("NEM: WA")

(v) The Conservation of Agricultural Resources Act, 1983 (Act 43 of 1983) ("CARA");

(vi) The National Water Act, 1998 (Act 36 of 1998) (:NWA");

(vii) The National Heritage Resources Act, 1999 (Act 25 of 1999) ("NHRA")

(viii) The Eastern Cape Biodiversity Conservation Plan (2007), a guideline document and not legislated is used for identification of Critical Biodiversity Areas (CBA's)

This EIA process (S24G) is aimed to meet the specific requirements of the ECA (2002 to 2006) and NEMA EIA Regulations promulgated on 21 April 2006.

NOTE: The Eastern Cape Biodiversity Conservation Plan (2019) and the Addo Biodiversity Sector Plan (2012) are not considered as these were not applicable at the time of the development.

6.1.1 Environmental Conservation Act, 1989, as amended

The Environment Conservation Act 73 of 1989 intended to provide for the effective protection and controlled utilization of the environment and for matters incidental thereto. This report will consider the Amendment of the ECA EIA Regulations as set out in GNR 670 and GNR 672 of 10th May 2002 and terminating on 2nd July 2006.

6.1.2 National Environmental Management Act, 1998 as amended

The EIA Regulations (2006) and subsequent amendments including those of 2010, 2014 and 2017 promulgated in terms of NEMA identify certain activities which require authorisation from the competent environmental authority, in this case DEDEAT, before commencing with development. Activities listed in Listing Notice No's 1 and 3 of 2017 require a Basic Assessment, while those listed in Listing Notice No. 2 of 2017 require Scoping Report and Environmental Impact Report. This report will consider the 2006 EIA Regulations promulgated in terms of NEMA as set out in GNR 385, 386 and 387 of 21st April 2006 and applicable from 3rd July 2006 to 1st August 2010.

Furthermore, Section 28(1) of NEMA states: "*every person who causes 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 pollution cannot be prevented then appropriate measures must be taken to minimise or rectify such pollution. The applicant therefore has the responsibility to ensure that the proposed activity, as well as the EIA process conforms to the principles of NEMA. The NEMA principles (that are the most relevant to the proposed project) are summarised below:

(2) Environmental management must place people and their needs at the forefront of its concern, and serve their physical, psychological, developmental, cultural and social interests' equitably.

(3) Development must be socially, environmentally and economically sustainable.

(4)(a) Sustainable development requires the consideration of all relevant factors including avoiding:

- Disturbance of ecosystems and loss of biological diversity;
- Pollution and degradation of the environment;
- Disturbance of landscapes and sites that constitute the nation's cultural heritage;
- Waste

(b) Environmental management must be integrated, acknowledging that all elements of the environment are linked and interrelated.

(e) Responsibility for the environmental health and safety consequences of a policy, programme, project, product, process, service or activity exists throughout its life cycle.

(f) The participation of all interested and affected parties in environmental governance must be promoted, and all people must have the opportunity to develop the understanding, skills and capacity necessary for achieving equitable and effective participation, and participation by vulnerable and disadvantaged persons must be ensured.

(i) The social, economic and environmental impacts of activities, including disadvantages and benefits, must be considered, assessed and evaluated, and decisions must be appropriate in the light of such consideration and assessment.

(k) Decisions must be taken in an open and transparent manner, and access to information must be provided in accordance with the law.

(o) The environment is held in public trust for the people, the beneficial use of environmental resources must serve the public interest and the environment must be protected as the people's common heritage.

6.1.3 National Environmental Management: Biodiversity Act

The Act provides for the management and conservation of South Africa's biodiversity within the framework of the National Environmental Management Act, 1998; the protection of species and ecosystems that warrant protection; the fair and equitable sharing of benefits arising from bioprospecting involving indigenous biological resources; the establishment and functions of a

South African National Biodiversity Institute; and for matters connected therewith. Permits may be required if listed plants are impacted upon and require that these be up-rooted and transplanted.

6.1.4 National Environmental Management: Waste Act

The NEM: WA aims:

- to reform the law regulating waste management in order to protect health and the environment by providing reasonable measures for the prevention of pollution and ecological degradation and for securing ecologically sustainable development;
- to provide for institutional arrangements and planning matters;
- to provide for national norms and standards for regulating the management of waste by all spheres of government;
- to provide for specific waste management measures;
- to provide for the licensing and control of waste management activities;
- to provide for the remediation of contaminated land;
- to provide for the national waste information system;
- to provide for compliance and enforcement; and
- to provide for matters connected therewith

6.1.5 Conservation of Agricultural Resources Act

The objects of this Act are to provide for the conservation of the natural agricultural resources by the maintenance of the production potential of land, by the combating and prevention of erosion and weakening or destruction of the water sources, and by the protection of the vegetation and the combating of weeds and invader plants. The construction of this dam is regulated via NEMA and the NWA. The Preservation and Development of Agricultural Land Bill is not yet promulgated.

6.1.6 National Water Act

The purpose of this Act is to ensure that the nation's water resources are protected, used, developed, conserved, managed and controlled in ways in which take into account amongst other factors-

- meeting the basic human needs of present and future generations
- promoting equitable access to water
- redressing the results of past racial and gender discrimination
- promoting the efficient, sustainable and beneficial use of water in the public interest
- facilitating social and economic development; providing for growing demand for water use
- protecting aquatic and associated ecosystems and their biological diversity
- reducing and preventing pollution and degradation of water resources
- meeting international obligations
- promoting dam safety
- managing floods and droughts

The National Water Act (Act No 36 of 1998) notes that development within 500 m of a water body or wetland, impeding stream flow, water storage and altering stream embankments require an authorisation. Depending on site sensitivity this approval may be through a General Authorisation or alternatively a Water Use Licence must be applied for.

6.1.7 National Heritage Resources Act

In terms of the NHRA, any person who intends to undertake "*any development … which will change the character of a site exceeding 5 000 m^2 in extent*", *"the construction of a road, power line, pipeline…exceeding 300 m in length"* or *"the rezoning of site larger than 10 000 m^2 in extent…"* must at the very earliest stages of initiating the development notify the responsible heritage resources authority, *viz.* EC PHRA who would in turn indicate whether or not a full Heritage Impact Assessment ("HIA") would need to be undertaken.

6.1.8 Eastern Cape Biodiversity Conservation Plan (2007 & 2019)

The ECBCP (ECBCP2007) has been revised and is now termed ECBCP 2019. The revision included: an updated land cover map, changes to Provincial borders, a large body of environmental and biodiversity data that has been generated over the past 10 years; and the development of approximately 29 other environmental and biodiversity plans for parts of the Province that require integration. In addition, significant strides have been made with respect to defining and mapping biodiversity pattern and biodiversity processes, which have been standardised to ensure a level of consistency throughout the country (SANBI, 2017). The ECBCP 2019 has replaced the ECBCP 2007 in its entirety, however the ECBCP (2007) is applicable to this study.

The ECBCP (2007) encompasses four terrestrial Biodiversity Land Management Classes (BLMCs), which result from grouping the various terrestrial CBAs. This grouping is set out in the table below. Terrestrial BLMCs set out the desired ecological state of a parcel of land. Only land use types that are compatible with maintaining this desired state should be allowed.

CBA MAP CATEGORY	BLMC	LAND USE OBJECTIVE
CBA 1 (not degraded)	BLMC 1	Natural landscapes – Maintain biodiversity in as natural state as possible. Manage for no biodiversity loss
CBA 1 (degraded) CBA 2	BLMC 2	Near natural landscapes – Maintain biodiversity in near natural state with minimal loss of ecosystem integrity. No transformation of natural habitat should be permitted.
Other Natural Areas (ONA)	BLMC 3	Functional landscapes – Manage for sustainable development, keeping natural habitat intact in wetlands (including wetland buffers) and riparian zones. Environmental authorisations should support ecosystem integrity.
Transformed areas	BLMC 4	Transformed landscapes – Manage for sustainable development

6.1.9 Guidelines

This report is guided by the:

(i) Amendment to the ECA EIA Regulations dated 10th May 2022 to end of day 2nd July 2006;

(ii) 2006 EIA Regulations promulgated in terms of NEMA as set out in GNR 385, 386 and 387 of 21st April 2006 and applicable from 3rd July 2006 to 1st August 2010;

(iii) National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004);

(iv) National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008); and

(v) ECBCP (2007)

6.2 COMPLIANCE OF DEVELOPMENT WITH AND IN RESPONSE TO LEGISLATION AND POLICY

The primary legislation applicable to the expansion and development activities as contemplated in the application in terms of S24G of NEMA is discussed hereunder.

Legislation and/or Policy	**Compliance (YES or NO) in terms of NEMA and/or comment as applicable**
6.2.1 ECA, Act No 73 of 1989, as amended	
GNR 670 & 672 – Activity 2(d): The change of land use from grazing to any other form of agricultural use	**NO**
GNR 670 & 672 – Activity 8: The disposal of waste as defined in Section 20 of the Act	**NO**
GNR 670 & 672 – Activity 10: The cultivation or any other use of virgin ground	**NO**
6.2.2 NEMA, Act 107 of 1998, as amended	
GN 387 – Activity 10: Any development activity, including associated structures and infrastructure, where the total area of the developed area is, or is intended to be, 20 hectares or more.	**NO**
6.2.3 CARA (Act 43, 1983)	
2. Cultivation of virgin land (1) Except on authority of a written permission by the executive officer, no land user shall cultivate any virgin soil: Provided that such authority shall not be required in respect of virgin land for which an approval has been granted in terms of section 4A of the Forest Act, 1972 (Act 68 of 1972).	**NO** DALRRD as the Authority for CARA. As a listed Stakeholder (I&AP) will be included in the S24G process.
3. Cultivation of land with a slope (1) Except on authority of a written permission by the executive officer, no land user shall cultivate any land if it- (a) has a slope of more than 20 per cent; or (b) has a slope of more than 12 per cent, is situated in an area specified in column 1 of Table 1, consists mainly of soil of a soil form and soil series respectively specified in columns 2 and 3 of the said Table opposite the area concerned and, if applicable, has such physical properties as may be specified in column 4 of the said Table opposite the soil series concerned.	**Not applicable** Slope is <20% Farm locality not in a listed area
4. Protection of cultivated land against erosion through the action of water (1) Every land user shall by means of as many of the prescribed measures as are necessary in his situation,	No erosion through action of

protect the cultivated land on his farm unit effectively against excessive soil loss as a result of erosion through the action of water.	water noted on cultivated areas Impact assessed in section 10
5. Protection of cultivated land against erosion through the action of wind (1) Every land user shall by means of as many of the prescribed measures as are necessary in his situation, protect the cultivated land on his farm unit effectively against excessive soil loss as a result of erosion through the action of wind.	**Not Applicable** No erosion through action of wind noted on cultivated areas Impact assessed in section 10
6. Prevention of waterlogging and salination of irrigated land (1) Every land user shall by means of as many of the prescribed measures as are necessary in his situation, protect the irrigated land on his farm unit effectively against waterlogging and salination.	**Not applicable** No waterlogging or salination of land noted on cultivated areas Impact assessed in section 10
7. Utilisation and protection of vleis, marshes, water sponges and water courses (1) Subject to the provisions of the Water Act, 1956 (Act 54 of 1956), and sub regulation (2) of this regulation, no land user shall utilise the vegetation in a vlei, marsh or water sponge or within the flood area of a water course or within 10 metres horizontally outside such flood area in a manner that causes or may cause the deterioration of or damage to the natural agricultural resources. (2) Every land user shall remove the vegetation in a water course on his farm unit to such an extent that it will not constitute an obstruction during a flood that could cause excessive soil loss as a result of erosion through the action of water.	**Not applicable** No vleis, marshes, water sponges and water courses impacted upon Impact assessed in section 10
8. Regulating of the flow pattern of run-off water (1) Subject to the provisions of the Water Act, 1956 (Act 54 of 1956), no land user shall in any manner whatsoever divert any run-off water from a water course on his farm unit to any other water course, except on authority of a written permission by the executive officer. (2) The provisions of sub regulation (1) shall not apply in respect of run-off water that is diverted from one water course to another in terms of the provisions of a water run-off control plan approved by the department. (3) The provisions of regulation 2(2) and (3) shall apply *mutatis mutandis* with regard to an application for a permission referred to in sub regulation (1). (4) No land user shall effect an obstruction that will disturb the natural flow pattern of run-off water on his farm unit or permit the creation of such obstruction unless the provision for the collection, passing through and flowing away of run-off water through, around or along that obstruction is sufficient to ensure that it will not be a cause for excessive soil loss due to erosion through the action of water or the deterioration of the natural agricultural resources. (5) No land user shall remove or alter an obstruction in the natural flow pattern of run-off water on his farm unit if such removal or alteration will result in excessive soil loss due to erosion through the action of water or the deterioration of the natural agricultural resources.	**Not applicable** Flow pattern of run-off water not diverted or impeded

6.2.4 NWA (Act 36 of 1998), as amended	
21(g) Disposing of waste in a manner which may detrimentally impact on a water resource	**NO** DWS as the Authority for the NWA are a listed Stakeholder (I&AP) and will be included in the S24G process. Applicant has appointed a specialist to implement the WULA or GA as directed by DWS
6.2.5 NHRA (Act 25 of 1999), as amended	
Heritage Resources Management 38.(1) Subject to the provisions of subsections (7), (8) and (9), any person who intends to undertake a development categorised as- *(a)* the construction of a road, wall, powerline, pipeline, canal or other similar form of linear developments or barrier exceeding 300 m in length; *(b)* any development or other activity, which will change the character of a site- (i) exceeding 5 000 m² in extent *(e)* any other category of development provided for in Regulations by SAHRA or a Provincial Heritage Resources Authority (in this case ECPHRA) Must at the very earliest stages of initiating such a development, notify the responsible heritage resources authority – (usually undertaken by archaeology and cultural heritage and palaeontology specialists) 38(8) The provisions of this section do not apply to a development as described in subsection (1) if an evaluation of the impact of such development on heritage resources is required in terms of the ECA, 1989 or the integrated environmental management guidelines issued by the DEAT or the Minerals Act, 1991 or any other legislation. Providing that the consenting authority must ensure that the evaluation fulfils the requirements of the relevant heritage resources authority in terms of subsection (3) and any comments and recommendations of the relevant heritage resources authority with regard to such development have been taken into account prior to the granting of the consent	**NO** ECPHRA as the Authority for the NHRA are a listed Stakeholder (I&AP) and will be included in the S24G process. Applicant has appointed specialists (archaeology/cultural heritage and palaeontology) to undertake the required studies and submission to ECPHRA

6.3 ASSUMPTIONS AND LIMITATIONS

6.3.1 Assumptions

In undertaking this investigation and compiling this Environmental Impact Report, it has been assumed that the information provided by the applicant and other role-players such as Authorities and specialists is accurate.

6.3.2 Gaps in knowledge

There are no gaps in knowledge. Independent specialists have been appointed to undertake required assessments.

7 MOTIVATION FOR THE PROJECT

7.1 MOTIVATION FOR THE NEED AND DESIRABILITY FOR THE DEVELOPMENT INCLUDING THE NEED AND DESIRABILITY OF THE ACTIVITY

The property was purchased in February 2004 as a "going concern" and the land use at time of purchase was primarily dairy farming. The dairy farming operation pre-February 2004 comprised of milking of 180 cows and 5 employees with a Gross Farm Income (GFI) of R 4.5m per annum.

Spiralling input costs necessitated the expansion of the dairy (economy of scale) providing for the milking of 1 600 cows, employment of 52 staff of which 50 are PDI's and a GFI of R 46.4m pa.

The development as contemplated in this application in terms of S24G has had a significant positive socio-economic impact in terms of GFI and employment opportunities for the impoverished community at Cookhouse.

7.2 MOTIVATION FOR THE PREFERRED DEVELOPMENT FOOTPRINT

Preferred development footprint was based on the identification of areas of medium and high potential soils

7.3 FULL DESCRIPTION OF THE PROCESS FOLLOWED TO REACH THE DEVELOPMENT FOOTPRINT

Farm development plan based on identification of areas of medium and high potential soils and coupled to irrigation design layouts to maximise sustainable use of the available agricultural resources in order to operate an economically sustainable dairy farming operation.

8 THE PUBLIC PARTICIPATION PROCESS

8.1 INTRODUCTION

Consultation with I&APs forms an integral component of an EIA process and enables, *inter alia,* directly affected and neighbouring landowners, civic groups, stakeholders/Authorities and the general community to raise and/or identify issues and concerns relating to the proposed activity, which they feel should be addressed in the EIA process. The approach to this public participation process ("PPP") has taken cognisance of:

- the DEA guideline GN 807 dated 12th October 2012 and titled Publication of Public Participation Guideline; and
- GN 326 dated 7th April 2017 titled Amendments to the Environmental Impact Assessment Regulations, 2014 – Chapter 6

The PPP for a typical EIA can be separated into the phases discussed hereunder.

- *Initiation of the Public Participation Process:* During this phase identified Stakeholders, I&APs including adjoining land owners and Municipalities are notified of the initiation of the application to apply for authorisation for a proposed project to enable these parties to register and raise issues and concerns at the outset of the environmental investigation/assessment. I&APs were notified via a written notice, advertisement in the Hartland Nuus as well as signage at the entrance to the farm on the N10. An I&AP register was opened and will be maintained for the duration of the project (refer to Table 8.1 hereunder).
- *Comment on the Draft Reports:* during the EIA process, whether a Basic Assessment Report (BAR), Scoping and Environmental Impact Assessment (SR-EIR) or S24G process, registered I&APs are provided with an opportunity (30-day period) to comment on the Draft Reports. Comment by I&APs is enabled by the lodging of the reports at a suitable location or provision of electronic copies and invitations to comment.
- *Decision and Appeal period:* this is the final phase of the PPP. Once the competent authority has issued their decision, the applicant and registered I&APs are notified of the decision and have the opportunity to appeal to the MEC for Economic Development and Environmental Affairs.

NOTE:

(i) In 2019 Burlington Farming (Pty) LTD made the decision to change the farming operation from dairy to citrus. The farm while remaining in the same company had seen periodic changes in ownership since purchase and the original shareholders who did the initial development (2004 – 2009) had mostly sold their shares and the new shareholders amalgamated with a citrus operation. An EIA process was initiated in October 2019 in order to apply for an Environmental Authorisation (EA) to clear and cultivate an additional ±82 ha of natural vegetation and to construct associated irrigation infrastructure. The PPP in terms of the Regulations together with pre-application draft SR was conducted over a 2-year

period as various development options were considered and discarded until finalizing the development plan.

(ii) At no time during the citrus EIA process (Nov 2019 to September 2021) was any query raised by any I&AP in respect of the historic development implemented by Burlington Farming (Pty) Ltd on the property

(iii) The EIA for the citrus project with associated infrastructure was put on hold in October 2021 as the current Director's contemplated the initiation of the S24G process

(iv) It is assumed that the proposed PPP as discussed in the Application in terms of S24G and the PPP completed to date is acceptable to DEDEAT and that future consultation in terms of this application will be with the registered I&APs and Stakeholders as listed in Table 8.1

(v) The PPP conducted over the period 2019 – 2021 is considered appropriate and summarised in section 8.2 hereunder and the list of Stakeholders and I&APs set out in Table 8.1.

8.2 PPP (2019-2021) PRIOR TO S24G PROCESS

PPP documentation for the EIA process linked to the proposed Citrus and associated infrastructure development (pre-S24G process) is included in Annexure C to indicate the broad consultation that was conducted. The PPP relevant to the proposed Citrus development and associated infrastructure conducted over the period November 2019 – April/May 2021 (pre-S24G process) is discussed hereunder as background information and proof of consultation included in Annexure C (Pages 1 – 109).

8.2.1 Initiation of public participation process

The approach adopted for the initiation of the EIA process was to identify as many I&APs as possible by erecting signage at the entrance to the farm, placing a public notice in the local newspaper (Hartland Nuus) and providing written notice to potential I&APs, including immediate and surrounding landowners/users, the Great Fish River Irrigation Scheme Water User Association, organs of state, the ward councillor, the Blue Crane Local Municipality, Sarah Baartman District Municipality, SANRAL, Transnet Freight Rail and EC PHRA.

8.2.2 Register of Interested and Affected Parties (I&APs)

The initial register of I&APs was compiled using a list of stakeholders. The initial database formed the basis for the I&AP Register and includes directly affected landowners, relevant district and local municipal officials, relevant national, provincial and local government officials and stakeholders. Notices and or the BID of the EIA process were provided to each of the parties listed hereunder. No additional I&APs registered as a result of the advert in the Hartland Nuus or the signage on the N10 at the entrance to the project site.

This I&AP register has been updated and includes parties who came to the fore during the EIA consultation process; See Table 8.1.

Table 8.1: Register of Identified Stakeholders and I&APs

Name & Contact Number	Address	E-mail address	Response YES or NO
Department: Rural Development & Agrarian Reform District Director Mr T Nyokana Tel: 041 402 6307	64 Govan Mbeki Ave. Old Mutual Building, 9th Floor Port Elizabeth Private Bag X6012 Port Elizabeth	Thembani.Nyokana@drdar.gov.za	NO
Department: Rural Development & Agrarian Reform Mr R Maloma Tel: 082 334 3102	64 Govan Mbeki Ave Old Mutual Building 8th Floor, Office No. 803 Port Elizabeth	Ruffus.Maloma@drdar.gov.za	NO
Department: Rural Development & Agrarian Reform Mr A Snyman Tel: 042 243 1149	2 Southey Street Somerset East	Andre.Snyman@drdar.gov.za	NO
Department: Agriculture Directorate Land Use & Soil Management **Now DALRRD** Mr G P Dumse Tel: 043 704 6800	9 Arundel Crescent, Arundel Park Office, Stirling, East London Private Bag X 4 Tecoma East London	GcinileD@dalrrd.gov.za	YES
Department Water & Sanitation Ms M Bloem Tel: 041 501 0717	Private Bag X6041, Port Elizabeth,	BloemM@dws.gov.za	YES
Department Water & Sanitation Ms J Murray Tel: 048 881 3005	50 Sprigg Street Cradock	murrayj@dws.gov.za	NO
Department Water & Sanitation Mr K Viljoen Tel: 041 508 9700	Lion Roars Office Park Cnr Heugh Rd & 3rd Avenue Walmer, Port Elizabeth	viljoek@dws.gov.za	NO
Great Fish River Water Users Association (GFRWUA) Ms N Murray Tel: 048 881 2408	PO Box 55 Cradock	natalie@grootvis.co.za	YES
Hougham Abrahamson Irrigation Scheme (HAIS) Mr J Slabbert Tel: 082 624 6616	HAIS Cookhouse	johanzjd@bosberg.co.za	YES
EC PHRA ~~Mr S Mokhanya~~ ~~Tel: 043 745 0891~~ **New Contact person**	16 Commissioner Street, East London, 5201	~~smokhanya@ecphra.org.za~~	NO

Mrs Ayanda Mncwabe-Mama 043 492 1940		info@ecphra.org.za	
SANRAL Southern Region: Project Manager Mr D Adams Tel: 041 398 3200	20 Shoreward Drive Bay West Port Elizabeth	adamsd@nra.co.za	NO
Transnet Freight Rail Eastern Cape Ms Zanele Shweni Tel: 083 409 8727	No.1A Cambridge street Room 204 East London	zanele.shweni@transnet.co.za	NO
Municipal Manager Sarah Baartman District Municipality Ms U Daniels Tel: 041 508 7111	32 Govan Mbeki Ave, Central, Port Elizabeth PO Box 318, Port Elizabeth	bbotha@sbdm.co.za	NO Acknowledged receipt only
Municipal Manager Blue Crane Route Local Municipality ~~Mr T Klaas~~ **New MM** Mr M Nini Tel 042 243 6400	PO Box 21, Somerset East 67 Nojoli Street, Somerset East	mmanager@bcrm.gov.za	NO
Ward Councillor – Ward 1 Blue Crane Route Local Municipality ~~Mr Kwatsha - 073 158 2734~~ **New Councillor** Mr S Baskiti – 063 992 3767	PO Box 21, Somerset East 67 Nojoli Street, Somerset East	~~tshepokwatsha@gmail.com~~ baskitisidwell@gmail.com	YES No objection noted
Bedford Farmers' Association ~~Mr C Brockwell-0722489817~~ **New Chairperson** Mr S Pringle 072 992 5633	Hudson Street Bedford	Notice delivered by hand 30/11/2019 kelso@bosberg.co.za	NO
Adjoining land owners/users – Note: Two adjoining properties changed ownership since inception			
Krugers Post ~~Mr X Hena~~ ~~072 227 4489~~ **New contact person** Mr M Winnaar 069 182 4396	Krugers Post Cookhouse	Notice delivered by hand 8/11/2019 melvin1winnaar@gmail.com	NO
~~Joubert Citrus~~ ~~Mr F Joubert~~ ~~084 951 1922~~ **FARM SOLD - new contact** Mr J Wilke 082 477 2013	~~Joubert Citrus~~ ~~Cookhouse~~ Wilgrow (Pty Ltd) Cookhouse	Notice delivered by hand 8/11/2019 wilgrowpty@gmail.com louisw6105@gmail.com	NO
Rand Iconto (Mr M Ehlers) 072 614 2714	Rand Iconto Cookhouse	Notice delivered by hand 8/11/2019 michal@goldenridge.co.za	NO

Additional I&APs identified during the EIA consultative process (2019 – 2021)			
Great Fish River Water Users Association (GFRWUA) Mr J Nel Tel: 048 881 2408	PO Box 55 Cradock	jnel@grootvis.co.za	YES
Great Fish River Water Users Association (GFRWUA) Mr H C Kotze Tel: 048 881 2408	PO Box 55 Cradock	christo@grootvis.co.za	YES
Department Water & Sanitation Mr Dweni Tel: 082 953 2313	140 Govan Mbeki Avenue Starport Building, 7th Floor Port Elizabeth	DweniN@dws.gov.za	
Department Water & Sanitation Mr H Chauke Tel: 082 888 3313	140 Govan Mbeki Avenue Starport Building, 7th Floor Port Elizabeth	chaukeh@dws.gov.za	
Department Water & Sanitation Mr S Ngcobo Tel: 041 501 0732	140 Govan Mbeki Avenue Starport Building, 7th Floor Port Elizabeth	ngcobos@dws.gov.za	
Department Water & Sanitation Mr M Maneli Tel: 041 501 0738 Mobile: 082 881 9846	140 Govan Mbeki Avenue Starport Building, 7th Floor Port Elizabeth	manelim@dws.gov.za	
Ayanda Petela Branch Lines Transnet Freight Rail Tel: 011 583 0387 Mobile: 071 872 1371	Transnet Freight Rail Waterfall Business Estate 9 Country Estate Drive Midrand 1662	ayanda.petela@transnet.net	
SENTECH Mr S Motlhake Tel: (011) 471 4400	Private Bag X06 Honeydew 2040	MotlhakeS@sentech.co.za	Not relevant to the S24G process as SENTECH's involvement is iro the proposed solar plant
SACAA Mr Simphiwe Masilela Inspector: Obstacles Procedure Design & Cartography	Private Bag X73, Halfway House 1685	masilelas@caa.co.za obstacles@caa.co.za	Not relevant to the S24G process as SACAA's involvement is

Cell: 066 435 7642			iro the proposed solar plant and of-stream storage dam

8.2.3 Background on pre-S24G PPP (2019 – 2021)

8.2.3.1 Compilation and distribution of Background Information Document

On 7th November 2019 a Notice and/or BID was distributed to I&APs. It provided information on the proposed project to encourage stakeholders to register as I&APs as well as to assist them to provide preliminary issues and/or concerns regarding the proposed project for consideration in the EIA process. The notice also outlined the legal requirements regarding environmental authorisation as well as explained the EIA process, and in particular focussed on how I&APs could become involved at the requisite stages. Notices/BID included a registration form to be completed and returned to confirm I&AP interest and registration as such. The Notice/BID stated clearly that subsequent correspondence and or opportunity to comment on draft documents would be limited to those I&APs who registered.

8.2.3.2 Advertising in newspaper

An advertisement for the EIA process appeared in the local newspaper (Hartland Nuus) on 7th November 2019. The advertisement briefly described the proposed project and the legal requirements associated with the EIA process in terms of NEMA and invited members of the public to register as I&APs and raise any initial issues or concerns about the proposed project. The advertisement stated clearly that subsequent correspondence and or opportunity to comment on draft documents would be limited to those I&APs who registered.

8.2.3.3 Correspondence with I&APs

During the initial PPP, isi-Xwiba Consulting CC e-mailed I&APs requesting registration and comments on the proposed project.

8.2.3.4 Public Meeting

A Public Meeting was held at Burlington Farm on 14th January 2020. The date of this public meeting was included in the Notice/BID/Advertisement at project start-up in accordance with the PPP. The meeting was scheduled to commence at 11h00. The EAP was present from 10h00 at the entrance gate to the property and only left the property at 13h00 - No I&APs attended the meeting, advised that they could not attend or provided an apology. The only parties in attendance were the EAP and the Farm Manager.

8.2.3.5 Consultation with SENTECH

SENTECH were consulted in respect of the proposed solar plant via e-mail communication dated 27th August 2020 (RFI Theme listed as “medium” for the solar development). SENTECH provided a “letter of approval” dated 23rd February 2021. Application must be re-submitted as construction did not commence within 12 months.

8.2.3.6 Consultation with SACAA

SACAA were consulted in respect of the project via e-mail communication dated 1st September 2020 and application for registration of obstacles viz. the off-stream storage dam and the solar panels was submitted on 14th December 2020 and receipt acknowledged by SACAA. No further correspondence has been received from SACAA and it is assumed that no further consultation is required as the height of the structures is below the listed thresholds.

8.2.3.7 Consultation with DWS, GFRWUA & HAIS

Two meetings were held with water authority stakeholders. The first being a zoom meeting held on as 8th September 2020 as requested by Mr Dweni of DWS to serve as an introduction to the development plan. A summary of the development plan was circulated to all parties

The second meeting was facilitated between the applicant, DWS, GFRWUA and the HAIS on 9th October 2020 and took the form of a technical site meeting. The EAP and Mr Mbikwana (specialist dealing with the WULA) were also in attendance. This meeting dealt primarily with the planned development of the hydropower plant utilising "throw-away" water from the HAIS canal and presented by Mr J Every representing the applicant. Discussion followed based on questions from the floor from DWS, HAIS and GFRWUA. Following the meeting the existing "throw-away" area was inspected by DWS, GFRWUA, applicant and the EAP. The HAIS management committee requested to meet on their own.

8.2.3.8 Consultation between applicant and GFRWUA

The applicant met with management of the GFRWUA on 25th February 2021 to discuss the proposed use of the "throw-away" water from the HAIS canal specifically for a hydropower plant. GFRWUA undertook to discuss this with the management board of the HAIS sub-area and to report back to the applicant. Both GFRWUA and HAIS responded in writing to the applicant and the outcome is summarised in section 8.2.1.

8.2.3.9 Consultation with DMRE

The Department Mineral Resources and Energy is the Authority in terms of the Electricity Regulations Act (ERA). DMRE were consulted with regards to the registration/licensing of the renewable energy facility in terms of the ERA. DMRE responded that this was not required as the facility generated <1 MW of power and that the supply would not be linked into the national grid and that is only advisable for the applicant to check with their local distributer (Blue Crane Municipality) in terms of the process they might have to follow in terms of off-grid registration of such facility;

8.2.4 Summary of issues raised by I&APS' Pre-S24G

Table 8.2 Comments received from I&APs'

I&AP	POTENTIAL IMPACTS
DALRRD Directorate Land Use & Soil Management	Application form accompanied by soil classification report to be submitted by the applicant for the planned area of expansion. Directorate Land Use & Soil Management require an EA prior to considering the application for the proposed cultivation
DWS	DWS advised that the department has no objection to the planned development with the understanding that: (i) The applicant is to apply for a WUL in terms of Section 21(b) of the NWA, for the development of the off-stream storage dam (ii) Any development or its associated activity located within the 1:100 year flood line or within 100 m of a watercourse or within 500 m of a wetland will trigger a water use activity in accordance with Section 21(c) and (i) of the NWA and authorisation by DWS must be applied for (iii) The farm has a registered water allocation under the Great Fish River Irrigation Scheme and it is understood from the BID that no additional water will be applied for
GFRWUA	Water use and abstraction from the Great Fish River or associated infrastructure must be authorised by GFRWUA. GFRWUA must be informed and consulted on matters regarding the use and supply of irrigation water as provided by the DWS through the Orange-Fish River water supply scheme
HAIS	Board members of the HAIS advised the applicant that they were unanimous in not supporting the development of the hydropower plant at the time of consultation. **Note – this comment is only applicable to the hydropower plant discussions during 2021 and has no relevance to the S24G process**

8.2.5 Draft Scoping Report (Pre-Application)

Two versions of the Draft Scoping Report (pre-application) were made available to I&APs and identified Authorities. The first review process was interrupted by Covid-19 lockdown and the 30-day review period extended accordingly.

No comments were received following review.

NOTE:
This EIA process for the proposed new development will recommence after successful conclusion of the S24G process

8.3 PUBLIC PARTICIPATION PROCESS IN TERMS OF S24G

Copies of documentation relevant to the PPP associated with the S24G application to date are included in **Annexure C** (Pages 110 – 114)**.**

NOTE:

(i) At no time during the citrus and associated infrastructure EIA process (Nov 2019 to September 2021) was any query or objection raised by any I&AP in respect of the historic development (2004 to 2009) implemented by Burlington Farming (Pty) Ltd on the said property;

(ii) Stakeholders and I&APs identified during the PPP for the 2019 – 2021 EIA process (Table 8.1) will be consulted during the S24G process and no further advertising will be done;

(iii) Stakeholders and DEDEAT have been advised that the original EIA process (Citrus development and associated infrastructure) has been put on hold pending the finalisation of the S24G process and that they will be included in the S24G consultation process for review of the S24G Report. **See Annexure C**.

8.3.1 Application in terms of S24G

Primary I&APs were advised that Burlington Farming (Pty) LTD had decided to submit an application in terms of S24G for the regularisation of unlawful commencement or continuation of a Listed Activity or Waste Management Activity in terms of Section 24G of the National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended.

8.3.2 Draft S24G Report

The Draft S24G Report was made available to the Authority, Stakeholders and I&APs as reflected in the I&AP Register (Table 8.1) for a 30-day review and comment period. All comments received will be assimilated into the final S24G Report, which will then be submitted to the Authority (DEDEAT – Compliance and Enforcement) for further processing in accordance with the S24G process. Copies will be provided electronically as all I&APs have e-mail addresses. Proof of provision to I&APs will be included in the Final S24G Report.

8.3.3 Final S24G Report

Stakeholders and I&APs will be advised when the final S24G Report, inclusive of comments on the Draft S24G Report is submitted to the Authority and will be invited to request a copy should they wish to review the Final S24G Report. Copies will be provided electronically.

9 ENVIRONMENTAL ATTRIBUTES

9.1 INTRODUCTION

The description of the affected environment draws on existing knowledge from published data, previous studies and specialist investigations, site visits and discussions with various stakeholders. It is unlikely that there are any areas with insufficient information as specialist investigations have been conducted and outcomes included in this IR.

The study area is located approximately 2,6 km north-east of Cookhouse on the N10 (R63) and 145 Km from Port Elizabeth. The farm is 859,8111 ha in extent and is commercial farm land zoned “agriculture”. The Transnet railway line and the irrigation canal (Hougham Abrahamson) reduce the actual farm size. The current, primary land use is milk production off of irrigated pastures being 473 ha in extent.

This study area is located at coordinates S -32.723245º and E 25.828049º and 630 m asl. The terrain can be described as rolling.

According to the Water Resources of South Africa, 2012 the area falls within the Mzimvubu to Tsitsikamma Water Management Area 7 (formerly Fish to Tsitsikama 15) and quaternary catchment Q70A, which drains into the Great Fish River.

The purpose of this section of the report is to:

- Describe the existing biophysical and socio-economic environment associated with the project;
- Describe the potential issues or impacts relating to the affected environment that may occur as a result of the activities; and
- Recommend remedial measures if required and set out operational guidelines.

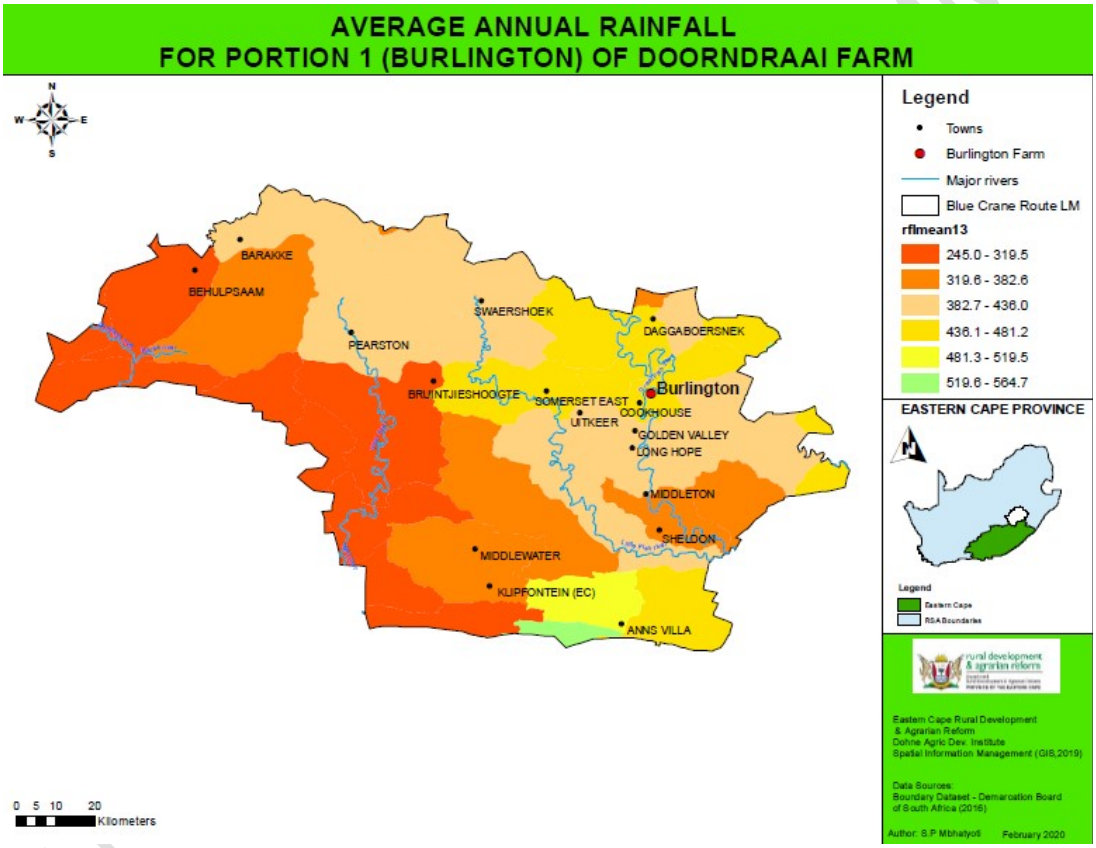
9.1.1 The biophysical environment

9.1.1.1 Climate

The study area lies 630 mm above sea level. Climatic records provided by the Department: Eastern Cape Rural Development & Agrarian Reform, Döhne Agricultural Development Institute, Spatial Information Management (GIS, 2019).

9.1.1.2 Rainfall

The area displays the summer rainfall patterns which characterise the eastern half of South Africa, with peaks in March. The average annual rainfall of the area is 436 – 481 mm. The variation in the precipitation between the driest and wettest months is 47 mm. The study area falls into the Summer Rainfall region.

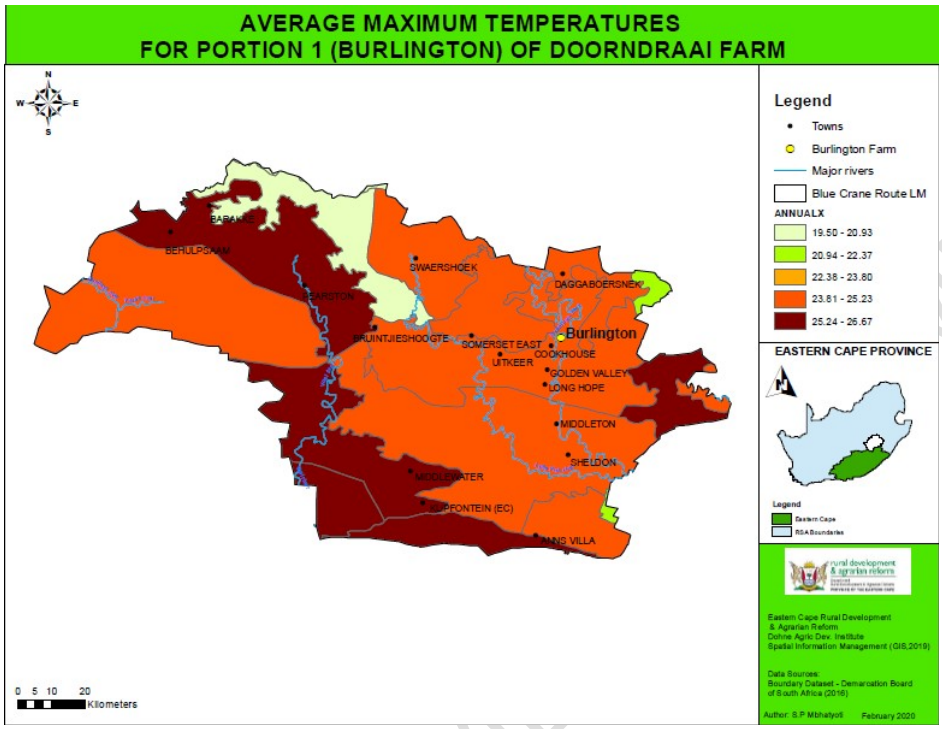


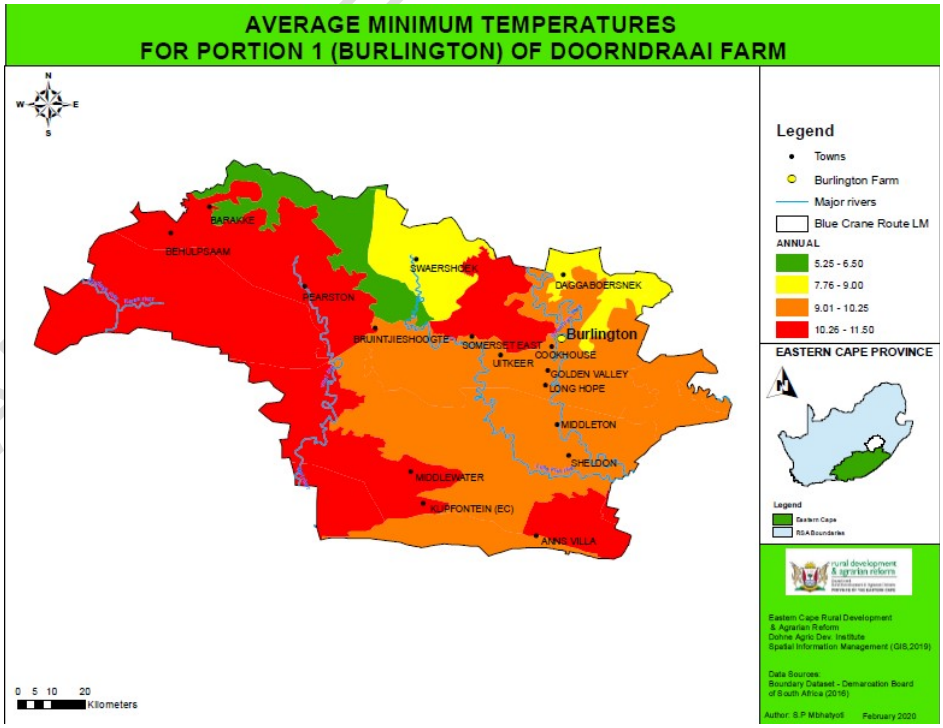
9.1.1.3 Evaporation

According to the Water Resources of South Africa, 2012, the study area falls within the evaporation zone of 2 000 mm – 2 200 mm per annum. Irrigation is therefore required for the cultivation of crops.

9.1.1.4 Temperature

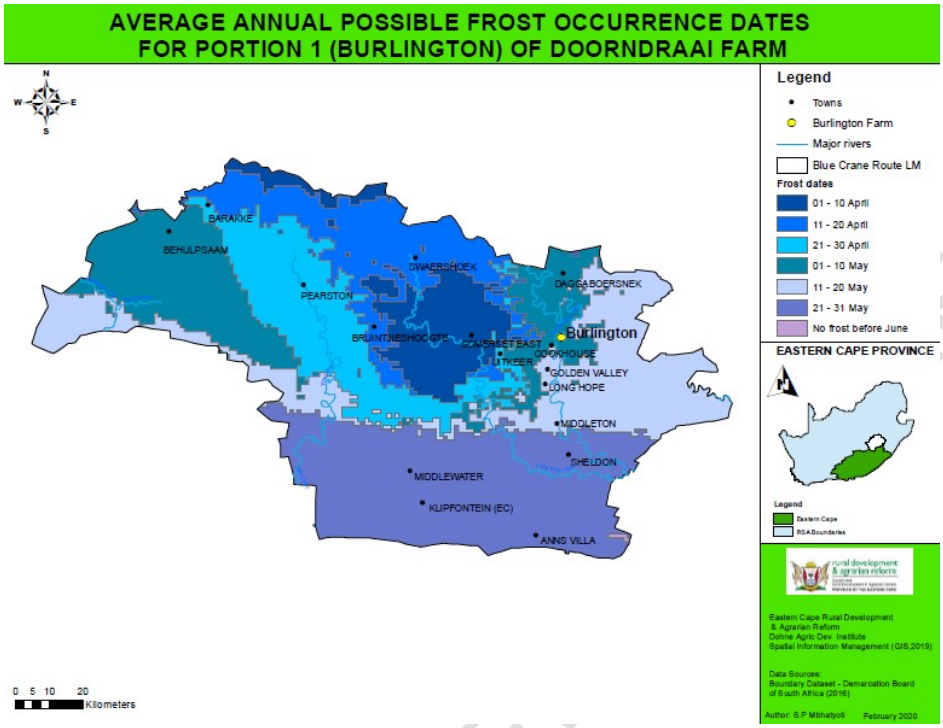
The average maximum temperatures vary between 23.81 ºC to 25.23 ºC and average minimum temperature vary between 9.01 ºC to 10.25 ºC .





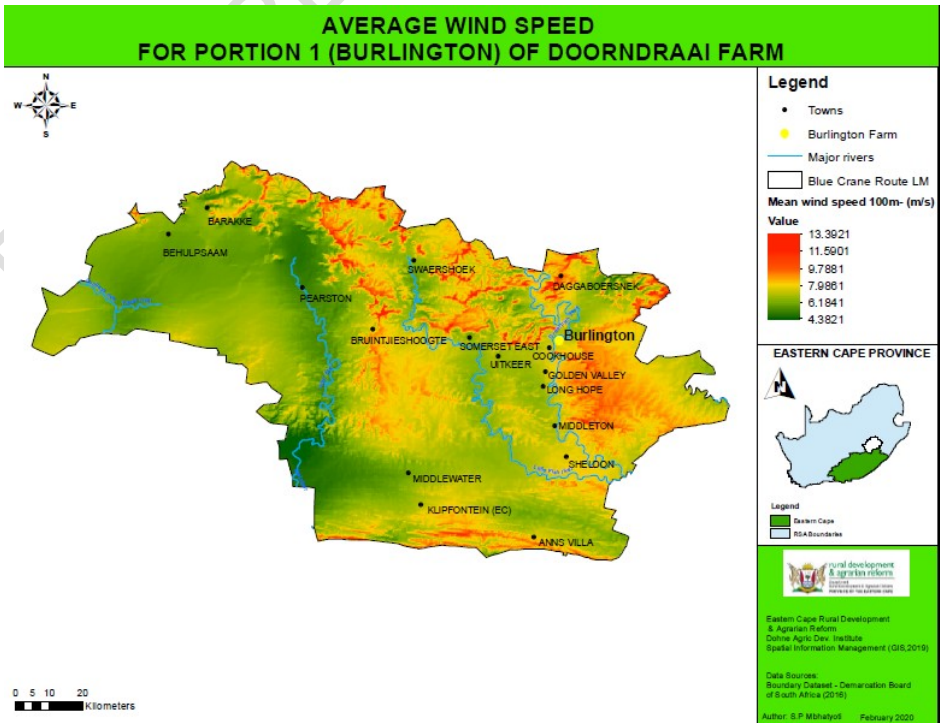
9.1.1.5 Frost

Average annual frost occurrence is from 1st to 10th of May.



9.1.1.6 Wind

Wind speeds vary between 6,1 m/s to 7,9 m/s



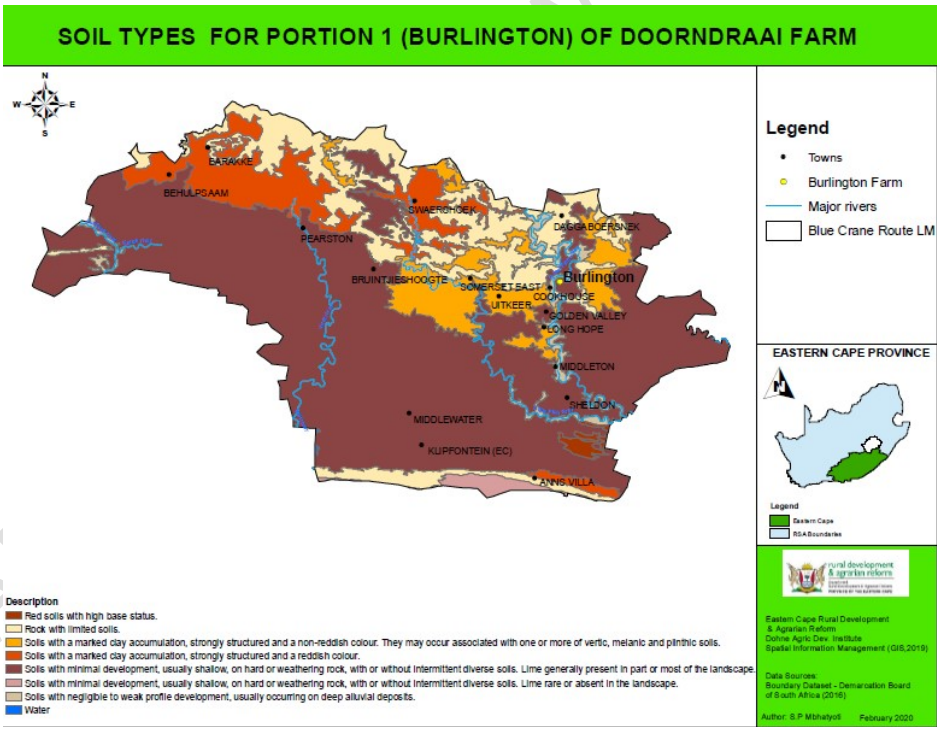
9.1.1.7 Topography, Geology & Soils

The topography is described as gentle undulating terrain.

a) Geology

The proposed development is underlain by a series of Karoo sandstones, mudstones and shales, deposited under fluvial environments of the **Adelaide Subgroup** that forms part of the Beaufort Group. According to the PalaeoMap of South African Heritage Resources Information System the Palaeontological Sensitivity of the Adelaide Subgroup is very high (Almond and Pether 2008, SAHRIS website). The Beaufort Group is the third of the main subdivisions of the Karoo Supergroup. The Beaufort group overlays the Ecca Group and consists essentially of sandstones and shales, deposited in the Karoo Basin from the Middle Permian to the early part of the Middle Triassic periods and was deposited on land through alluvial processes. The Beaufort Group covers a total land surface area of approximately 200 000 km^2 in South Africa and is the first fully continental sequence in the Karoo Supergroup, and is divided into the Adelaide subgroup and the overlying Tarkastad subgroup. The Adelaide subgroup rocks are deposited under a humid climate that allowed for the establishment of wet floodplains with high water tables and are interpreted to be fluvio-lacustrine sediments.

b) Soils types



Red soils with a high base status predominate. Soils are sandy loam with clay content from 8% to 20% with isolated areas with a clay content of 32%.

Development has largely covered areas of high to medium potential soils with relatively small areas of low potential soils only under pivots I and J

An extract form the soil classification survey states “The soils are generally apedal with carbonate subsoil layers. Carbonate is found in most of the soils. Structureless soils with high % of sand. In general the soils are deep with limited/nil wet subsoils. Soils have no signs of waterlogging.

The high salt and sodium levels can be rectified with correct management practices. To rectify the high sodium levels of the soils gypsum needs to be worked into the soil at a rate as calculated per soil sample. Once the gypsum is applied and mixed, sufficient quality water must be added to leach the displaced sodium beyond the root zone. Restoration of sodic soils is slow because soil structure, once destroyed, is slow to improve. Cultivating in crop residues or manure adds organic matter which will increase water infiltration and permeability to speed up the reclamation process”

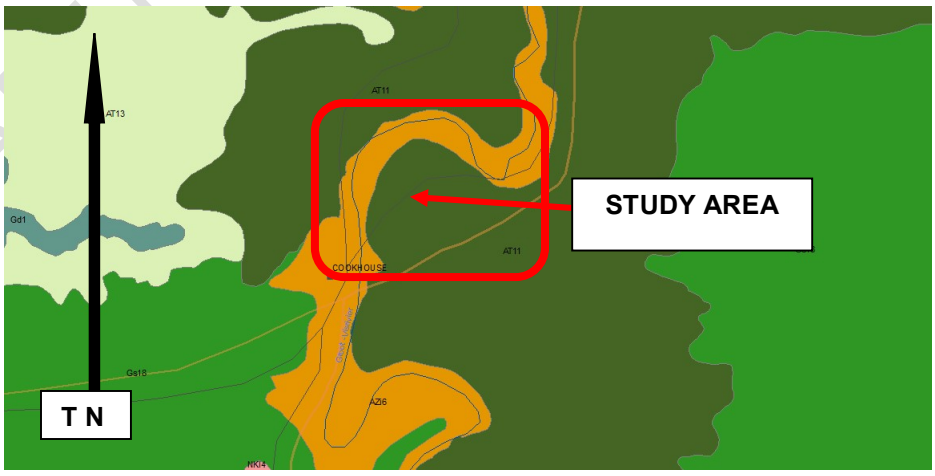
9.1.1.8 Water resources

Irrigation water is currently supplied to the farm via the Hougham Abrahamson Irrigation Scheme canal. The property has a registered water allocation in terms of the NWA with a permissible scheduled water use for 322 ha based on flood irrigation applications. The development (change of existing flood irrigation and new development) consisted of installation of overhead sprinkler irrigation (permaset) and centre pivots, which have a greater application efficiency with reduced water losses thus enabling the applicant to expand the area under irrigation.

9.1.1.9 Vegetation

The vegetation type along the Great Fish River riparian zone is Southern Karoo Riviere (AZi 6). According to Mucina & Rutherford the conservation status is ***least threatened*** with a target of 24%. This vegetation type had been impacted upon by the construction of the weir and canal (Hougham Abrahamson Irrigation Scheme). This vegetation type is now limited to the area between the irrigation canal and the river.

According to Mucina & Rutherford the remainder of the vegetation in the study area is Great Fish Thicket (AT 11) and the conservation status is ***least threatened*** with a target of 16%. It should be noted that this area is on **a <u>transitional unit between the solid thicket in the south-east and the drier karroid thicket units to the north-west</u>**.



Vegetation map, 2012

Historic information based on discussion with a former official of the Department of Agriculture reveals that this property was heavily impacted upon by over grazing (pre-1970) and to such an extent that a Directive was issued requiring the withdrawal of all livestock at that time. A recent assessment (2019) by Professor W Trollope suggests a Veld Condition Score of the Herbaceous Layer at 25%, where a score of <40 is regarded as poor.

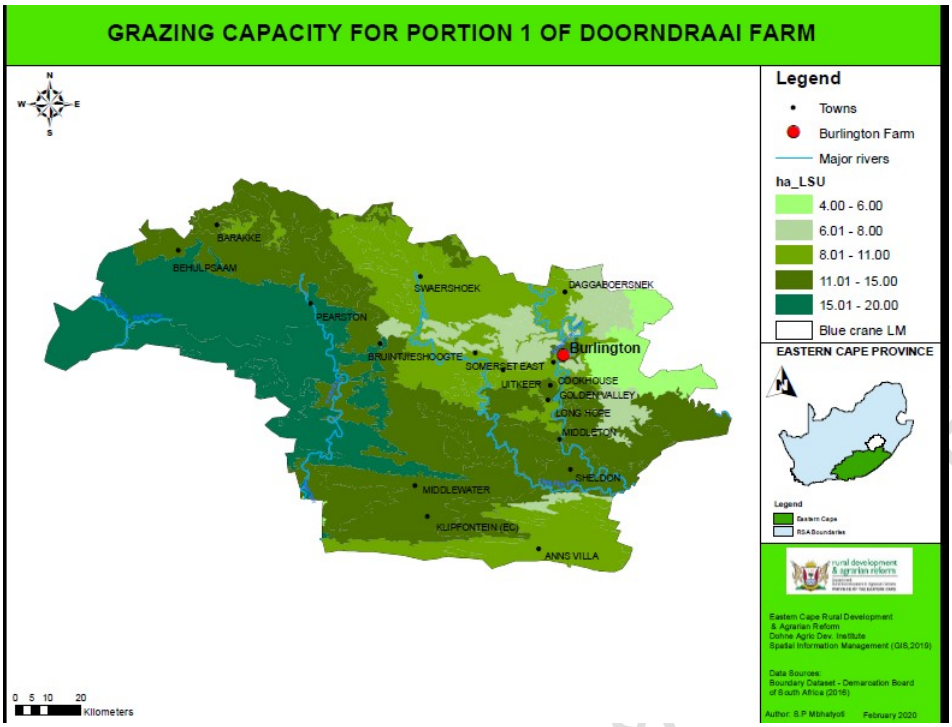
9.1.1.10 Threatened South African plants

The Screening Tool report includes lists of plant species known or expected to occur on the proposed development footprint. Some of these species are sensitive to illegal harvesting. The actual name of the sensitive species may not appear in the final EIA report nor any of the specialist reports released into the public domain. It should be referred to as a sensitive plant and its IUCN extinction risk category should be included e.g. *Critically Endangered sensitive plant*. The screening tool report indicates that:

- Sensitive plant specie 275 with a medium sensitivity rating may be found on the proposed development footprint. This plant has a decreasing population trend and IUCN extinction risk category of *Vulnerable*. This plant is not endemic to South Africa and has known range in the Western Cape, Eastern Cape, KwaZulu-Natal, Free State, Gauteng, Mpumalanga, Limpopo Province, Swaziland, Zimbabwe and Zambia. According to the distribution map on iNaturalist there have been no observations of this plant in proximity of the study area and sightings have mostly been along the coast or deep wooded valleys.
- Sensitive plant specie 648 with a medium sensitivity rating may be found on the proposed development footprint. This plant has a decreasing population trend and IUCN extinction risk category of *Vulnerable*. This plant is endemic to South Africa and only within the Eastern Cape. Its range is within the Great Fish River Valley with a major habitat being Southern Karoo Riviere, Eastern Upper Karoo and Great Fish Noorsveld and usually found on sandy alluvial flats within floodplains. According to the distribution map on iNaturalist there have been no observations of this plant in proximity of the study area. It is of note that the proposed development footprint does not impact on the Southern Karoo Riviere vegetation type and is not within a flood plain area.

9.1.1.11 Grazing Capacity

The grazing capacity of the natural vegetation is listed as 11.01 to 15.00 ha per LSU (hectares per large stock unit). For the purposes of this study the grazing capacity will be based on 15.0 ha per LSU. It is however likely that the grazing capacity is much lower, considering that the study by Professor W Trollope in 2019 suggests a Veld Condition Score of the Herbaceous Layer at 25%, where a score of <40 is regarded as poor. The area of 273 ha cleared for established of pastures under irrigation (2004 – 2009) could therefore have sustained 18 LSU (natural vegetation), hardly a contribution to an economic farming unit.



9.1.1.12 Fauna

a) Reptiles

According to the Eastern Cape State of the Environment Report, 2004 this area is likely to be home to various species of reptiles, contributing significantly to the overall diversity of vertebrates in the region. None listed as being threatened, are shown to be found within the study area. Since the flora in the study region is not unique it is highly unlikely that there will be reptiles that will be significantly affected by the proposed project.

b) Amphibians

According to the Eastern Cape State of the Environment Report, 2004 none of the amphibians found in the Cookhouse region are listed as being Critically Endangered, Endangered or Vulnerable. There are likely to be endemic species with their distribution close to the Great Fish River for breeding. Apart from the Great Fish River the study area lacks standing water, therefore it is unlikely that amphibians occur in any significant numbers.

c) Birds

According to the Eastern Cape State of the Environment Report, 2004 the Eastern Cape Province contains 62 threatened bird species. Many of them are associated with wetlands or are grassland species, highlighting the declining condition of these ecosystems. As can be expected from this highly mobile group there are no Eastern Cape endemic birds, although nine bird species are South African endemics. No wetlands or grasslands are impacted upon by the planned development. The study area does not comprise limited vegetation types, which would preclude birds found in the

area from relocating to suitable habitats adjacent to the study area. Birds, being highly mobile, are therefore least likely to be affected by human development.

d) Mammals

Rodents, insectivores, small carnivores (e.g. mongoose) and primates (e.g. vervet monkeys), small antelope (e.g. duiker) and steenbuck and large antelope viz. kudu are likely to occur.

9.1.2 The social environment

The Eastern Cape is poorest province in terms of average monthly expenditure. Unemployment levels are high. The study area and its surrounds comprises commercial farm land. The town of Cookhouse is located ±3 km from the farm and farm workers reside in the Bhongweni Township adjacent to Cookhouse resulting in a positive spin-off to the local community.

9.1.3 Visual aesthetics

Much of the natural beauty of the area is its rolling hills, interspersed with indigenous bush filled valleys. This has been impacted on by the development of irrigation lands along the Great Fish River.

9.1.4 Surrounding Land use

The study area is surrounded by commercial farmland. Current land use is livestock (sheep, goats and beef cattle), game farming and irrigation land. Cookhouse and Bhongweni Township adjoin the farm to the south-east and are located across the Great Fish River from the study area. The development does not impact on the surrounding land owners.

9.1.5 Zoning

Current zoning is “agriculture”.

The national environmental screening report indicates the area as having a high sensitivity for both archaeology (close proximity to a high mountain pass and within 500 m of an important river and historic bridge) and paleontology (rock units with a high paleontological sensitivity). Independent specialists in these fields will be appointed to undertake the necessary investigations and compile the associated reports.

9.1.6 Socio-economic aspects

Work opportunities within the area are limited to employment on commercial farms. Farm workers reside in the Bhongweni Township adjacent to Cookhouse and this is a positive spin-off to the local community.

9.1.7 Physical environment

The following are physical factors investigated that may constrain the proposed developments:

a) Topography and geology

There are no topographical or geological factors that would prevent cultivation and establishment of pastures. A soil potential survey in included in this report.

b) Storm-water and drainage

Land layouts should be implemented as would be prescribed in the CARA Authorisation.

c) Infrastructure

ESKOM power supply exists. There is no impact on ESKOM infrastructure

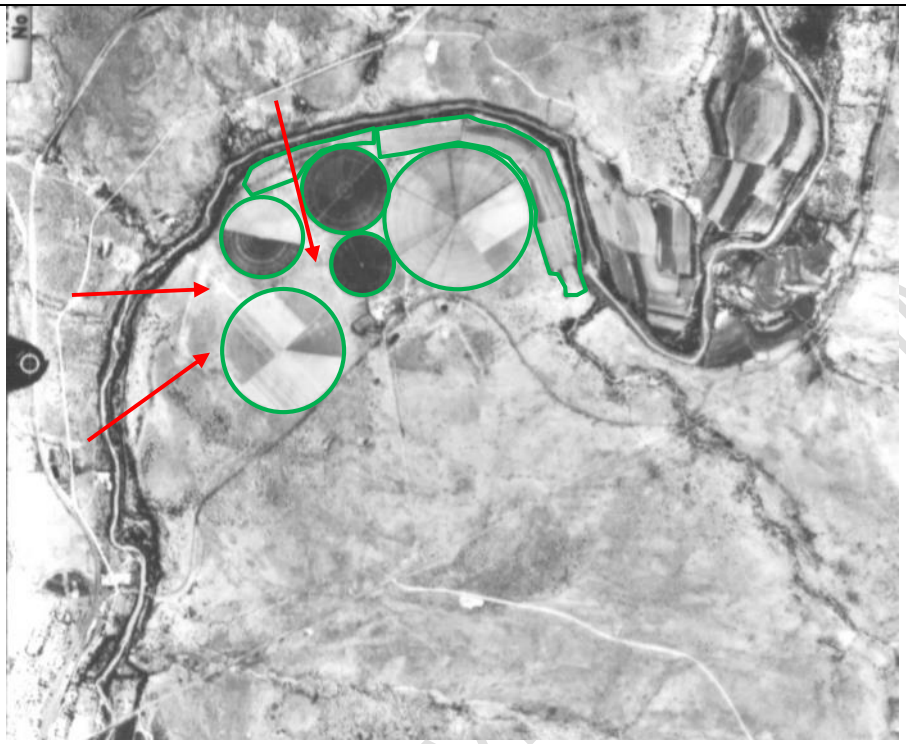
A Transnet railway line traverse the study area. There is no impact on TRANSNET infrastructure Transnet were included in the original PPP and will be included in the S24G process going forward.

A SANRAL road N10 is located along the eastern boundary of the study area. SANRAL were included in the original PPP but did not responded to the BID. Draft SR was provided to SANRAL but elicited no comments. There is no impact on the N10 and SANRAL will not be included in the S24G process.

A SENTECH transmission tower is located within 5 km of the solar farm site. SENTECH have provided a letter of approval to the proposed new citrus project and solar farm (RFI Theme). SENTECH will be included in the PPP going forward.

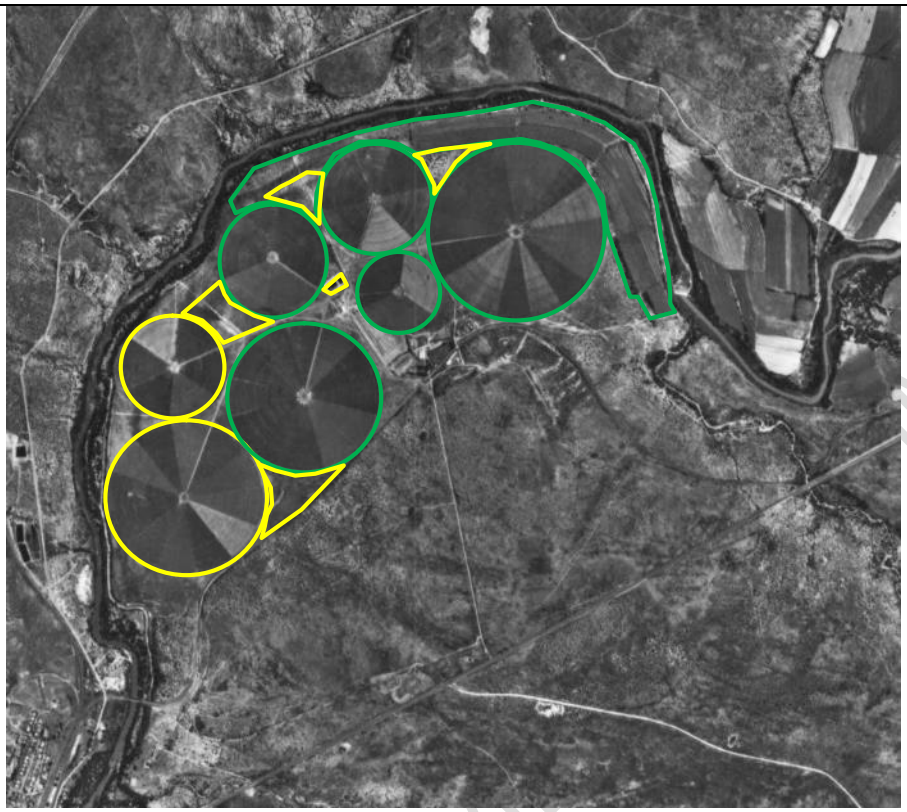
9.2 HISTORICAL AERIAL IMAGERY

9.2.1 Aerial Imagery 1998



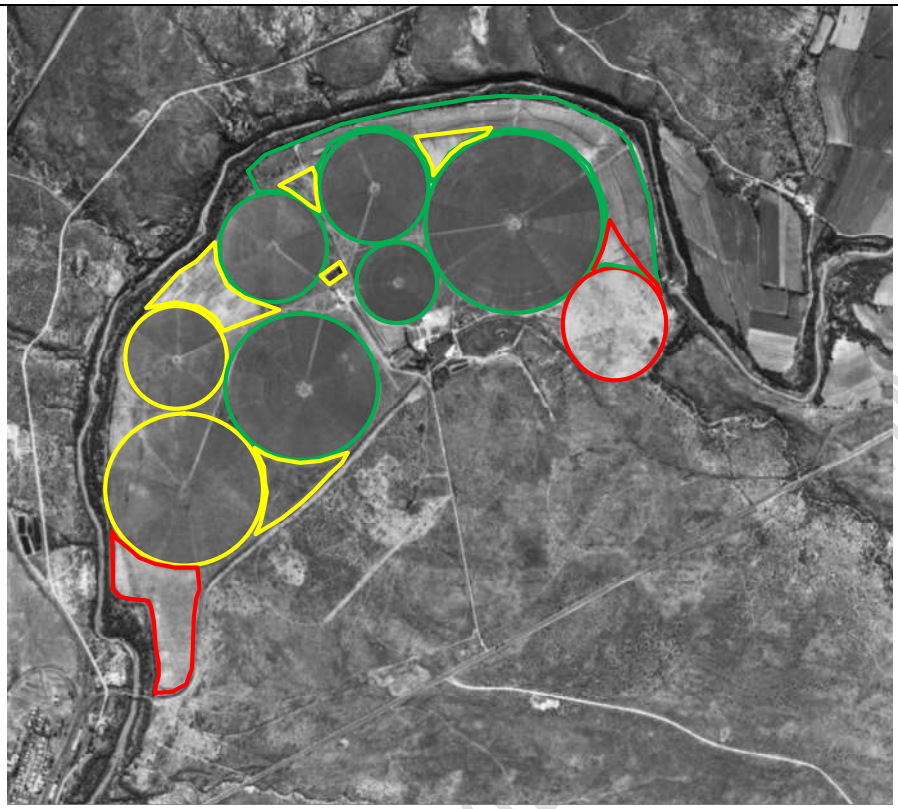
Historical imagery from 1998 showing extent of cultivated areas (green) pre-development/new ownership by the Applicant.
Note: Cleared and/or impacted areas between pivots →

9.2.2 Aerial Imagery 2005



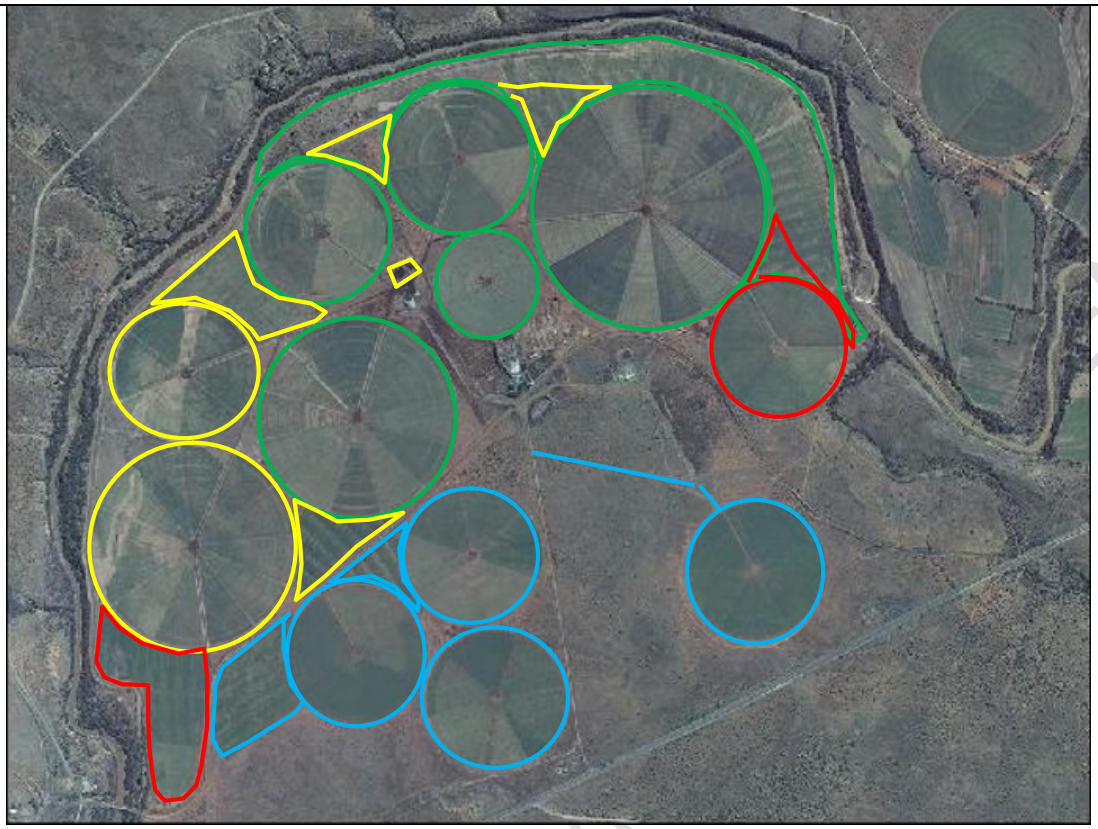
The aerial imagery above shows pre-development areas <1999/2003 (green) and not subject to this application. The developed and cultivated areas during 2004 to 2005 and two dams to contain waste water from commercial dairy farming activities are shown in **yellow**.

9.2.3 Aerial Imagery 2006



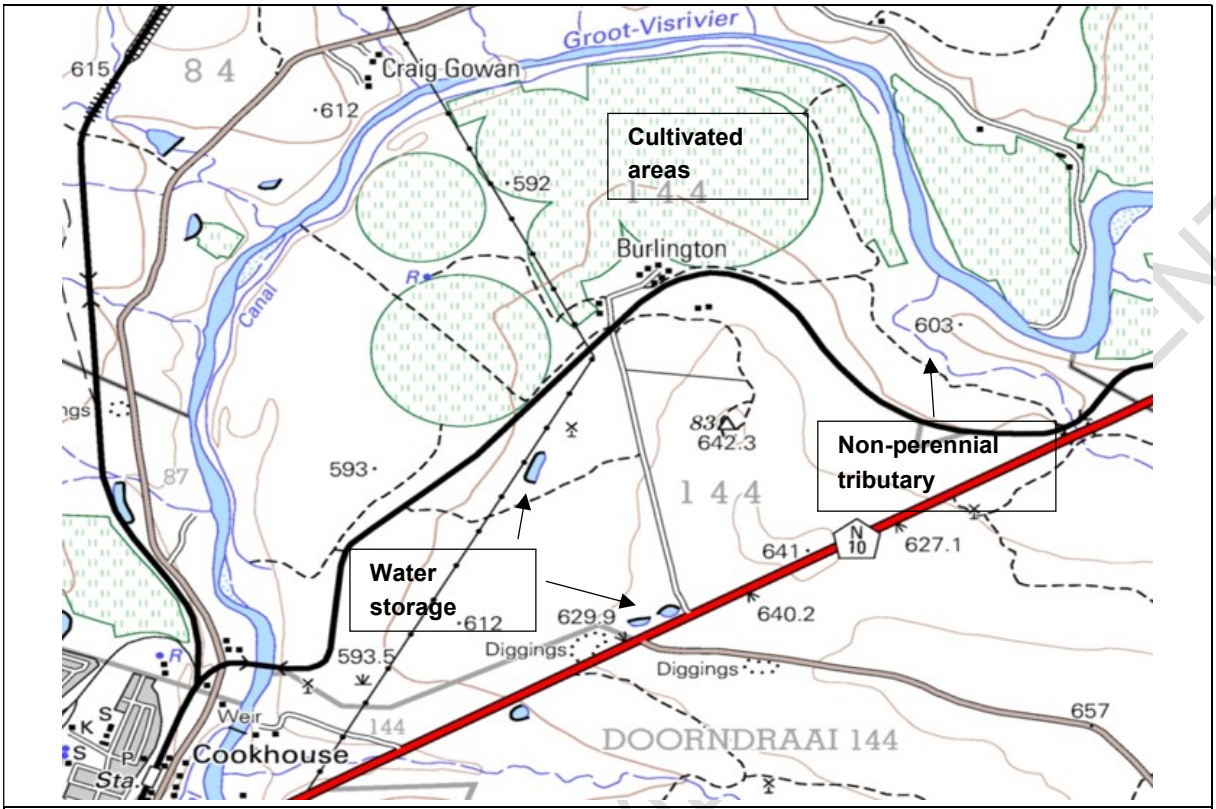
The historical aerial imagery shows the pre-development areas (<1999/2003) in green, the developed and cultivated areas during 2004 to 2005 in yellow and the cultivated areas developed in 2006 shown in **red**.

9.2.4 Aerial Imagery 2009



The historical aerial imagery shows the pre-development areas (<1999/2003) in green, the developed and cultivated areas, including slurry dams during 2004 to 2005 in yellow, the cultivated areas developed in 2006 shown in red and cultivated areas and road developed in 2007 shown in **blue**.

9.2.5 Topographic Map 1998



1:50 000 Topographic Map of study area in 1998 (Chief Directorate: National Geo-spatial information, 1998).

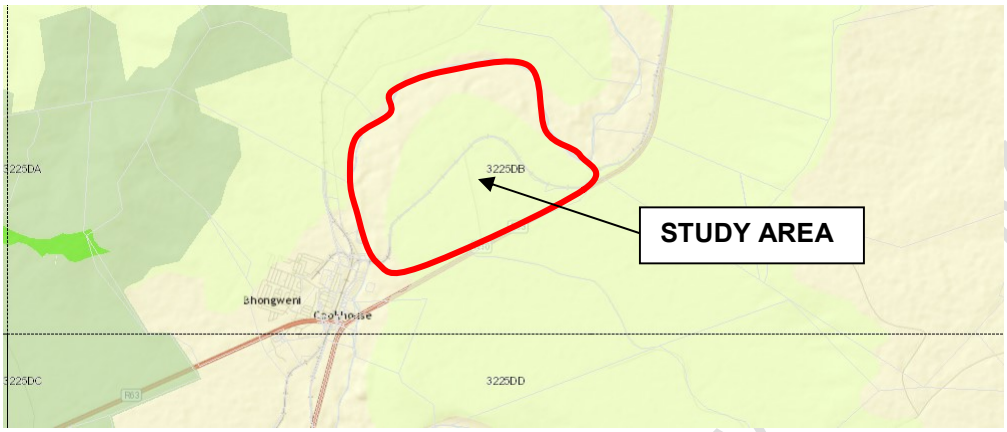
The topographic map shows the extent of cultivated areas (symbolised by **green** "").

9.3 ECBCP (2007) & NATIONAL SCREENING TOOL

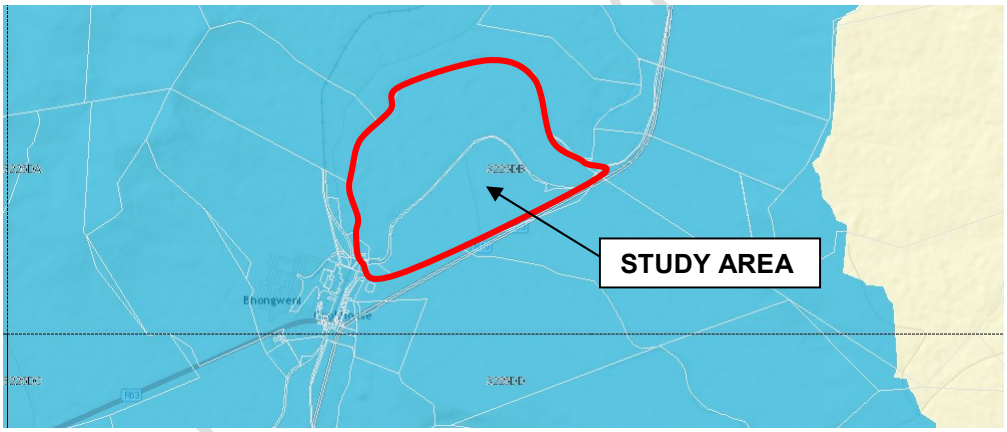
The competent authority (DEDEAT) has adopted the Eastern Cape Biodiversity Conservation Plan (ECBCP) as the systematic biodiversity plan for identifying critical biodiversity areas linked to NEMA activities.

9.3.1 ECBCP, 2007

Terrestrial critical biodiversity area – ONA (other natural area)



Aquatic critical biodiversity area – CBA 2



9.3.2 National Screening Tool

Although the national web-based environmental screening tool, promulgated in terms of the 2014 Regulations is not applicable for this development completed in 2009, the National Screening Tool served as a guideline for the appointment of independent specialists for the proposed Citrus development (Transformation of indigenous vegetation) and therefore has particular relevance to the agricultural sensitivity theme.

The screening report "Report for transformation of indigenous vegetation" is not attached but is discussed hereunder.

A summary of the environmental sensitivity themes of the proposed development and comments/discussion is indicated in the Table hereunder.

Discussion on environmental theme sensitivity ratings

THEME	ENVIRONMENTAL SENSITIVITY RATING	REASON FOR SENSITIVITY RATING	DISCUSSION
Agriculture	Very high	Very high- Pivot Irrigation;Land capability;09. Moderate-High/10. Moderate-High Pivot Irrigation;Land capability;06. Low-Moderate/07. Low-Moderate/08. Moderate Pivot Irrigation;Land capability;01. Very low/02. Very low/03. Low-Very low/04. Low-Very low/05. Low High- Land capability;09. Moderate-High/10. Moderate-High Annual Crop Cultivation / Planted Pastures Rotation;Land capability;06. Low-Moderate/07. Low-Moderate/08. Moderate Medium– Land capability;06. Low-Moderate/07. Low-Moderate/08. Moderate Low- Land capability;01. Very low/02. Very low/03. Low-Very low/04. Low-Very low/05. Low	473 ha is already developed under irrigation of pastures (550.5 ha with roadways included). A specialist soil classification and potential survey report is attached. The vegetation type as Southern Karoo Riviere and Great Fish thicket – the vegetation is degraded. A vegetation study will also be undertaken and incorporated in a specialist Terrestrial Biodiversity Assessment. Vegetation assessment of remaining Great Fish Thicket by Professor W Trollope is included
Animal Species	High	*Aves-Circus maurus*	It is noted that the locality is linked to sites along the Great Fish River, which has not been impacted upon by the development. The rating is “low” for the development area. A specialist Terrestrial Biodiversity Assessment in included.
Aquatic Biodiversity	Very High	Within 500 m of wetlands	Hougham Abrahamson canal is constructed between the

			development area and the Great Fish River. Agriculture is practiced above the canal.
Archaeological & Cultural Heritage	High	Important mountain pass and within 500 m of an important river	There are no archaeological or heritage sites noted on the developed areas. An AIA is conducted in view of the high sensitivity rating
Civil Aviation	Medium	Within 5 km of an air traffic control or navigation site Between 8 and 15 km of other civil aviation aerodrome	• Private airfield on the farm Klipfontein ±8,8 km north of Burlington. The owner has provided a letter stating that agricultural development will not impact on the airfield • Civil airfield at Somerset East ±20 Km west of Burlington It is highly unlikely that the development has or will impacted on these airfields and the area cannot be considered as problematic to aircraft flight paths during landing or taking off and the development does not include towers of the height discussed in the SACAA documentation.. SACAA have been informed of the future citrus project and application in terms of registration of obstacles was submitted (2020), with no response to date; **See Annexure E6. SACAA will not be consulted further during the S24G process**
Defence	Low	Low sensitivity	No defence installation in close proximity to the site. **Not included in the S24G process**
Palaeontology	High	Rock units with a high paleontological sensitivity	Highly unlikely that this agricultural development will impact on fossil heritage, however a PIA is included due to the high sensitivity rating
Plant Species	Medium	Sensitive species 275 and 648	Specialist Biodiversity assessment is included.
Terrestrial Biodiversity	Low	Low sensitivity	A specialist Terrestrial Biodiversity Assessment will be conducted to include assessment of animal, and plant species.

10 PHOTOGRAPHIC RECORD

Note: Co-ordinates at the photograph point and date are indicated on the photographs

Photographic Record

OVERVIEW OF CLEARED AREAS – CURRENT VIEW


-32,72804, 25,81112, 618,6m, 161°
2022-06-09 13:39:33


-32,73336, 25,81297, 615,9m, 209°
2022-06-09 13:44:34


-32,74983, 25,80947, 25°
2022-06-09 13:55:32


-32,73218, 25,82739, 661,9m, 18°
2022-06-09 14:36:55


-32,73218, 25,82739, 661,8m, 346°
2022-06-09 14:36:51


-32,73218, 25,82739, 661,9m, 53°
2022-06-09 14:36:59

TYPICAL CATTLE WALK-WAYS/ROADS FOR FARM MACHINERY TO IRRIGATION AREAS

TYPICAL VEGETATION IN SUROUNDING AREAS THAT MAY HAVE BEEN CLEARED


-32,72645, 25,81375, 625,2m, 329°
2022-06-09 13:36:43


-32,72802, 25,81108, 620,4m, 30°
2022-06-09 13:39:54


-32,73596, 25,83114, 669,1m, 298°
2022-06-23 10:28:39


-32°43'33", 25°48'59", 626,7m, 179°
2020-09-07 12:20:10

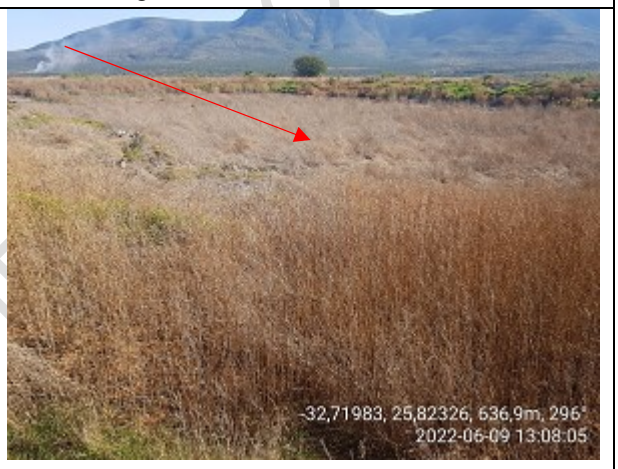

-32°43'50", 25°50'28", 3°
2020-09-07 13:00:28

DISPOSAL OF EFFLUENT WATER/ANIMAL WASTE

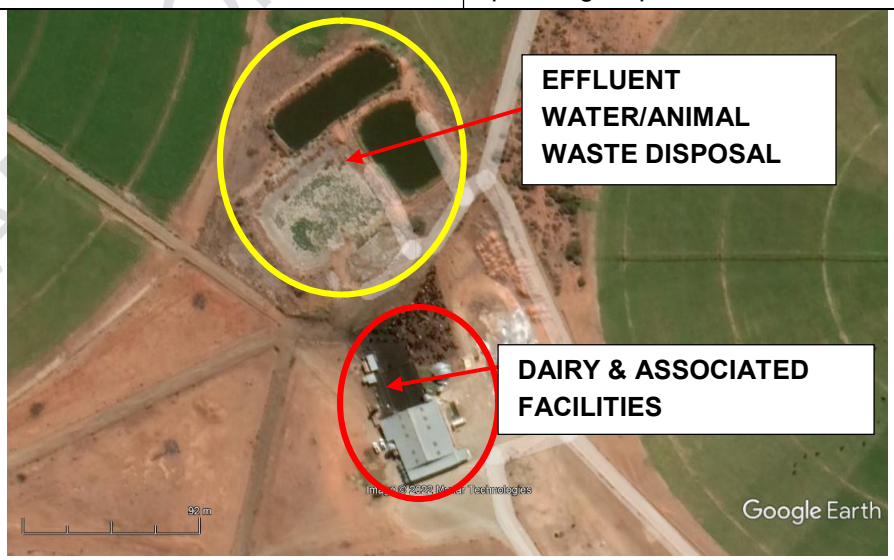
2 x Steel tanks storing effluent water for flushing of "standing apron"

Effluent water/animal waste disposed into 4 x earth storage dams

4th Dam with effluent water – used for irrigation

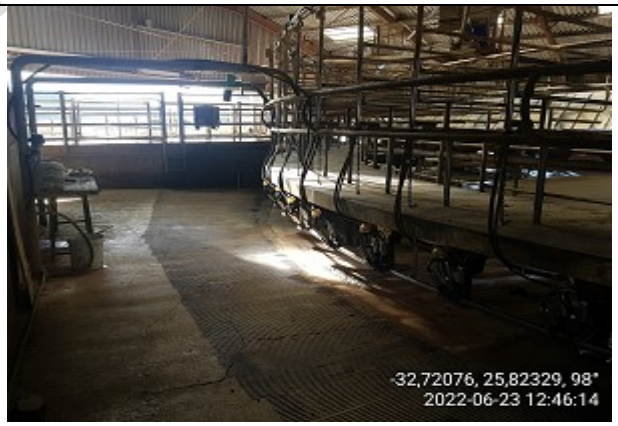


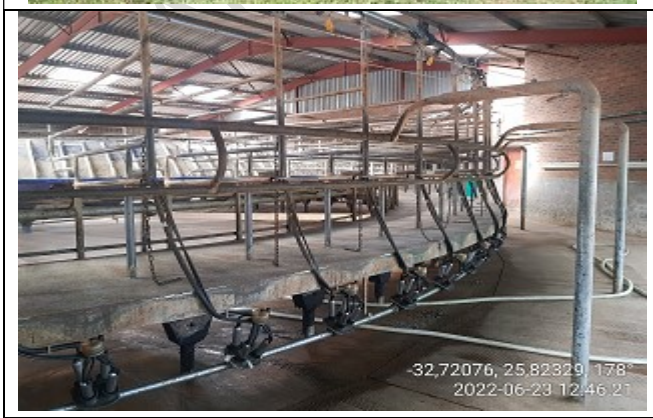
Dried animal waste (manure) prior to removal for spreading on pastures



Google image of dairy and linkage to effluent water/animal waste disposal

OVERVIEW OF DAIRY & ASSOCIATED INFRASTRUCTURE





TYPICAL PUMP STATIONS ALONG THE CANAL & IRRIGATION SYSTEMS

Typical centre pivot system

Typical permaset sprinkler system

11 PROCESS UNDERTAKEN TO IDENTIFY, ASSESS AND RANK THE IMPACTS OF THE ACTIVITY & ASSOCIATED WORKS

11.1 INTRODUCTION

The Scoping phases for the changeover to citrus production (2019 – 2021) with associated infrastructure reviewed a broad range of potential environmental impacts associated with the proposed Citrus development.

Following the decision to submit an application in terms of S24G, the potential environmental impacts were reviewed to specifically address the 2004 – 2009 “unauthorised” development.

Impacts and risks identified including the nature, significance, consequence, extent, duration and probability of the impacts, including the degree to which these impacts can be reversed, may cause irreplaceable loss of resources and can be avoided, managed or mitigated is based on information from the independent specialist reports compiled in 2020, 2021 and 2022. Outcomes of specialist reports are summarised in Section 12.

11.2 IMPACTS AND RISKS IDENTIFIED

Environmental impacts and risks and the expected severity and duration and reversibility of these impacts are discussed in Table hereunder

Environmental impacts and risks

Nature of impact and/or risk identified		Significance	Consequence	Extent	Duration	Probability	Degree to which impact		
							Can be reversed	May cause irreplaceable loss of resources	Can be avoided, managed or mitigated
1	Clearance of natural vegetation	High	Loss of natural vegetation	Study area	Permanent	Done	Cannot be reversed	Loss of resource	Mitigated
2	Loss of animal biodiversity	Moderate	Potential loss of *Aves-Circus maurus*	Study area	Permanent	Highly unlikely	Reversible	No loss of resource	Mitigated
3	Clearance of riparian habitat and or development within 500 m of river	Low	Loss of riparian habitat	Study area	Permanent	Done	Cannot be reversed	Loss of resource	Mitigated
4	Change in catchment hydrology	Moderate	Potential loss of topsoil	Study area	Permanent	Done	Cannot be reversed	No loss of resource	Mitigated
5	Erosion and sedimentation issues	Low	Potential loss of topsoil	Study area	Permanent	Done	Cannot be reversed	No loss of resource	Mitigated
6	Pollution– effluent water and animal waste	Low	Potential pollution of water sources and soils	Study area	Permanent	Done	Cannot be reversed	No loss of resource	Mitigated
7	Agricultural potential	High + (positive)	Increased GFI	Study area	Permanent	Done	Cannot be reversed	No loss of resource – improved land use	Mitigated

8	Archaeological and cultural heritage	High (as per screening report)	Potential loss of archaeological and cultural heritage	Study area	Permanent	Done	Cannot be reversed	No loss of resource	Mitigated
9	Palaeontology	High (as per screening report)	Loss of fossil heritage	Study area	Permanent	Done	Cannot be reversed	No loss of resource	Mitigated
10	Plant Species (SCC)	Medium	Loss of plant species (SCC)	Study area	Permanent	Done	Cannot be reversed	No loss of resource	Mitigated
11	Socio-economic	High (positive)	Improved employment opportunities	The proposed site and its immediate environs	Long-term	Done	Reversible	Improvement in job creation and earnings for impoverished community	Mitigated
12	Sense of place and visual aesthetics	Not listed on screening report	Change in visual aesthetics as natural vegetation is removed	Study area	Permanent	Done	Cannot be reversed	Koss of resource	Mitigated

11.2.1 Summary of cumulative impacts and or risks for assessment

Section 24(4) of the National Environmental Management Act requires the consideration of cumulative impacts as part of any environmental assessment process. EIA's have traditionally, however, failed to come to terms with such impacts, largely as a result of the following considerations:

- Cumulative effects may be local, regional or global in scale and dealing with such impacts requires co-ordinated institutional arrangements; and
- EIA's are typically carried out on specific developments, whereas cumulative impacts may result from broader biophysical, social and economic considerations, which typically cannot be addressed at the project level.

For the current investigation, the most important impacts which are considered to be cumulative in nature (i.e. when considering them together with the impacts of other developments proposed for the area) are listed in the Table hereunder.

Cumulative impacts for assessment

Cumulative impacts for assessment
Loss of natural vegetation and impact on animals and plants
Flow modification, erosion and sedimentation (development within 500 m of river)
Potential loss of heritage resources (archaeological and fossil heritage)
Impact on agricultural potential (soils and carrying capacity)
Potential pollution through operational processes
Socio-economic
Sense of place and visual aesthetics

12 SPECIALIST STUDIES UNDERTAKEN OR COMPLIANCE STATEMENTS AS APPROPRIATE

Specialist studies as identified through the national on-line screening report and compiled for the proposed Citrus development and associated infrastructure (2019) are deemed relevant and subject to addendums/letters (statements) as deemed necessary for the S24G process and have guided the identification, assessment and ranking of the impacts associated with this "unlawful" activity. Copies of specialist reports/letters are attached in **Appendix D**.

Summary of studies to be undertaken, method of assessment and specialists

IMPACT ASSESSMENT REPORT	SPECIALIST OR EAP	ASSESSMENT PROTOCOL	RESPONSIBLE PERSON
Loss of agricultural potential	EAP	GN 648 1. Agriculture - 1(a) - Protocol for the assessment and reporting of environmental impacts on agricultural resources Compliance statement included in the site sensitivity report	ATS Consulting (Mr A Grenfel – soils) Mr J Pote – Terrestrial Biodiversity Prof W Trollope – Vegetation assessment (CARA) Mr C J Bradfield (EAP) – Compliance Statement
Impact on animal species	Specialist	GN 648 3. Biodiversity 3(a) - Protocol for the assessment and reporting of environmental impacts on terrestrial biodiversity See Terrestrial biodiversity assessment report	Mr J Pote
Loss of wetland and riparian habitat – impact on aquatic resources	Specialist	GN 648 3. Biodiversity 3(b) - Protocol for the assessment and reporting of environmental impacts on aquatic biodiversity See Aquatic and Wetland Assessment Report	JS Environmental Ms J Smith
Impact on archaeological and cultural heritage	Specialist	GN 648 PART A: General requirements for undertaking an initial site sensitivity verification where no specific assessment protocol has been identified See Archaeological and Cultural Heritage Impact Assessment Report	ArchaeoMaps Ms K van Ryneveld

Loss of fossil heritage (palaeontology)	Specialist	GN 648 PART A: General requirements for undertaking an initial site sensitivity verification where no specific assessment protocol has been identified See Archaeological and Cultural Heritage Impact Assessment Report	Banzai Environmental Mrs E Butler
Impact on plant species	Specialist	GN 648 3. Biodiversity 3(a) - Protocol for the assessment and reporting of environmental impacts on terrestrial biodiversity See Terrestrial biodiversity assessment report	Mr J Pote
Impact on terrestrial biodiversity	Specialist	GN 648 3. Biodiversity 3(a) - Protocol for the assessment and reporting of environmental impacts on terrestrial biodiversity See Terrestrial biodiversity assessment report	Mr J Pote
Socio-economic	EAP	GN 648 See statement included in Section 12.2	Mr C J Bradfield (EAP)
Landscape and visual aesthetics	EAP	See statement included in Section 12.2	Mr C J Bradfield (EAP)

12.1 EXTRACT OF OUTCOMES FROM SPECIALIST REPORTS AS CONDUCTED

12.1.1 Terrestrial Biodiversity (Vegetation, animals & plants)

Mr Jamie Pote was appointed to conduct the Terrestrial Biodiversity Assessment for the original development of the proposed Burlington Citrus project. His findings and substantiated by an opinion relevant to the clearance of natural vegetation (2004 – 2009) are considered relevant in terms of the assessment of impacts for this report.

"Two vegetation units are primarily affected by the proposed project (Mucina & Rutherford, 2006). The site is located within Southern Karoo Riviere (Azi 6) and Fish Valley Thicket (AT32), with Doubledrift Karroid Thicket (AT24), Fish Arid Thicket (AT30), Albany Broken Veld (NKl 4), Fish Mesic Thicket (AT31) and Gs 18 Bedford Dry Grassland found in the surrounding area (all Least Threatened). A general description of the two vegetation units is provided in the section below (as per Mucina & Rutherford, 2006) as a reference point for the baseline vegetation composition.

The Southern Karoo Riviere, which is equivalent to and referred to as an Alluvial vegetation in this report, is present on the floodplains (along the Hougham Abrahamson irrigation Scheme canal and the Great Fish River, and correlates broadly with what is present on site. The vegetation found outside does not correlate strongly with the Fish Valley Thicket type and it correlates more closely with some of the other units, notably *Doubledrift Karroid Thicket* and *Albany Broken Veld*. This could either be a mapping inconsistency or perhaps the vegetation is a transitional type, as there are strong affinities with both Doubledrift Karroid Thicket (small thicket clumps are within a grassy/karroid matrix) and Albany Broken Veld (open grassy shrubland areas with scattered low trees in a matrix of dwarf shrubs). In terms of SSC:

- Sensitive species 275 - Not recorded, outside of preferred habitat
- Sensitive species 648 – Not recorded on site

Bird species identified by the screening tool, including *Circus maurus*, are known to possibly occur in the area may pass through the site in a transient manner during foraging. Since the farm is currently used for agriculture, these bird species are unlikely to be affected in any cumulative manner, over and above any existing current displacement.

The habitats and microhabitats present on the project site are not unique and are widespread in the general area."

Opinion on historical unauthorised clearing

Based on the ecological assessment conducted in 2020/2021, it is likely that the vegetation that was cleared was degraded, as the site was historically overgrazed and degraded and with conversion to pastures, the natural veld has more than likely recovered to some extent over the last few years. Based on current and historical conservation targets, it is probable that if an ecological assessment were conducted for the various parcels of land that have been cleared without authorisation, the findings of the ecological assessment would have been that the activity impact was likely low and acceptable. This is primarily based on the level of degradation that would have been evident at the time as well as the conservation status of the units at the time being *Least*

Concern (Vegetation of Southern Africa, 2006) and *Vulnerable* (STEP, 2007), while the ECBCP (2007) designation was CBA 3, meaning that the proposed activity would have been deemed acceptable. This together with the level of degradation that was most likely evident at that time would most likely have led to a conclusion that the proposed clearing would have been acceptable."

Note: *Discussion by the EAP with a former official of the Department of Agriculture reveals that this property was heavily impacted upon by over grazing (pre-1970) and to such an extent that a Directive was issued requiring the withdrawal of all livestock at that time. It is the EAPs' opinion that it is likely that the long-term impact of this overgrazing is still evident at the present time.*

12.1.2 Aquatic & Wetland Assessment

(Flow modification, erosion and sedimentation)

JS Environmental (Ms Jaclyn Smith) was appointed to conduct the Terrestrial Biodiversity Assessment for the original development of the proposed Burlington Citrus project and was subsequently commissioned to compile an assessment relevant to this S24G process.

"Historical aerial imagery from any pre-development (1998), during any development (2005 and 2006) and post-development (2009). The figures below provide a description of any cultivated/developed areas and shows the extent of watercourses. Based on the analysis of these images, the extent of the vegetated riparian area (including the terrestrial vegetation growth) within and surrounding the Great Fish River, appears to increase slightly in extent from 1998 to the present. This may be as a result of recovery of vegetation growth over the years from pre-1998 cultivated areas and irrigation canal development (although not subject of the section 24G application) running adjacent to the Great Fish River or it may be a change in image quality. It should be noted that the extent of encroachment into the vegetated areas along and adjacent to the Great Fish River (including riparian areas) does not appear to have been largely encroached into or cleared by the Applicant from 2004 to present. The historically constructed irrigation canal as well as the vegetated areas along the Great Fish River, appear to have acted as a buffer and remain intact. Cultivated and developed areas appear to be on transformed grassland or previously grazed land.

Existing and/or historical impacts on the water resources within the study area include:

- Construction of the Hougham Abrahamson Irrigation canal adjacent to the Great Fish River including a major weir structure within the Great Fish River;
- Historical construction of the diversion weir, canal and pump stations adjacent to the Great Fish River; and
- Transformation of surrounding landscape to centre pivots and cultivated areas.

Potential impacts on the water resources within the study area associated with the developments and cultivated areas on Portion 1 of Farm 144:

Potential impact	Mitigation	Significance rating post-mitigation
Minor loss of riparian habitat and habitat	• Developed areas along already transformed and grazed grassland. • Maintenance of riparian and terrestrial 'buffer' surrounding the Great Fish River	Low to Negligible
Change in catchment hydrology	• Prioritised developed and cultivated areas in already transformed and grazed grassland areas. • Limit exposed soils and cleared areas through rehabilitation and/or cultivated of areas	Low
Potential erosion and sedimentation issues	• Prioritised developed and cultivated areas in already transformed and grazed grassland areas. • Limit exposed soils and cleared areas through rehabilitation and/or cultivated of areas.	Low

Conclusion

There are number of non-perennial rivers of the Great Fish River and the perennial Great Fish River borders the development footprint. There are no natural wetlands within the development footprint. The developed and cultivated areas were developed on previous transformed grassland and areas of relative low sensitivity. The impacts of the developments that took place are considered to be of moderate negative significance pre-mitigation and through the implementation of mitigation measures which appeared to be in place are considered to have an overall low significance."

Note: *It is the EAP's opinion that development was not implemented on any flood plain as development is outside the 1-in-100 year flood line (Section 4.5), which flood-line is depicted as being below the Hougham Abrahamson Irrigation Scheme canal; Specialist hydrology study for the proposed solar plant compiled by Bosch Projects. The soil types (Burlington Citrus – Soils Survey compiled by ATS Consulting and Management Services) are also not indicative of soils with alluvial deposits.*

12.1.3 Heritage Resources

Ms K van Ryneveld of ArchaeoMaps and Mrs E Butler of Banzai Environmental were appointed to conduct the Archaelogy/Cultural and Fossil impact assessments respectively for the original development of the proposed Burlington Citrus project and were subsequently commissioned to compile an addendum or express an opinion relevant to the area under this S24G process

12.1.3.1 Archaeology & Cultural Heritage

Findings

Two (2) archaeological and cultural heritage resources are known and comprise conserved Colonial Period railway bridges.

Stone rich and low-lying outcrops are notably scarce across the property; though it is reasonably inferred that stone rich deposits, where present, were removed at the time of development (pre-2004, 2004–2006, and 2006–2009). A low density of Stone Age artefacts may thus have been present, but it is highly unlikely that material of conservation or research worth had been destroyed.

The study site is from an archaeological and cultural heritage point of view described – bar the two (2) Colonial Period railway bridges – as of No Significance.

Recommendations

It is recommended that any archaeological and cultural heritage repair orders or fines that may be applicable in terms of the National Heritage Resources Act, Act No. 25 of 1999 (NHRA 1999), be waived in terms of Section 55. In addition, it is recommended that any fines that may apply to the archaeological and cultural heritage component in terms of IEM, as premised by NEMA 1998, be waived on the above stated grounds.

12.1.3.2 Palaeontology (Fossil heritage)

Extract from the addendum to the assessment for the proposed citrus development 2020 indicates as follows:

The scarcity of fossil heritage at the proposed development footprint indicates that the impact of the proposed development will be of a medium significance in palaeontological terms. It is consequently recommended that no further palaeontological heritage studies, ground truthing and/or specialist mitigation are required pending the discovery of newly discovered fossils".

Findings

As no Palaeontological Heritage were detected during the previous site investigation it is highly unlikely that the developments during 2004-2009 impacted on Palaeontological Heritage.

12.1.4 Agricultural Potential (Soil & Natural Vegetation)

Mr A Grenfell of ATS Consulting and Management Services and Prof W Trollope were appointed to conduct the soils and vegetation impact assessments respectively, for the original development of the proposed Burlington Citrus project. Their findings are considered relevant as the soil investigation encompassed all areas associated with the S24G application and the vegetation assessed is likely to have been similar to that removed during 2004 – 2009.

12.1.4.1 Soil potential

A combination of soil pits and a soil augur were used to identify the soils and classify these according to the "Soil Classification a Taxonomic System for South Africa 1991" into Soil Forms and Series and indicating the Effective Depth. Soil samples were taken from various soil sites of both top and sub-soils. These were sent to SGS in Beaufort West. SGS is a SANAS registered laboratory for chemistry analysis.

Findings

Extract from ATS Consulting – "The physical soil survey indicated mainly apedal soils with an effective depth mainly ranging from 200mm to 1200 mm in effective depth. Classified soils of a medium to high potential are suitable for development. This includes an area of some 565 hectares of medium to high potential. The soils in general are red to red/brown topsoil's with some yellowing in subsoil indicating a good drainage. No signs of high water tables or poor drainage were found. In general the soils are sandy soils with clay content of 10 to 20%. Soft and hard carbonate was found in certain soils in the subsoil layers. The high salt and sodium levels can be rectified with correct management practices. To rectify the high sodium levels of the soils gypsum needs to be worked into the soil at a rate as calculated per soil sample."

Note: EAP - *Generally the soils over the S24G study area consist of high and medium potential soils with no restrictive layers. There is one isolated area of low potential soil near the middle of Pivot I and surrounded by high and medium potential soils. Soils of low potential are noted along a section of the perimeter of Pivot J. These low potential areas are located in areas where the gradient is <5% and likely to have been approved for the cultivation of pastures (CARA), but would not be recommended for Citrus. No gradient of 20% or greater is noted.*

12.1.4.2 Natural vegetation (grazing)

The S24G process is linked to areas where the natural vegetation was cleared during the period 2004 – 2009. Assessment can therefore only be linked to natural vegetation occurring in areas surrounding the "unauthorised" clearance.

Note: *It is the EAP's opinion that very little, if any true riparian habitat was cleared during the development. The cleared areas are above the 1-in-100 year flood line (Section 4.5), which is indicated as being below the HAIS canal. The Southern Karoo Riviere vegetation also referred to as Alluvial vegetation is likely to have been impacted upon by the construction of the HAIS canal and historic overgrazing. The (Mucina & Rutherford, 2006) study and the mapping from the Döhne Research Institute list the remaining vegetation as Fish Valley Thicket (AT32), although this is also transformed; see Section 12.1.1 (Terrestrial Biodiversity Assessment).*

We have included an assessment conducted by Prof W Trollope as undertaken for the CARA application for the proposed Citrus Development.

Terrestrial Biodiversity Assessment (Mr J Pote)

Extract from Terrestrial Biodiversity Assessment (Mr J Pote) – "The historical clearing of vegetation would most likely have been deemed acceptable ecologically, as the conservation status of the units at the time was Least Concern (Vegetation of Southern Africa, 2006) and Vulnerable (STEP, 2007), while the ECBCP (2007) designation was CBA 3. This together with the level of degradation that was most likely evident at that time would most likely have led to a conclusion that the proposed clearing would have been acceptable with the impact significance likely have been considered to be low."

Prof W Trollope (CARA Assessment)

Prof Trollope is now retired and not registered with SACNASP, but as an internationally recognised researcher on veld management his opinion and veld condition assessment is deemed relevant and of value. Fish Valley Thicket is used for the purposes of Prof Trollope's assessment hereunder. It must be considered that the natural grazing area on this farm has not been utilised for commercial livestock since purchase of the property by the Applicant in 2004 and probably also not by the previous owner. The only use is for natural occurring fauna and the veld should have being showing some signs of recovery from the historic overgrazing. Despite this, Prof Trollope's assessment of the veld condition score is "very poor". Extract from Prof Trollope's assessment as follows:

a) Introduction

For veld management purposes grass species can be divided into three ecological categories and the **ecological status** of the grass sward is indicated by the proportions of Decreaser and Increaser grass species that are defined as follows:

- Decreaser Species: Grass and herbaceous species that decrease when veld is under or over grazed;
- Increaser I Species: Grass and herbaceous species that increase when veld is under grazed or selectively grazed;
- Increaser II Species: Grass and herbaceous species that increase when veld is over grazed.

The most beneficial ecological status of the veld for livestock production or wildlife management is when the grass sward is dominated by Decreaser grass species e.g. *Themeda triandra, Digitaria eriantha, Panicum* species etc. (Grasses of Southern Africa by Fritz van Oudtshoorn 1999).

Increaser I species are generally the climax grass species that the rainfall and soils can support whereas Increaser II grass species are the pioneer species that occur in overgrazed, degraded veld or in severely bush encroached veld.

Increaser II grass species are generally not highly productive forage species and are therefore a valid reason for eradicating invasive indigenous and/or tree and shrub species to enable the veld to regenerate to a more productive Decreaser species dominant stage.

b) Subjective Assessment of the veld condition

(i) The Grass Sward

- Decreaser Grass Species Percentage: 5%

  Species: *Digitaria eriantha; Panicum maximum and Cenchrus ciliaris*

- Increaser I Grass Species Percentage: 0%
- Increaser II Grass Species Percentage: 95%

  Species: *Eragrostis curvula; Eragrosits obtuse and Tragus berteronnianus*

(ii) Basal Cover

Point to Tuft Distance = >5 cm

(<3 cm – low soil erosion potential; 3 – 5 cm – moderate soil erosion potential; >5 cm – high soil erosion potential)

(iii) Veld Condition Score of Herbaceous Layer

Rating unit	Score
80% - Excellent	-
60- 80% - Good	-
50 – 59% - Moderate	-
40 – 49% - Poor	-
<40% - Very Poor	25%

EAP's opinion

(i) Very Poor veld condition and prevalence of Increaser II grass species are indicative of severe historical degradation of the site and poor recovery or likelihood of recovery in the short to medium-term. Based on the above observations of remnant vegetation it can be concluded that at the time of clearing, the vegetation was likely in poor condition and significantly degraded, and it is likely that the historical clearing would not have had a significant ecological impact.

(ii) The recommended carrying capacity as per Döhne Research Institute is 11.01 – 15 ha per LSU. Based on a carrying capacity of 15 ha per LSU (score of herbaceous layer is Very Poor), the area of 273 ha cleared for the established of pastures under irrigation (2004 – 2009) may have sustained 18 LSU on the natural grazing. In comparison the transformed area under pastures, can sustain 860 LSU.

12.2 ASSESSMENTS (EAP)

12.2.1 Agricultural Resources Potential

12.2.1.1 Compliance Statement

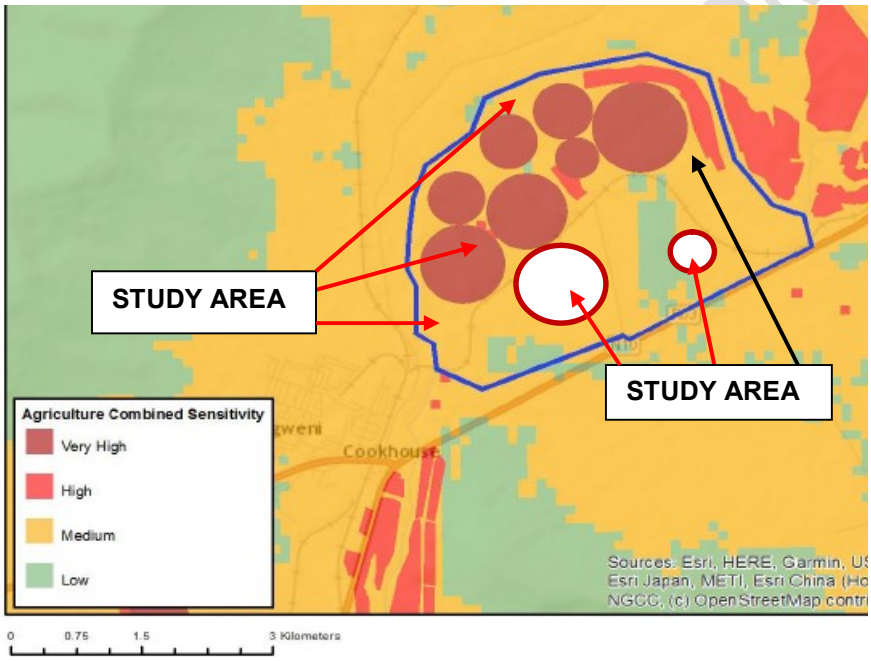
Details and relevant expertise of the agricultural specialist

See sections 2.2 and 2.3

Signed statement of independence by the specialist

See Annexure A

Map of development footprint overlaid on the agricultural sensitivity (Extract from on-line sensitivity screening report)



Calculations of the total development footprint area for each land parcel as well as the total footprint area of the development (including supporting infrastructure)

The development footprint is linked to those areas associated with the S24G process (Section 4.6)

Development footprint	Development footprint area (ha)
Very high (Existing centre pivots per Screening Tool))	73.9
Medium & High	190.2
Low (determined from soil potential map)	7.8
TOTAL DEVELOPMENT FOOTPRINT	**271.9**

Note: The areas indicated as “very high” in the Screening Tool report are verified as Medium to High potential through the physical soil potential survey

Confirmation as to whether the development footprint is in line with the development limits set in Table 1 of the assessment protocol

Development limits are provided in Table 1 of the protocol for the assessment and reporting of environmental impacts on agricultural resources for developments generating renewable energy of 20 megawatts (MW) or more on land zoned for agriculture. This project is not a renewable energy project and thus the limits prescribed in Table 1 of the protocol do not apply.

The "unauthorised" development associated with the application in terms of S24G is an "agricultural" development and is in line with the agricultural sensitivity of the area as depicted in the on-line screening report.

Confirmation as to whether the sensitivity of the agricultural resource coincides with that indicated on the web-based screening tool

The agricultural sensitivity rating as indicated by the web-based screening tool verses the assessment is discussed in the Table hereunder.

Sensitivity as per Screening Tool	Site assessment	Sensitivity verification and recommendation
Medium to very high	The sensitivity rating is based on the medium to very high potential for irrigation development in the area. The development is agricultural production under irrigation, so this complies with the land use. Current land use is on entire farm: (i) 473 ha under irrigated pasture (505.4 ha including roadways) (ii) Balance of 358.9 ha comprises indigenous vegetation and includes the Transnet railway line and the Hougham Abrahamson Irrigation Scheme canal (iii) Soil types are predominately red with a high base status. Soils are sandy loam with clay content from 8% to 20% with isolated areas with a clay content of 32% (iv) Vegetation types include: • Great Fish Thicket (largely transformed) • Southern Karoo Riviere between the Hougham Abrahamson Irrigation Scheme canal and the Great Fish River According to DRDAR (Spatial Information Management): • Land capability is marginal potential arable land and low to moderate potential grazing land; and • Grazing capacity to 11,01 – 15.0 ha per LSU. However the natural grazing is in a very poor condition and the grazing capacity is likely to be 15 ha per LSU	S24G area (271.9 ha) as indicated in soil potential survey:- 264.1 ha - Medium to high potential 7.8 ha – Low potential Specialist reports include: • Soil potential survey (Mr A Grenfell) • Terrestrial Biodiversity Assessment (Mr J Pote) • Veld condition assessment (Prof W Trollope)

Confirmation from the specialist that all reasonable measures have been taken through micro-siting to minimize fragmentation and disturbance of agricultural activities

This is commercial farm land where the development is aligned with accepted agricultural practises. Fragmentation of the property is limited to cultivation of pastures under irrigation on developed areas and the remainder of the farm unit is natural vegetation. The property is traversed by a Transnet line.

Substantiated statement on the acceptability of the development and a recommendation on the approval or not of the development

The development under discussion is linked to the unauthorised clearance of natural vegetation for the cultivation of pastures for dairy farming. The on-line screening report indicates a medium to very high agricultural sensitivity, which is understood to mean that agricultural type projects should take precedent for development of the area.

The physical soil survey indicated mainly apedal soils with an effective depth ranging from 200 mm to 1200 mm. Classified soils of a medium to high potential are suitable for development. No signs of high water tables or poor drainage were found. In general the soils are sandy soils with clay content of 10 to 20%. There are 3 small pockets of low potential soils (7.82 ha) surrounded by high and medium potential soils (265.18 ha) in the S24G study area. These low potential areas are located in areas where the gradient is <5% and would likely have been approved for the cultivation of pastures (CARA). No gradient of 20% or greater is noted.

Vegetation conservation targets are met and exceeded. Based on the assessment (CARA) of Prof W Trollope the veld condition score of the herbaceous layer is Very Poor (<40%). It is likely that the veld condition may have been worse at the time of clearance, which was some 10 – 15 years prior to the assessment.

According to the Terrestrial Biodiversity Assessment (Mr J Pote) “the historical clearing of vegetation would most likely have been deemed acceptable ecologically, as the conservation status of the units at the time was Least Concern (Vegetation of Southern Africa, 2006) and Vulnerable (STEP, 2007), while the ECBCP (2007) designation was CBA 3. This together with the level of degradation that was most likely evident at that time would most likely have led to a conclusion that the proposed clearing would have been acceptable with the impact significance likely have been considered to be low.”

The recommended carrying capacity as per Döhne Research Institute is 11.01 – 15 ha / LSU. Based on a carrying capacity of 15 ha per LSU (score of herbaceous layer is Very Poor), the area of 271.9 ha cleared for the established of pastures under irrigation (2004 – 2009) may have sustained 18 LSU on the natural grazing. In comparison the transformed area under pastures, can sustain 860 LSU, thus maximising sustainable development of land with a medium to high agricultural significance, by implementing this agricultural project.

It is recommended that the Authority approve the application.

Conditions to which the statement is subjected

NONE

Proposed impact management outcomes and/or any monitoring requirements for inclusion in the EMPr

(i) Irrigation with effluent water and spreading of sludge not to be done within 200 m of the lower edge of the cultivated lands

(ii) Irrigation application rates to be aligned to the soil infiltration tempos

(iii) Invasive alien plants to be cleared manually (chopped) or mechanically (brush-cutter) before flowering and on-going. Herbicides are not preferred and if used, only where there is no danger of the residue polluting water sources i.e. not within 200 m of the lower edge of the cultivated areas

(iv) Fertilisers application rates to be based on soil analysis

(v) Animal walkways/farm access roads shall be checked for scouring after every significant rain event and any eroded area shall be rectified immediately. Cross berms must be maintained on the steep sections on walkways to Pivots F and K.

(vi) Slurry dam walls (freeboard) to be checked annually for subsidence and any identified low areas to be lifted to prevent over-topping. Dam walls to be kept free of trees

(vii) Pipes conveying effluent water and animal waste to the slurry dams to be checked for blockages fortnightly to prevent build up on the platforms and overspill onto the roadway

Assumptions and/or any uncertainties or gaps in knowledge

The assessment is based on the information gleaned during the field assessment conducted by the EAP, Soils, Aquatic/Wetland and Terrestrial Biodiversity specialists and the outcome of Prof Trollope's veld condition assessment. There are not uncertainties or gaps in knowledge

Motivation and evidence of the changed agricultural resource sensitivity

There is no change to the agricultural resource sensitivity. The areas reflected as being "very high" are associated with the areas already under irrigation, being existing centre pivots. The areas listed as medium to high, area also under irrigation viz. centre pivots or perma-set sprinkler systems.

Photographic Record

See Section 10

Opinion

The target area is suitable for the development of pastures under irrigation and the Applicant has an existing water registration (DWS), which is deemed to be sufficient for the area under pasture, considering improved irrigation techniques and controlled water application rates. It is the EAP's opinion that had the applicant followed the correct procedures, the relevant Authorisations would in all likelihood have been issued as there are no impacts, which would have likely resulted in any application being declined.

C. J. Brand

EAP (2022/4543) & Pr Sci Nat (400354/04)

12.2.2 Socio-Economic

The project has a broad impact (Regional) with impacts at local, district and Regional level as a result of local job creation within an impoverished community (Cookhouse and Somerset East) and distribution of milk to Coega in Port Elizabeth. Local builders and material suppliers are used where required. The project has increased employment opportunities for the local community resident in the surrounding townships from 5 (pre-2004) to 52 staff of which 50 are PDI's (post-2004)

The dairy farming operation pre-February 2004 comprised of milking of 180 cows with a Gross Farm Income (GFI) of R 4.5m per annum.

The expansion of the dairy provides for the milking of 1 600 cows and a GFI of R 46.4m pa.

No further specialist report required.

12.2.3 Sense of place & visual aesthetics

Sensitivity as per Screening Tool	Site assessment	Sensitivity verification and recommendation
None	The property is zoned "agriculture. The surrounding environment is "agricultural" extending along the Great Fish River from north of Cradock through to Cookhouse and beyond and the clearing and establishment of pastures undertaken does not detract from the surrounding land use, which is primarily dairy farming on irrigated pastures and Citrus farming. 473 ha of the project area is already cultivated land being pastures under irrigation. Vegetation is discussed in the Terrestrial Biodiversity Assessment. The Southern Karoo Riviere vegetation not impacted upon as this is largely restricted to the area between the HAIS canal and the Great Fish River. The development does not impact on the conservation status of the natural vegetation, which is complied with. The natural vegetation is deemed to have been in a poor condition Portion of the farm was used for irrigated pastures pre-2004 The development has limited visual impact to road traffic on the N10	Low No specialist report required

13 ASSESSING OF IMPACTS & RANKING IN TERMS OF ENVIRONMENTAL SIGNIFICANCE (EAP)

The identification and assessment of potential impacts on biodiversity and eco-systems i.e. ecology and especially the irreversible loss of sensitive habitat and ecological functioning is an important component of an EIA. The methodology for assessing, ranking and presenting an environmental significance statement for each impact is set out hereunder.

13.1 METHODOLOGY FOR ASSESSMENT & RANKING

13.1.1 Factors affecting significance of impacts

Four factors need to be considered when assessing the significance of impacts, namely:

1. **Relationship of the impact to temporal scales** - the temporal scale defines the significance of the impact at various time scales, as an indication of the duration of the impact.
2. **Relationship of the impact to spatial scales** - the spatial scale defines the physical extent of the impact.
3. **The severity of the impact** - the severity/beneficial scale is used in order to scientifically evaluate how severe negative impacts would be, or how beneficial positive impacts would be on a particular affected system (for ecological impacts) or a particular affected party. The severity of impacts can be evaluated with and without mitigation in order to demonstrate how serious the impact is when nothing is done about it. The word “mitigation" means not just “compensation", but also the ideas of containment and remedy. For beneficial impacts, optimization means anything that can enhance the benefits. However, mitigation or optimization must be practical, technically feasible and economically viable.
4. **The likelihood of the impact occurring** - the likelihood of impacts taking place as a result of project actions differs between potential impacts. There is no doubt that some impacts would occur (e.g. loss of vegetation), but other impacts are not as likely to occur (e.g. vehicle accident), and may or may not result from the proposed development. Although some impacts may have a severe effect, the likelihood of them occurring may affect their overall significance.

Each criterion is ranked with scores assigned as presented in 13.1.2 to determine the overall significance of an activity. The criterion is then considered in two categories, viz. effect of the activity and the likelihood of the impact. The total scores recorded for the effect and likelihood are then read off the matrix presented in 13.1.3, to determine the overall significance of the impact 13.1.4. The overall significance is either negative or positive. The environmental significance scale is an attempt to evaluate the importance of a particular impact. This evaluation needs to be undertaken in the relevant context, as an impact can either be ecological or social, or both. The evaluation of the significance of an impact relies heavily on the values of the person making the judgment. For this reason, impacts of especially a social nature need to reflect the values of the affected society.

Negative impacts that are ranked as being of “VERY HIGH” and “HIGH” significance will be investigated further to determine how the impact can be minimised or what alternative activities or mitigation measures can be implemented. These impacts may also assist decision makers i.e. lots of HIGH negative impacts may bring about a negative decision.

For impacts identified as having a negative impact of “MODERATE” significance, it is standard practice to investigate alternate activities and/or mitigation measures. The most effective and practical mitigations measures will then be proposed.

For impacts ranked as “LOW” significance, no investigations or alternatives will be considered. Possible management measures will be investigated to ensure that the impacts remain of low significance.

The significance scale is an attempt to evaluate the importance of a particular impact. This evaluation needs to be undertaken in the relevant context, as an impact can either be ecological or social, or both. The evaluation of the significance of an impact relies heavily on the values of the person making the judgment. For this reason, impacts of a social nature need to reflect the values of the affected society.

13.1.2 Ranking of Evaluation Criteria

EFFECT	**Temporal Scale**			**Score**
	Short term	<5 years		1
	Medium term	Between 5 and 20 years		2
	Long term	Between 20 and 40 years (a generation) and from a human perspective almost permanent		3
	Permanent	Over 40 years and resulting in a permanent and lasting change that will always be there		4
	Spatial Scale			
	Localised	At a localised scale and a few hectares in extent		1
	Study area	The proposed site and its immediate environs		2
	Regional	District and Provincial level		3
	National	Country		3
	International	Internationally		4
	Severity		**Benefit (minus score)**	
	Slight / Slightly Beneficial	Slight impact on the affected system(s) or party(ies)	Slightly beneficial to the affected system(s) or party(ies)	1
	Moderate / Moderately Beneficial	Moderate impacts on the affected system(s) or party(ies)	An impact of real benefit to the affected system(s) or party(ies)	2
	Severe / Beneficial	Severe impacts on the affected system(s) or party(ies)	A substantial benefit to the affected system(s) or party(ies)	4
	Very Severe / Very Beneficial	Very severe change to the affected system(s) or party(ies)	A very substantial benefit to the affected system(s) or party(ies)	8
LIKELIHOOD	**Likelihood**			
	Unlikely	The likelihood of these impacts occurring is slight		1
	May Occur	The likelihood of these impacts occurring is possible		2
	Probable	The likelihood of these impacts occurring is probable		3
	Definite	The likelihood is that this impact will definitely occur		4

**In certain cases it may not be possible to determine the severity of an impact thus it may be determined as: Don't know* or *Can't know*

Note: In terms of this assessment, the temporal scale of "long term" is used as it is highly likely that agricultural land use will be changed in the near future to orchards with different hydrological impacts and flow patterns etc.

13.1.3 The matrix used for the impacts and their likelihood of occurrence

Likelihood	Effect													
	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	4	5	6	7	8	9	10	11	12	13	14	15	16	17
2	5	6	7	8	9	10	11	12	13	14	15	16	17	18
3	6	7	8	9	10	11	12	13	14	15	16	17	18	19
4	7	8	9	10	11	12	13	14	15	16	17	18	19	20

The temporal/spatial/severity scales and likelihood of occurrence for each impact will then be used to determine the ranking in terms of environmental significance. Each impact will be assessed in terms of "cause and comment, mitigation and management".

13.1.4 Ranking (Example)

RATING		Temporal Scale		Spatial Scale		Severity of Impact		Risk or Likelihood		Total
	Without Mitigation	Permanent	4	Localised	1	Severe	4	Definite	4	13
	With Mitigation	Permanent	4	Localised	1	Real benefit	-2	May occur	2	5
Overall Significance without mitigation										**High**
Overall Significance with mitigation										**Low**

The overall environmental significance (without and with mitigation) is then determined from ranking matrix hereunder and resulting in a significance statement by the EAP.

13.1.5 Ranking Matrix to provide an Environmental Significance

ENVIRONMENTAL SIGNIFICANCE		POS +	NEG -
Low	An acceptable impact for which mitigation is desirable but not essential. The impact by itself is insufficient even in combination with other low impacts to prevent development. These impacts will result in either positive or negative medium to short term effects on the social and/or natural environment	4 -7	4 -7
Moderate	An important impact which requires mitigation. The impact is insufficient by itself to prevent implementation of the project but, which in conjunction with other impacts may prevent its implementation. These impacts will result in either positive or negative medium to long term effects on the social and/or natural environment	8 - 11	8 - 11
High	A serious impact, which if not mitigated, may prevent implementation of the project. These impacts would be considered by society as constituting a major and usually long term change to the natural and/or social environment and result in severe negative or beneficial effects.	12 - 15	12 - 15
Very High	A very serious impact, which may be sufficient by itself to prevent the implementation of the project. The impact may result in permanent change. Very often these impacts are unmitigable and usually result in very serious effects or very beneficial effects	16 - 20	16 - 20

13.2 ASSESSMENT OF ENVIRONMENTAL SIGNIFICANCE

13.2.1 Loss of natural vegetation (Incl. Terrestrial, plant & animal)

Nature, significance and consequences

Development has resulted in the removal of 237 ha of natural vegetation. According to Mucina & Rutherford there are two veld types in the area, viz.

(i) The vegetation type along the Great Fish River riparian zone is Southern Karoo Riviere (AZi 6); and

(ii) The remainder of the vegetation in the study area is Great Fish Thicket (AT 11). However it must be noted that according to the specialist study, which included an on-site physical investigation this area is on a transitional unit between the solid thicket in the south-east and the drier karroid thicket units to the north-west

Removal of the natural vegetation may impact on:

- Reducing the conservation status of the two veld types;
- Two plant SSC (275 & 648) and *Aves-Circus maurus*; and
- Reduce the carrying capacity of the farm unit and economic viability; see 13.2.4

Extent and duration

Long term - Between 20 and 40 years (a generation) and from a human perspective almost permanent

Probability of the impact and risk occurring

Definite

Degree to which the impact and risk can be reversed

Cannot be reversed

Degree to which the impact and risk may cause irreplaceable loss of resources

Definite, however the increase in farm potential must be taken into consideration

Mitigation and Management

Historic information based on discussion with a former official of the Department of Agriculture reveals that this property was heavily impacted upon by over grazing (pre-1970) and to such an extent that a Directive was issued requiring the withdrawal of all livestock at that time. A recent assessment (2019) by Professor W Trollope suggests a Veld Condition Score of the Herbaceous Layer at 25%, where a score of <40 is regarded as poor.

(i) The conservation status of the Southern Karoo Riviere (AZi 6), is ***least threatened*** with a target of 24%. According to the specialist report this target is exceeded post-development (27%). This vegetation type had been impacted upon by the construction of the weir and canal (Hougham Abrahamson Irrigation Scheme) and is now limited to the area between the irrigation canal and the river and was unlikely to be impacted upon.

(ii) The conservation status of the Great Fish Thicket (AT 11), is ***least threatened*** with a target of 16%. According to the specialist report, this target is exceeded post-development (31%) It must be noted that according to the specialist study, which included an on-site physical investigation this area is on a transitional unit between the solid thicket in the south-east and the drier karroid thicket units to the north-west.

The specialist terrestrial Biodiversity Assessment found that;

- Several range restricted flora species are potentially present in the surrounding area and vegetation types; however, none were confirmed to be present and likelihood of presence is not considered to be high and no Endangered or Critically Endangered Flora species were recorded; and

- No Endangered Mammals, Reptiles, Amphibians, or Invertebrates are known to be present on the site or will be affected (other than temporary displacement during initial development). The section of river is habitat for Fish Eagles, however the impacts associated with the development and infrastructure will not differ significantly from the status quo, hence unlikely to have any additional effect on any Fish Eagles that are already in the area

In the opinion of the independent specialist (Terrestrial Biodiversity Assessment) Mr Pote states as follows: "*Based on current and historical conservation targets, it is probable that if an ecological assessment were conducted for the various parcels of land that have been cleared without authorisation, the findings of the ecological assessment would have been that the activity impact was likely low and acceptable. This is primarily based on the level of degradation that would have been evident at the time as well as the conservation status of the units at the time being Least Concern (Vegetation of Southern Africa, 2006) and Vulnerable (STEP, 2007), while the ECBCP (2007) designation was CBA 3, meaning that the proposed activity would have been deemed acceptable. This together with the level of degradation that was most likely evident at that time would most likely have led to a conclusion that the proposed clearing would have been acceptable and led to a conclusion that the impact significance would likely have been considered to be low*." This opinion is supported by the EAP, in addition the soil investigation indicates that the soils are largely of medium to high potential and thus would in all likelihood have been approved for cultivation in terms of CARA.

Ranking

		EFFECT						Risk or Likelihood		Matrix Total
		Temporal Scale		Spatial Scale		Severity of Impact				
RATING	Without Mitigation	Long term	3	Study area	2	Moderate	2	Definite	4	11
	With Mitigation	Long term	3	Study area	2	Slight beneficial	1	Unlikely	1	7
Overall Significance if no action is taken (status quo)										**Moderate**
Overall Significance with mitigation										**Low**

Significance Statement

The ranking indicates a moderate significance ranking post-mitigation

13.2.2 Flow modification, erosion and sedimentation (Aquatic & Wetland)

Nature, significance and consequences

The developed and cultivated areas have likely caused a slight change in catchment hydrology with the transformation of land from transformed and grazed natural vegetation to cultivated areas for the establishment of perennial pastures.

The development of cultivated areas may have caused some erosion and resultant sedimentation of the Great Fish River, although, this is highly unlikely and not evident on aerial imagery or noted during the site investigation. Cattle walkways to Pivots F and K and traversed by farm machinery may erode during times of wet weather

Extent and duration

Long term - Between 20 and 40 years (a generation) and from a human perspective almost permanent

Probability of the impact and risk occurring

May occur

Degree to which the impact and risk can be reversed

Can be controlled through operational management actions

Degree to which the impact and risk may cause irreplaceable loss of resources

Unlikely as the impacts can be managed

Mitigation and Management

Prioritised developed and cultivated areas in already transformed and grazed natural vegetation areas as contemplated in the Terrestrial Biodiversity Assessment and the natural vegetation assessment conducted in terms of CARA.

Re-establishment of pastures is carried out by over-sowing into the existing pastures i.e. no intensive land preparation and cultivation required. Walkways/farm access monitored after every rain event and rehabilitated if required.

Invasive alien plants are cleared manually (chopped) or mechanically (brush-cutter). Herbicides are not preferred and if used, only where there is no danger of the residue polluting water sources

Ranking

		EFFECT						Risk or Likelihood		Matrix Total
		Temporal Scale		Spatial Scale		Severity of Impact				
RATING	Without Mitigation	Long term	3	Study area	2	Moderate	2	May occur	2	9
	With Mitigation	Long term	3	Study area	2	Slightly beneficial	1	Unlikely	1	7
Overall Significance if no action is taken (status quo)										**Moderate**
Overall Significance with mitigation										**Low**

Significance Statement

The ranking indicates a moderate significance ranking post-mitigation

13.2.3 Archaeology, Cultural Heritage & Palaeontology

Nature, significance and consequences

Potential loss of archaeological and cultural heritage artefacts and fossil heritage

Extent and duration

Long term - Between 20 and 40 years (a generation) and from a human perspective almost permanent

Probability of the impact and risk occurring

Unlikely

Degree to which the impact and risk can be reversed

No impact to be reversed

Degree to which the impact and risk may cause irreplaceable loss of resources

Unlikely

Mitigation and Management

The two identified bridges (cattle walkways) are conserved within the railway reserve and are part of the railway infrastructure

No archaeological and cultural artefacts were noted on the surface during the walk through of the study area

The Archaeologist & Cultural Heritage specialist has recommended that any archaeological and cultural heritage repair orders or fines that may be applicable in terms NHRA 1999, be waived in terms of Section 55 and that any fines that may apply to the archaeological and cultural heritage component in terms of IEM, as premised by NEMA 1998, be waived

As no Palaeontological Heritage was detected during the previous site investigation it is highly unlikely that the developments during 2004-2009 impacted on Palaeontological Heritage

Ranking

		EFFECT						Risk or Likelihood		Matrix Total
		Temporal Scale		Spatial Scale		Severity of Impact				
RATING	Without Mitigation	Long term	3	Study area	2	Moderate	2	Unlikely	1	8
	With Mitigation	Long term	3	Study area	2	Slight	1	Unlikely	1	7
Overall Significance if no action is taken (status quo)										**Moderate**
Overall Significance with mitigation										**Low**

Significance Statement

The ranking indicates a low significance ranking post-mitigation

13.2.4 Agricultural potential

Nature, significance and consequences

The loss of agricultural natural resources (soil and grazing) as a result of the clearance of natural vegetation resulting in an impact on the economic viability of the property

Extent and duration

Long term - Between 20 and 40 years (a generation) and from a human perspective almost permanent

Probability of the impact and risk occurring

Definite

Degree to which the impact and risk can be reversed

Cannot be reversed

Degree to which the impact and risk may cause irreplaceable loss of natural resources (vegetation)

Definite, however the increase in farm potential out ways the loss of the natural grazing

Mitigation and Management

The physical soil survey indicated mainly apedal soils with an effective depth ranging from 200mm to 1200 mm. Classified soils of a medium to high potential are suitable for development. The soils in general are red to red/brown topsoil's with some yellowing in subsoil indicating a good drainage. No signs of high water tables or poor drainage were found. In general the soils are sandy soils with clay content of 10 to 20%. *There is one isolated area of low potential soil near the middle of Pivot I and surrounded by high and medium potential soils. Soils of low potential are noted along a section of the perimeter of Pivot J. These low potential areas are located in areas where the gradient is <5% and likely to have been approved for the cultivation of pastures (CARA). No gradient of 20% or greater is noted.*

Vegetation conservation targets are met and exceeded - Based on the assessment (CARA) of Prof W Trollope the veld condition score of the herbaceous layer is Very Poor (<40%). It is likely that the veld condition may have been worse at the time of clearance, which was some 10 – 15 years prior to the assessment.

The cleared areas have been established to permanent pastures. The recommended carrying capacity as per Döhne Research Institute is 11.01 – 15 ha / LSU. Based on a carrying capacity of 15 ha per LSU (score of herbaceous layer is Very Poor), the area of 271.9 ha cleared for the established of pastures under irrigation (2004 – 2009) may have sustained 18 LSU on the natural grazing. In comparison the transformed area under pastures, could sustain 860 LSU.

The transformation can be regarded as being of High Positive in terms of land use and GFI.

Ranking

		EFFECT						Risk or Likelihood		Matrix Total
		Temporal Scale		Spatial Scale		Severity of Impact				
RATING	Without Mitigation	Long term	3	Study area	2	Very severe	8	Definite	4	17
	With Mitigation	Long term	3	Study area	2	Very beneficial + (project implemented)	8	Definite	4	17
Overall Significance if no action is taken after clearance										**Very high**
Overall Significance with mitigation										**Very high**

Significance Statement

The ranking indicates a very high positive significance post-mitigation associated with the loss of natural grazing and replacement with permanent pastures in terms of increased GFI

13.2.5 Pollution through operational processes

Nature, significance and consequences

Potential pollution of the natural resources through the storage of dairy effluent and animal waste in un-lined earth storage dams.

Potential pollution of the soils through irrigation of pastures with the effluent water and spreading of the dried sludge over the pasture areas

Extent and duration

Long term - Between 20 and 40 years (a generation) and from a human perspective almost permanent

Probability of the impact and risk occurring

Unlikely

Degree to which the impact and risk can be reversed

Cannot be reversed

Degree to which the impact and risk may cause irreplaceable loss of resources

Unlikely

Mitigation and Management

The use of earth slurry dams on dairy farms in South Africa is a common practice for capturing and storing effluent water from the dairy and animal waste.

Effluent water discharged from the dairy and floor stand area is estimated at 40 m³ per day and animal waste (manure) washed into the effluent dams is estimated at 1 600 kg/day

Slurry dams facilitate the separation of the solid and liquid fraction through settling, which normally significantly improves water quality through each dam stage – 4 dams are used in this case and are >300 m from any riparian habitat. There is no evidence of seepage below these dams, which would indicate that they are effectively sealed.

The final water quality is rich in nutrients and is put through the irrigation system to irrigate pastures, which can lead to a reduction in the use of artificial fertiliser requirements

Dried sludge is spread over recently grazed pasture areas to build up humus content of the soils. Sludge also contains P and N nutrients. Livestock only return >3 weeks after application to these areas.

Irrigation with “final” effluent water and placement of sludge (dried animal waste) is done >200 m from the Hougham Abrahamson Canal, which forms a buffer between the development areas and the Great Fish River

Irrigation with effluent water must be registered with DWS in terms of the NWA (Act 36 of 1998)

Research has shown that due to the physical properties of dairy effluent and the storage thereof in earthen ponds, the ponds develop a seal that limits loss of both water and nutrients to the soil and groundwater below effluent dams. This is not greatly affected by soil type, and is true for earthen ponds dug/built in clay, silt or sand soils (Meyer et al. 1972); Manure holding ponds found self-sealing (California Agriculture-Barrington et al. 1987) and The sealing of soil by manure (Canadian Agricultural Engineering Vol 29 no.2).

Diesel tank is 13 m³ and was on the farm at time of purchase and located in a secure area.

Fertilisers are in appropriate covered storage facilities. Application rates are based on analysis and recommendations and currently using 300 units of N, 40 units of P and 40 units of K (Potassium) per year. The goal is to bring this down by 50% and only concentrate on poorer performing areas as the soil health and fertility improve. Pastures are fertilised once a month.

There is no evidence of pollution resulting from fertilisers at the discharge into the Great Fish River, likely due to correct irrigation design and practises linked to soil infiltration rate thus promoting absorption and

limiting run-off

Animal medicines are in appropriate secure storage facilities

Ablution facilities for employees are linked to a conservancy/septic tank system

Dipping facility is a spray race adjacent to the dairy facility and generic over the counter dips are used. Dipping takes place fortnightly throughout the year except in high-risk times such as March where dipping may be done every week if infestations are high

Invasive alien plants are cleared manually (chopped) or mechanically (brush-cutter). Herbicides are not preferred and if used, only where there is no danger of the residue polluting water sources

Ranking

		EFFECT						Risk or Likelihood		Matrix Total
		Temporal Scale		Spatial Scale		Severity of Impact				
RATING	Without Mitigation	Long term	3	Study area	2	Slight	1	May occur	2	8
	With Mitigation	Long term	3	Study area	2	Slightly beneficial	1	Unlikely	1	7
Overall Significance if no action is taken (status quo)										**Moderate**
Overall Significance with mitigation										**Low**

Significance Statement

The ranking indicates a low significance ranking

13.2.6 Socio-economic

Nature, significance and consequences

Change in land use by removal of natural vegetation (grazing) and replacement with pastures under irrigation and associated impact on the socio-economic activity of the property and the local community.

Extent and duration

Long term - Between 20 and 40 years (a generation) and from a human perspective almost permanent

Probability of the impact and risk occurring

Definite positive socio-economic impact

Degree to which the impact and risk can be reversed

The impact is positive to the applicant and for job creation so there is no reason to reverse the impact

Degree to which the impact and risk may cause irreplaceable loss of resources

Highly unlikely

Mitigation and Management

The project has increased employment opportunities for the local community resident in Cookhouse from 5 pre-2004 to 52 staff of which 50 are PDI's

The dairy farming operation pre-February 2004 comprised of milking of 180 cows with a Gross Farm Income (GFI) of R 4.5m per annum.

The expansion of the dairy provides for the milking of 1 600 cows and a GFI of R 46.4m pa.

Ranking

		EFFECT						Risk or Likelihood		Matrix Total
		Temporal Scale		Spatial Scale		Severity of Impact				
RATING	Without Mitigation	Long term	3	Regional	3	Very beneficial +	8	Definite	4	18
	With Mitigation	Long term	3	Regional	3	Very beneficial + (project implemented)	8	Definite	4	18
Overall Significance if no action is taken (status quo)										~~Very high~~
Overall Significance with mitigation										~~Very high~~

Significance Statement

The ranking indicates a very high positive significance in terms of benefit to the applicant and local community

13.2.7 Sense of place & visual aesthetics

Nature, significance and consequences

Removal of natural vegetation (grazing) and replacement with pastures under irrigation resulting in a change in visual aesthetics of the area.

Extent and duration

Permanent - Over 40 years and resulting in a permanent and lasting change that will always be there

Probability of the impact and risk occurring

Definite

Degree to which the impact and risk can be reversed

Cannot be reversed

Degree to which the impact and risk may cause irreplaceable loss of resources

Loss of natural vegetation

Mitigation and Management

The property is zoned “agriculture: and the surrounding environment is “agricultural” extending along the Great Fish River from north of Cradock through to Cookhouse and beyond and the clearing and establishment of pastures undertaken does not detract from the surrounding land use, which is primarily dairy farming on irrigated pastures and Citrus farming.

The development does not impact on the conservation status of the natural vegetation, which is complied with.

The natural vegetation is deemed to have been in a poor condition (see 12.1.4.2)

Portion of the farm was used for irrigated pastures pre-2004

The development has limited visual impact to road traffic on the N10

Ranking

		EFFECT						Risk or Likelihood		Matrix Total
		Temporal Scale		Spatial Scale		Severity of Impact				
RATING	Without Mitigation	Permanent	4	Study areal	2	Slight	1	Unlikely	1	8
	With Mitigation	Long term	3	Study area	2	Slight	1	Unlikely	1	7
Overall Significance if no action is taken (status quo)										**Moderate**
Overall Significance with mitigation										**Low**

Significance Statement

The ranking indicates a low significance

13.3 SUMMARISED ASSESSMENT OF IMPACTS

IMPACT	SIGNIFICANCE RATING POST-MITIGATION	ADDITIONAL ASSESSMENT OR MITIGATION REQUIRED (YES / NO)
Loss of natural vegetation (incl. Terrestrial, animal and plant)	Low	**No**
Flow modification, erosion and sedimentation	Low	**No**
Impact on heritage and cultural artefacts (Archaeology) & Palaeontology	Low	**No**
Agricultural potential	Very high (positive)	**No**
* Pollution through operation processes	Low	**No**
Socio-economic impact	Very high (positive)	**No**
Sense of place and visual aesthetics	Low	**No**

***Irrigation with effluent water will be registered with DWS in terms of the NWA (Act 36 of 1998)**

13.4 POSITIVE AND NEGATIVE IMPACTS OF THE DEVELOPMENT

13.4.1 Positive and/or negative impacts on local aspects

This section deals with the positive and negative cumulative impacts resulting from the outcome of the implementation of the project. The positive and negative impacts were identified through an intensive study of the project area, thorough public participation process as per the NEMA Regulations and the outcome of independent specialist reports.

Positive and/or negative impacts on local aspects

Aspects	Effect of Impact + / - and/or significance	Comment and/or Mitigation
Geographical and Visual	Positive	The development has had no direct negative impact on the geographical (landscape gradients) attributes of the area. In terms of visual aesthetics one can only assume that the area developed through 2004 – 2009 had similar aesthetics as the current undeveloped areas on the property, although one must consider the 1998 aerial imagery, which clearly shows that some areas considered in this S24G process, were impacted upon prior to 1998. The 2019 study by Professor W Trollope indicates that the natural vegetation is in a very poor condition. Considering this, one must assume that the development has not impacted negatively upon the visual aesthetics. In addition vast tracts of land adjacent to the Great Fish River both, above and below Cookhouse have similarly been developed, so this development does not stand out from the norm for agricultural development in the area.
Physical	Insignificant	The development has no impact on any existing physical features viz. the Transnet line, the N10 and Sentech transmission tower. Sentech has not objected to the proposed future solar development.
Biological	Insignificant	The Terrestrial Biodiversity Assessment report does not flag any ecology issues (animal and plant) and the specialist concludes: “Based on the ecological assessment conducted in 2020/2021, it is likely that the vegetation that was cleared was degraded, as the site was historically overgrazed and degraded and with conversion to pastures, the natural veld has more than likely recovered to some extent over the last few years. Based on current and historical conservation targets, it is probable that if an ecological assessment were conducted for the various parcels of land that have been cleared without authorisation, the findings of the ecological assessment would have been that the activity impact was likely low and acceptable. This is primarily based on the level of degradation that would have been evident at the time as well as the conservation status of

		the units at the time being *Least Concern* (Vegetation of Southern Africa, 2006) and *Vulnerable* (STEP, 2007), while the ECBCP (2007) designation was CBA 3, meaning that the proposed activity would have been deemed acceptable. This together with the level of degradation that was most likely evident at that time would most likely have led to a conclusion that the proposed clearing would have been acceptable. The historical clearing of vegetation would most likely have been deemed acceptable ecologically, as the conservation status of the units at the time was Least Concern (Vegetation of Southern Africa, 2006) and Vulnerable (STEP, 2007), while the ECBCP (2007) designation was CBA 3. This together with the level of degradation that was most likely evident at that time would most likely have led to a conclusion that the proposed clearing would have been acceptable with the impact significance likely have been considered to be low. The remaining vegetation on the affected property, inclusive of historically cleared areas as well as the area subject to this environmental application, is within current conservation targets for the affected vegetation units." The impact assessment determines a low significance in terms of potential pollution through operational processes (slurry dams)
Social	Positive	The development has had no negative impact in terms of "social" aspects. One must however consider that the development has had a significant positive impact in terms of sustainable job creation with an increase of 47 PDI employment opportunities.
Economic	Positive	Project has a positive impact for the land user in terms of increased sustainable farm income and in addition improved job creation within an impoverished community, when considered against the status quo in 2004. The cleared area could have sustained 18 LSU (natural vegetation), whereas the same area under irrigated pastures can maintain ±860 LSU (dairy cows).
Archaeology/Cultural Heritage and Fossils	Insignificant	The specialist reports have not flagged any issues and the Archaeology/Cultural Heritage specialist has concluded that the railway bridges in proximity to the development (as listed in the Screening Report) are satisfactorily conserved.

13.4.2 Potential impact of the listed activities on environmental and socio-economic attributes prior to mitigation

The potential impact of the listed activities on environmental and socio-economic attributes identified during the assessment phase (prior to mitigation) is evaluated on the same attributes against the potential impact of the option wherein the listed activity is not licensed and must be removed. The summary of this assessment is provided in the table below. Where impacts are applicable to both the status quo and the expansion, a value of 0 is applied

Expansion of dairy farm

Attributes	Expansion of existing dairy farm	Existing dairy farm Status Quo
NATURAL ENVIRONMENT		
*Air pollution	-1	0
Noise pollution	0	0
Soil erosion	-1	0
Water resource pollution	-1	0
Transformation of indigenous vegetation	-1	0
Fauna	0	0
Sensitive environments	0	0
Heritage impact	0	0
Visual aesthetics	0	0
Economic Environment		
Process efficiency	1	0
Job creation	1	0
Social Environment		
Employment opportunities & skills development	1	0
Development / Implementation		
Technology	1	0
Infrastructure	1	0
Safety and security	1	0
TOTALS	**2**	**0**

Note: Positive Impact = 1, No Impact = 0 and Negative Impact = -1

***Air pollution –** this is included as there may have been temporary dust pollution during bush clearing and burning of brush piles

The positive environmental and social impacts of the development option outweigh the negative impacts. The consideration of the “no-go or status quo” option can be dismissed as a sustainable alternative.

14 MITIGATION MEASURES CONSIDERED & LEVEL OF RESIDUAL RISKS

Mitigation measures are summarised from the specialist reports. Specialist reports are included in Annexure D.

Mitigation measures and level of residual risk

IMPACT	MITIGATION MEASURES	RESIDUAL RISKS
Loss of agricultural potential	The physical soil survey indicated mainly apedal soils with an effective depth ranging from 200mm to 1200 mm. Classified soils of a medium to high potential are suitable for development. The soils in general are red to red/brown topsoil's with some yellowing in subsoil indicating a good drainage. No signs of high water tables or poor drainage were found. In general the soils are sandy soils with clay content of 10 to 20%. There is one isolated area of low potential soil near the middle of Pivot I and surrounded by high and medium potential soils. Soils of low potential are noted along a section of the perimeter of Pivot J. These low potential areas are located in areas where the gradient is <5% and likely to have been approved for the cultivation of pastures (CARA). No gradient of 20% or greater is noted. Vegetation conservation targets are met and exceeded - Based on the assessment (CARA) of Prof W Trollope the veld condition score of the herbaceous layer is Very Poor (<40%). It is likely that the veld condition may have been worse at the time of clearance, which was some 10 – 15 years prior to the assessment. The cleared areas have been established to permanent pastures. The recommended carrying capacity as per Döhne Research Institute is 11.01 – 15 ha / LSU. Based on a carrying capacity of 15 ha per LSU (score of herbaceous layer is Very Poor), the area of 273 ha cleared for the established of pastures under irrigation (2004 – 2009) may have sustained 18 LSU on the natural grazing. In comparison the transformed area under pastures, could sustain 860 LSU.	None - Agricultural potential has been enhanced
Aquatic & Wetland Impacts	• No direct impact on the Great Fish River or any wetland	None

(Hydrology, Erosion and sedimentation)	• Re-establishment of pastures is carried out by over-sowing into the existing pastures i.e. no intensive land preparation and cultivation required. • Cross berms to be maintained on steep areas of walkways to Pivots F and K • Walkways/farm access monitored after every rain event and rehabilitated if required.	
Impact on archaeological, cultural and fossil heritage	The two identified bridges (cattle walkways) are conserved within the railway reserve and are part of the railway infrastructure As no Palaeontological Heritage was detected during the previous site investigation it is highly unlikely that the developments during 2004-2009 impacted on Palaeontological Heritage	None
Impact on terrestrial biodiversity including animal and plant species	• The habitats and microhabitats present on the project site are not unique and are widespread in the general area, • Small mammals within the habitat on and around the affected area are generally mobile and likely to be transient to the area. • No SSC (Endangered or Critically Endangered) Flora species were recorded • No Endangered Mammals, Reptiles, Amphibians, or Invertebrates are known to be present on the site • The section of river is habitat for Fish Eagles and unlikely to be affected by the clearance • The conservation status (least concern) of both vegetation units are exceeded post-develpment • Invasive alien plants are cleared manually (chopped) or mechanically (brush-cutter). Herbicides are not preferred and if used, only where there is no danger of the residue polluting water sources	None
Pollution through operational processes	• Slurry dam walls (freeboard) to be checked annually for consolidation and any identified low areas to be lifted to prevent over-topping	Low if O&MM is applied

	• Pipes conveying effluent water and animal waste to the slurry dams to be checked for blockages regularly to prevent build up on the platforms and overspill onto the roadway. • Irrigation with effluent water and spreading of sludge not to be done within 200 m of the lower edge of the cultivated lands • Invasive alien plants are cleared manually (chopped) or mechanically (brush-cutter). Herbicides are not preferred and if used, only where there is no danger of the residue polluting water sources • Diesel tank is 13 m³ and located in a secure area. • Fertilisers are in appropriate covered storage facilities. Application rates are based on analysis and the risk of pollution is unlikely as irrigation application rates are based on soil infiltration tests, which will limit run-off and allow for fertiliser to be taken up in the soil • Animal medicines and chemicals are in appropriate secure storage facilities • Ablution facilities for employees are linked to a conservancy/septic tank system • Dipping facility is a spray race adjacent to the dairy facility	

14.1 SUMMARY OF THE POSITIVE AND NEGATIVE IMPACTS AND RISKS

14.1.1 Positive impacts

IMPACT	COMMENT
Increase in agricultural potential of the farm	Development of the pastures under irrigation has increased the carrying capacity of the farm from 180 dairy cows (2004) to 1 700 dairy cows with an increase in GFI from 4.5m pa to 46.4m pa. Conservation targets in terms of the natural vegetation types are exceeded
Socio-economic	Employment from within the local community has increased from 5 in 2004 to 52 of which 50 are PDI's. GFI has increased from 4.5m pa to 46.4m pa

14.1.2 Negative impacts or risks

IMPACT / RISK	COMMENT
Pollution through operational processes	Impact or risk is considered to be low providing the operational mitigation measures are applied • Slurry dam walls (freeboard) to be checked annually for consolidation and any identified low areas to be lifted to prevent over-topping • Pipes conveying effluent water and animal waste to the slurry dams to be checked for blockages regularly to prevent build up on the platforms and overspill onto the roadway. • Irrigation with effluent water and spreading of sludge not to be done within 200 m of the lower edge of the cultivated lands • Invasive alien plants are cleared manually (chopped) or mechanically (brush-cutter). Herbicides are not preferred and if used, only where there is no danger of the residue polluting water sources • Fertilisers application rates are based on soil analysis and the risk of pollution is unlikely as irrigation application rates are based on soil infiltration tests, which will limit run-off and allow for fertiliser to be taken up in the soil • Ablution facilities for employees are linked to a conservancy/septic tank system • Dipping facility is a spray race adjacent to the dairy facility • Maintenance of animal walkways/farm machinery access roads

15 ASSESSMENT OF POTENTIAL SIGNIFICANT RISKS

This assessment and determination of significance rating of risks is based on the methodology discussed in section 13.1 and assessment in 13.2 and would address risks noted as **moderate, high and very high significance**, post-mitigation only.

There are no risks noted as moderate, high and very high significance, post-mitigation.

Pollution through operational processes may pose a limited risk, but this is rated as low, considering the mitigation measures linked to operational procedures.

IMPACT	SIGNIFICANCE RATING POST-MITIGATION	ADDITIONAL ASSESSMENT OR MITIGATION REQUIRED (YES / NO)
Loss of natural vegetation (incl. Terrestrial, animal and plant)	Low	**No**
Flow modification, erosion and sedimentation	Low	**No**
Impact on heritage and cultural artefacts (Archaeology) & Palaeontology	Low	**No**
Agricultural potential	Very high (positive)	**No**
* Pollution through operation processes	Low	**No**
Socio-economic impact	Very high (positive)	**No**
Sense of place and visual aesthetics	Low	**No**

***Irrigation with effluent water will be registered with DWS in terms of the NWA (Act 36 of 1998)**

16 ENVIRONMENTAL IMPACT STATEMENT

The applicant purchased the property as a going concern in 2004 where the land use was primarily dairy farming on irrigated pastures with the remainder of the farm used as natural grazing. The property has a water allocation managed by the Great Fish River Water Users Association in conjunction with the sub-area Hougham Abrahamson Irrigation Scheme management committee. The applicant embarked on the expansion of the dairy farming component over the period 2004 - 2009, which included:

- clearing natural vegetation and establishing permanent pastures under irrigation;
- developing irrigation infrastructure on the pasture areas with associated cattle walkways/farm machinery roads and additional pump stations on the Hougham Abrahamson Irrigation Scheme canal;
- developing a dairy parlour with associated infrastructure, including water storage, bulk milk tanks, office, canteen and ablution facilities for the dairy staff; and
- Construction of four (4) slurry dams for the storage of effluent water and animal waste from the dairy and standing platforms. Water from the 4th dam (final dam in the sequence) is put through the irrigation system and dried sludge spread over the pasture areas to build up humus content.

The applicant failed to submit applications for authorisations/registration to applicable Authorities in terms of the following legislation:

- ECA EIA: Between 10 May 2002 and before end of day 02 July 2006;
- NEMA EIA: Between 03 July 2006 and before end of day 01 August 2010;
- CARA, 1983 – Cultivation of virgin land;
- NWA, 1998 – Irrigation with effluent water;

Mr N M Mbikwana (Londi & Associates WULA Consulting) has been appointed by the applicant to implement the application for a water use licence (WULA) or General Authorisation (GA), as may be required and this shall encompass the slurry dams and irrigation with final effluent water.

The development is above (outside) of the 1-in-100 year flood line with the Hougham Abrahamson Irrigation Scheme canal located between the cultivated areas and the 1-in-100 year flood line.

The reports compiled by independent specialists, in terms of the aquatic and wetland assessment, terrestrial biodiversity assessment (including animals and plants), archaeology/cultural heritage and palaeontology conclude that the impacts will be of low significance considering the mitigation measures. The two bridges listed as heritage items are conserved within the railway reserve.

Impact on agricultural potential is considered to be very high+ (positive) as development of the pastures has predominately been on areas of medium to high potential soil. The relatively small

area of low potential soils (7.8 ha) would have in all likelihood been approved for cultivation of pastures in terms of CARA. In addition the condition of the natural vegetation is considered to be very poor with a very low grazing capacity and no SSC were noted on the remaining areas.

Socio-economic impact, is rated as very high+ (positive) as this development has resulted in employment from within the local community increasing tenfold from 5 in 2004 to 50 PDI's and the GFI has increased from 4.5m pa to 46.4m pa.

Possible impacts from pollution resulting from the slurry dams and scouring within walkways/farm roads is considered to be low, providing operational mitigation measures are implemented.

To date no I&AP has indicated any objection to the historic development.

The development has resulted in a permanent alteration to the landscape, however the land use is in line with adjoining properties and the entire area along the Great Fish River, which primary land use is agricultural production.

The original planning and implementation of the Orange River/Great Fish River Irrigation Scheme was to provide a sustainable water supply to promote agricultural development on land adjacent to the Great Fish River. The development on Burlington Farm is in line with this vision.

Corrective (remedial actions) and operational measures are set out in Section 17. An Environmental and Operational Management Programme (E&OMP) has been developed and deemed to cover relevant operational matters; **See Annexure E**.

This is an agricultural development on land zoned as "agriculture" and the on-line screening tool indicates the agricultural resources as being of medium, high and very high significance and it is the EAP's opinion that had the applicant followed the correct procedures, the relevant Authorisations would in all likelihood have been issued as there are no impacts, which would have likely resulted in any application being declined.

17 RECORDING OF PROPOSED IMPACT MANAGEMENT OUTCOMES

17.1 CORRECTIVE ACTIONS REQUIRED

(i) Spill kit (fuel/oil) to be maintained at farm stores

17.2 OPERATIONAL MEASURES ON-GOING

These measures to form part of the standard farming operational procedures.

(i) Slurry dam walls (freeboard) to be checked annually for subsidence and any identified subsided areas to be addressed to prevent over-topping. Dam walls to be kept free of trees

(ii) Pipes conveying effluent water and animal waste to the slurry dams to be checked for blockages fortnightly to prevent build up on the platforms and overspill onto the roadway.

(iii) Irrigation with effluent water and spreading of sludge not to be done within 200 m of the lower edge of the cultivated lands

(iv) Irrigation application rates should be in line with soil infiltration tempos

(v) Fertilisers application rates to be based on soil analysis

(vi) Ablution facilities for employees are linked to a conservancy/septic tank system, which system shall be maintained

(vii) Animal walkways/farm access roads shall be checked for scouring after every significant rain event and any eroded area shall be rectified immediately. Cross berms must be maintained on the steep sections on walkways to Pivots F and K.

(viii) Invasive alien plants to be cleared manually (chopped) or mechanically (brush-cutter) before flowering and on-going. Herbicides are not preferred and if used, only where there is no danger of the residue polluting water sources i.e. not within 200 m of the lower edge of the cultivated areas

18 ASSUMPTIONS, UNCERTAINTIES AND GAPS IN KNOWLEDGE

There are no assumptions, uncertainties or gaps in knowledge as all information contained in this report is verifiable and the use of independent specialists has been used to ensure that all sensitivity themes noted as having a medium, high or very high environmental sensitivity have been professionally assessed and reported on. These specialists were originally appointed to compile reports for the proposed Citrus development and were requested to provide an addendum or compliance letter as they deemed fit for the purposes of the report. In addition a specialist has been appointed to drive the WULA and registration of irrigation with effluent water in terms of the NWA, 1998.

Independent specialist reports/addendums/letters include:

(i) Aquatic and wetland biodiversity

(ii) Terrestrial biodiversity

(iii) Soil potential survey

(iv) Clearance of Indigenous Herbaceous and Tree / Shrub Vegetation, February 2020 – Prof W Trollope

(v) Archaeology and cultural heritage

(vi) Palaeontology

The EAP who is also an agricultural specialist has commented on the agricultural resources and agricultural potential aspects.

The EAP is thus confident that all avenues have been followed in conducting and compiling this report.

19 OPINION AS TO WHETHER THE PROPOSED ACTIVITY SHOULD OR SHOULD NOT BE AUTHORISED

The development is above the 1-in-100 year flood line with the Hougham Abrahamson Irrigation Scheme canal located between the cultivated areas and the 1-in-100 year flood line and has no direct impact on the Great Fish River.

The reports compiled by independent specialists, in terms of the aquatic and wetland assessment, terrestrial biodiversity assessment (including animals and plants), archaeology/cultural heritage and palaeontology conclude that the impacts will be of low significance considering the mitigation measures.

Impact on agricultural potential is considered to be very high+ (positive) as development of the pastures has predominately been on areas of medium to high potential soil. In addition the condition of the natural vegetation is considered to have been poor with a very low grazing capacity and no SSC were noted on the remaining areas.

Socio-economic impact, is rated as very high+ (positive).

Possible impacts from pollution resulting from the slurry dams and scouring within walkways/farm roads is considered to be low, providing operational mitigation measures are implemented.

To date no I&AP has indicated any objection to the historic development.

This is an agricultural development project on land zoned as “agriculture” and the on-line screening tool indicates the agricultural resources as being of medium, high and very high significance and it is the EAP’s opinion that had the applicant followed the correct procedures, the relevant Authorisations would in all likelihood have been issued as there are no impacts, which would have likely resulted in any application being declined.

It is the EAP’s opinion that the development be authorised.

20 PERIOD FOR WHICH THE ENVIRONMENTAL AUTHORISATION IS REQUIRED

This development is regarded as an activity resulting in a permanent and lasting change that will always be there in some form of agricultural production venture.

No date is prescribed on which the farming activity will be concluded as the farming operations will be on-going for the duration of the dairy farming project and foreseeable future.

The Authority is reminded that following successful conclusion of this S24G process, it remains the applicant's intention to submit an application for an EA for the transformation of ±90 ha of additional natural vegetation to Citrus Orchards together with the existing the pasture areas and new infrastructure, which includes a solar facility, hydropower plant, pump station, pipelines and off-stream storage dam.

21 FINANCIAL PROVISION FOR THE REHABILITATION, CLOSURE, AND ONGOING POST DECOMMISSIONING MANAGEMENT OF NEGATIVE ENVIRONMENTAL IMPACTS

There are no additional negative environmental impacts identified that require the applicant to make financial provision for rehabilitation, closure and on-going post decommissioning management.

This project going forward requires only operational management measures, which cost is not deemed to require financial provision and the Applicant undertakes to implement the recommendations.

Closure is not contemplated as the property will be used for agricultural production, whether dairy or other and the Authority is reminded that following successful conclusion of this S24G process, it remains the applicant's intention to submit an application for an EA for the transformation of ±90 ha of additional natural vegetation to Citrus Orchards together with the existing the pasture areas and with infrastructure, which includes a solar facility, pump station, pipelines and off-stream storage dam. Thus the final land use remains agricultural production.

22 SPECIFIC INFORMATION THAT MAY BE REQUIRED BY THE COMPETENT AUTHORITY

The competent authority has not requested any additional specific information at the time of drafting this S24G Report. Usually, the letter of acceptance of the application in terms of S24G states only that the EIA studies be compiled in accordance with Appendix 3(3) of the 2014 Regulations. This S24 G Report complies with this requirement.

23 MATTERS REQUIRED IN TERMS OF SECTION 24(4)(A) AND (B) OF THE ACT

Where environmental impact assessment has been identified as the environmental instrument to be utilised in informing an application for environmental authorisation, subsection (4)(b) is applicable as set out hereunder.

4(b) must include, with respect to every application for an environmental authorisation and where applicable—

(i) investigation of the potential consequences or impacts of the alternatives to the activity on the environment and assessment of the significance of those potential consequences or impacts, including the option of not implementing the activity;

(ii) investigation of mitigation measures to keep adverse consequences or impacts to a minimum;

(iii) investigation, assessment and evaluation of the impact of any proposed listed or specified activity on any national estate referred to in section 3(2) of the National Heritage Resources Act, 1999 (Act No. 25 of 1999), excluding the national estate contemplated in section 3(2)(i)(vi) and (vii) of that Act;

(iv) reporting on gaps in knowledge, the adequacy of predictive methods and underlying assumptions, and uncertainties encountered in compiling the required information;

(vii) Investigation and formulation of arrangements for the monitoring and management of consequences for or impacts on the environment, and the assessment of the effectiveness of such arrangements after their implementation;

(viii) consideration of environmental attributes identified in the compilation of information and maps contemplated in subsection (3); and

(ix) provision for the adherence to requirements that are prescribed in a specific environmental management Act relevant to the listed or specified activity in question.

These requirements are deemed to have been met in this assessment.

24 REFERENCES

(i) The National Environmental Management Act, 1998 (Act 108 of 1998) ("NEMA"), as amended, and its various, relevant derivatives, e.g. Biodiversity Act (Act 10 of 2004).

(ii) National web-based environmental screening tool in terms of section 24(5)(h) of the NEMA, 1998 (Act No 107 of 1998) and regulation 16(1)(b)(v) of the EIA regulations, 2014.

(iii) Environmental Impact Assessment Regulations, 2014, published under Government Notice No. 982 in Gazette No. 3822 of 4 December 2014, in terms of sections 24(5) and 44 of the National Environmental Management Act, 1998 (Act No. 107 of 1998) and Government Notice 326 dated 7th April 2017, titled Amendments to the Environmental Impact Assessment Regulations, 2014: and

(iv) Government Notice 807 dated 10th October 2012, titled Public participation in the Environmental Impact Assessment process.

(v) The National Water Act (Act 36 of 1998)

(vi) The Conservation of Agricultural Resources Act, 1983 (Act 43 of 1983).

(vii) The National Heritage Resources Act, 1999 (Act 25 of 1999) ("NHRA");

(viii) Eastern Cape Biodiversity Conservation Plan (2007)

(ix) Department: Eastern Cape Rural Development & Agrarian Reform, Döhne Agricultural Development Institute, Spatial Information Management

(x) Burlington Citrus Soil Survey, 11th November 2019 – ATS Consulting & Management Services (Pty) LTD

(xi) Burlington Farm Citrus Development - Clearance of Indigenous Herbaceous and Tree / Shrub Vegetation, February 2020 – Prof W Trollope

(xii) Aquatic and wetland impact assessment report, August 2022 – JS Environmental

(xiii) Terrestrial biodiversity assessment, 26th July 2022 – Mr Jamie Pote

(xiv) Archaeological and cultural heritage impact assessment, 4th July 2022 – ArcheoMaps

(xv) Palaeontological impact assessment, December 2020 and Addendum. January 2023 – Banzai Environmental

ANNEXURE A: UNDERTAKING UNDER OATH BY THE EAP

ANNEXURE B: CV of EAP

ANNEXURE C: PUBLIC PARTICIPATION PROCESS

ANNEXURE D: SPECIALIST REPORTS, DECLARATIONS & CV's

D1: Ms J Smith (Aquatic & Wetland Impact Assessment)

D2: Mr J Pote (Terrestrial including animals and plants)

D3: Mr A Grenfell (Soil survey)

D4: Prof W Trollope (Vegetation as per CARA requirements)

D5: Ms K van Ryneveld (Archaeological & Cultural Heritage)

D6: Mrs E Butler (Paleontological Impact Assessment)

ANNEXURE E: ENVIRONMENTAL & OPERATIONAL MANAGEMENT PROGRAMME