



Phelan eFuels Saldanha (Pty) Ltd

SCOPING AND ENVIRONMENTAL IMPACT REPORTING PROCESS FOR THE PROPOSED GREEN HYDROGEN AND E-SAF PLANT, HOPEFIELD, WESTERN CAPE

Final Scoping Report

DEADP Reference No: 16/3/3/2/F4/5/3019/26





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Final Scoping Report

WSP

The Pavilion, 1st Floor
Cnr Portwood and Beach Road, Waterfront
Cape Town, 8001
South Africa

[WSP.com](https://www.wsp.com)

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Prepared by	Patricia Nathaniel	Patricia Nathaniel
Signature	-	Nathaniel, Patricia (ZAPN05354) Digitally signed by Nathaniel, Patricia (ZAPN05354) DN: cn=Nathaniel, Patricia (ZAPN05354), ou=WSPObjects, email=Patricia.Nathaniel@wsp.com Reason: I am the author of this document Date: 2026.06.19 09:33:39 +02'00'
Checked by	Marié Schlechter	Marié Schlechter
Signature	-	 Digitally signed by Schlechter, Marie (ZAMS05113) DN: cn=Schlechter, Marie (ZAMS05113), ou=WSPObjects, email=marie.schlechter@wsp.com Date: 2026.06.19 08:44:22 +02'00'
Authorised by	Marié Schlechter	Marié Schlechter
Signature	-	 Digitally signed by Schlechter, Marie (ZAMS05113) DN: cn=Schlechter, Marie (ZAMS05113), ou=WSPObjects, email=marie.schlechter@wsp.com Date: 2026.06.19 08:44:52 +02'00'
Environmental Assessment Practitioner (EAP)	Marié Schlechter EAPASA (2020/1430)	Marié Schlechter EAPASA (2020/1430)
Signature	-	 Digitally signed by Schlechter, Marie (ZAMS05113) DN: cn=Schlechter, Marie (ZAMS05113), ou=WSPObjects, email=marie.schlechter@wsp.com Date: 2026.06.19 08:45:14 +02'00'
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1 PUBLIC REVIEW OF THE DRAFT SCOPING REPORT

The Final Scoping Report is made available on WSP's website:

Name of Public Place	Address and Telephone
WSP Website	https://www.wsp.com/en-za/services/public-documents
WSP Data-free Website	https://wsp-engage.com/

DUE DATE FOR COMMENT ON THE DRAFT SCOPING REPORT ENDED ON 08 JUNE 2026

Please submit comments on the Final Scoping Report to:

DEADPEIAAdmin@westerncape.gov.za

WSP must be copied in the submission:

Public Participation Office

WSP (Pty) Ltd

Tel: (011) 361 1398

E-mail: PP@wsp.com

Reference No: 16/3/3/2/F4/5/3019/26

EXECUTIVE SUMMARY

BACKGROUND AND INTRODUCTION

Phelan eFuels Saldanha (Pty) Ltd (Phelan eFuels) proposes the development of a Green Hydrogen and electro-Sustainable Aviation Fuel (e-SAF) manufacturing facility on the Remainder of Farm Portugeesche Fontyn 167 near the town of Hopefield, Western Cape. At full production it is expected that the plant will generate approximately 140 000 tons of e-SAF per annum, which would be transported by road tanker to the Port of Saldanha for export.

In order for the proposed project to proceed, it will require an EA from the Competent Authority (CA) [i.e., the Department of Environmental Affairs and Development Planning, (DEADP)]. WSP has been commissioned to undertake the Scoping and Environmental Impact Reporting (S&EIR) process as the independent Environmental Assessment Practitioner (EAP) to support the EA application process.

The Draft Scoping Report (DSR) was compiled and released for a 30-day comment period as part of the S&EIR process. This is the Final Scoping Report (FSR) of which the primary purpose is to define the exact scope, terms of reference, and roadmap for the subsequent EIR phase.

PURPOSE OF THE SCOPING REPORT

In summary, the purpose of the FSR is to provide information, regarding:

- The Environmental Impact Assessment (EIA) process as stipulated in the EIA Regulations 2014, as amended, including the process to be followed in conducting the environmental and social impact assessment, and the stakeholder engagement including consultation with regulatory authorities,
- The policy and legislative context for the project,
- A motivation for the need and desirability for the project, in the context of the preferred location,
- The proposed activities, the location of the project and activities to be undertaken,
- The plan of study for the EIR phase,
- The current baseline environmental conditions within the project footprint;
- The potential environmental and social impacts provisionally identified for the project,
- The alternatives being investigated,
- The methodology used to assess the significance of the impacts, and
- The FSR marks the culmination of the initial Public Participation Process (PPP) phase. It formally integrates all comments, objections, and insights raised by Interested and Affected Parties (I&APs) into an official Comments and Responses Report (CRR).

NEED AND DESIRABILITY OF THE PROJECT

The need and desirability of the proposed Project is embedded in the global shift towards decarbonization of industries and inevitably lower the rate of climate change. As such, the Paris Agreement provides a durable framework guiding the global effort for decades to come. It marks the beginning of a shift towards a net-zero emissions world. Implementation of the Agreement is also essential for the achievement of the Sustainable Development Goals.

Experts agree that the use of green hydrogen to decarbonize industries will be essential to meeting the goals of the Paris Agreement, since there are certain portions of the economy whose emissions are difficult to eliminate such as transportation, electricity generation and industry.

Green hydrogen and e-SAF are critical for decarbonizing heavy industry and aviation, offering up to 80-90% lifecycle greenhouse gas reductions. They enable a circular carbon economy using renewable power, provide high-energy density storage for long-haul transport, and are compatible with existing infrastructure, making them essential for net-zero goals.

The following are the accepted benefits of green hydrogen:

- Decarbonization: Produces zero emissions at the point of use and near-zero over its lifecycle.
- Versatility: Acts as a clean feedstock for industries (steel, fertilizer) and a fuel for transportation.
- Energy Storage: Converts and stores surplus renewable electricity (solar/wind), solving intermittency issues.
- Industrial Application: Replaces grey hydrogen (fossil-based) in existing processes.

Benefits of e-SAF include:

- Drop-in Capability: E-SAF (like e-kerosene) can be used directly in conventional jet engines and existing airport infrastructure, eliminating the need for new specialized aircraft or fuelling systems.
- Circular Carbon Use: Produced by combining green hydrogen with captured biogenic CO₂, ensuring no new fossil is added to the atmosphere.
- High Performance: Offers equivalent or superior energy performance compared to conventional jet fuel.
- Improved Air Quality: Burns cleaner than conventional jet fuel, reducing particulate matter and harmful contrail formation.
- Scalability: Unlike some biofuels, e-SAF is highly scalable as it does not rely on limited agricultural land.

LOCATION

The proposed Project development area is located in the Saldanha Local Municipality within the West Coast District Municipality in the Western Cape Province. The Project structures and infrastructure are proposed to be located on the following land parcel:

- Remainder of the Farm Portugeesche Fontyn 167

The approximate centre point co-ordinates for the e-SAF project area are:

- Latitude (S): 33°0'47.41"S
- Longitude (E): 18°20'47.8"E.

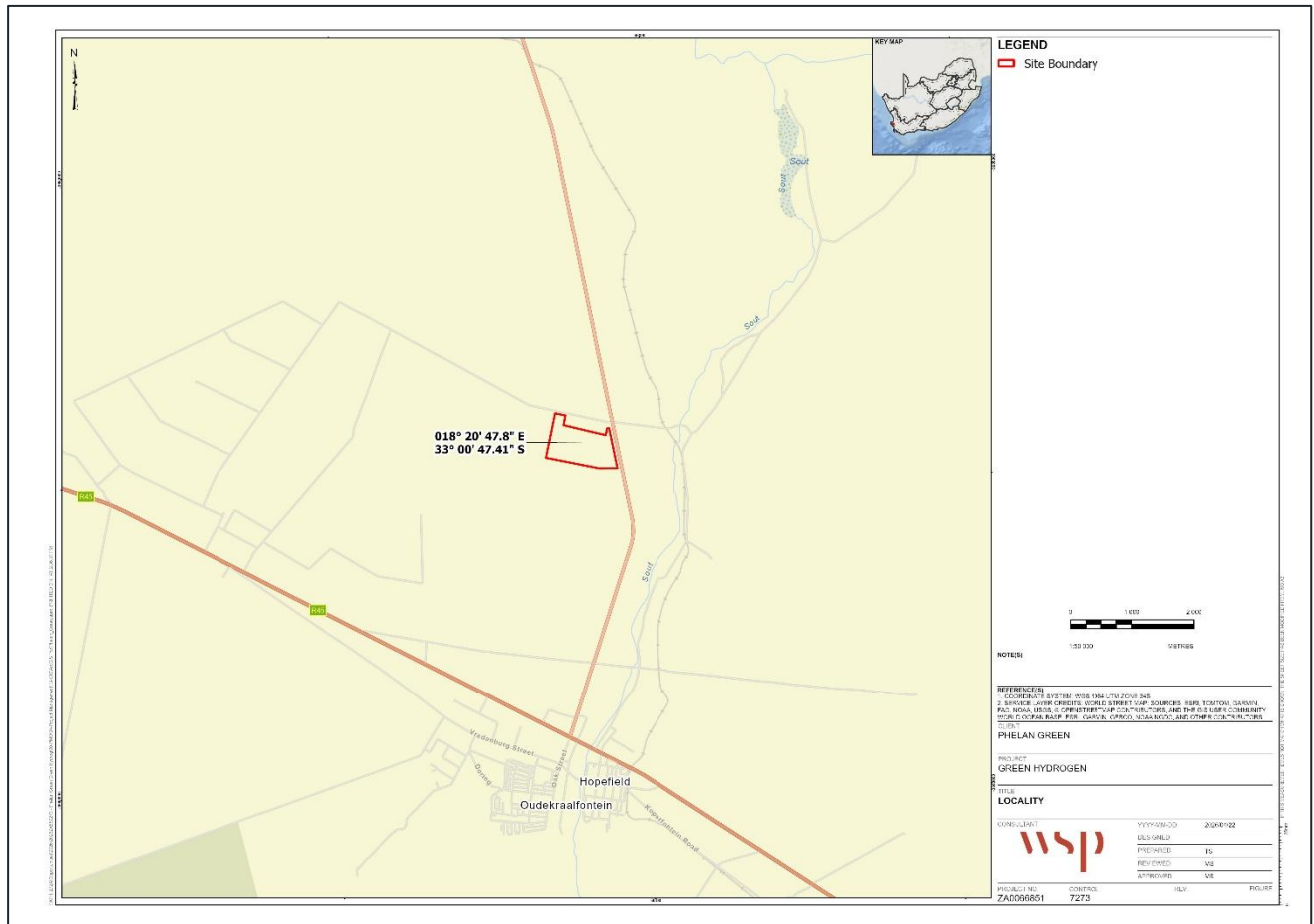


Figure 1: Locality Map of the Green Hydrogen and e-SAF facility

SUMMARY OF THE PROJECT

At full scale, the total project will output 140 000 tpa of eSAF. The operational strategy for the plant is that the facility, including the production of green hydrogen via electrolysis, will operate continuously on a 24/7 basis. Green hydrogen will be generated by splitting water molecules using 100% renewable energy. In addition, the plant will capture biogenic CO₂, from a third-party biomass boiler, feeding the grid with renewable power. The flue gas from the boiler will be the source to serve as a renewable carbon feedstock for downstream processing. The processing plant downstream of electrolysis will be supported by battery energy storage and hydrogen buffer storage to ensure a stable and continuous feed to the Reverse Water Gas Shift, Fischer–Tropsch synthesis, and refining units during periods of renewable energy intermittency.

The Project is proposed to be developed in phases as follows:

- Phase 1 - 35 000 tpa (Q4 2028)
- Phase 2 - 35 000 tpa (Q3 2030)
- Phase 3 - 70 000 tpa (Q3 2032)

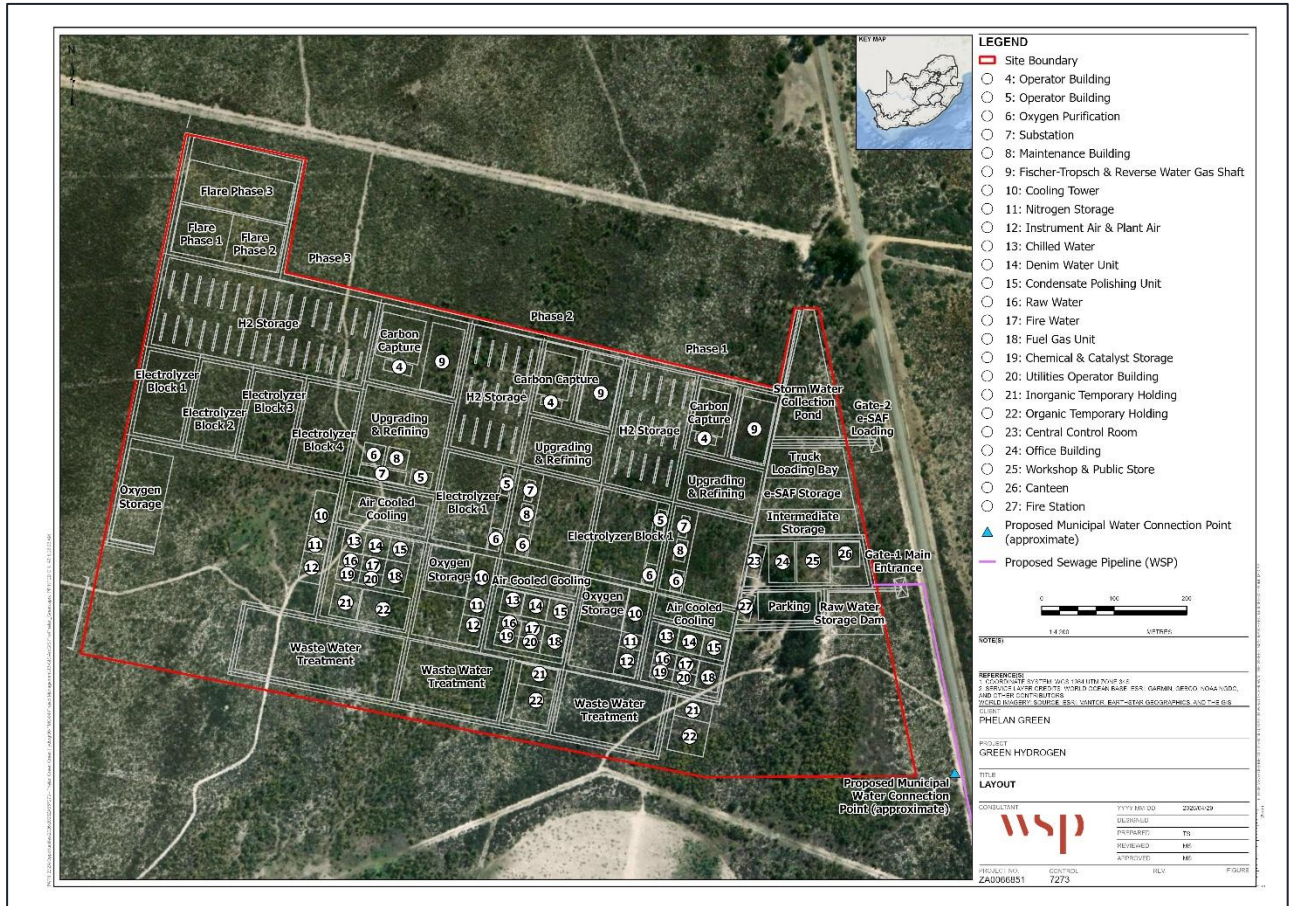


Figure 2: Layout map of the Green Hydrogen and e-SAF facility

SITE SENSITIVITY

A screening report for the proposed Project was generated and is attached as **Appendix D**. The Screening Report for the project identified various sensitivities for the site. The report also generated a list of specialist assessments that should form part of the S&EIR process based on the development type and the environmental sensitivity of the site. Assessment Protocols in the report provide minimum information to be included in a specialist report to facilitate decision-making.

Table 1 below provides a summary of the sensitivities identified for the development footprint.

Table 1 - Sensitivities Identified in the DFFE Screening Report

Theme	Very High Sensitivity	High Sensitivity	Medium Sensitivity	Low Sensitivity	Protocol for Specialist Study
Agriculture Theme	X				The site is considered very high sensitivity due to the site being located within the Swartland Protected Agricultural Area therefore the Screening Tool prescribes that an Agricultural Assessment be undertaken. An Agricultural Assessment was undertaken by SoilZa, 2025. The assessment disputed the very high sensitivity because the Project leads to no loss of potential cropland and therefore minimal loss of future agricultural production potential. The cropping potential of the site is limited by the combination of climate and soil constraints. The dominant constraint is the very low water and nutrient holding capacity of the very sandy soils. In combination with the relatively low rainfall the soils retain too small a moisture reservoir for viable crop production. Because of these constraints, the site is completely unsuitable for viable rainfed crop production. This assessment disputes the very high sensitivity classification of the assessed area by the screening tool and rates the entire assessed area as being of medium agricultural sensitivity because of the site's assessed cropping potential.
Animal Species Theme		X			The DFFE Screening Tool prescribed an animal species assessment be conducted based on the likely presence of sensitive avifaunal species (<i>Aves-Circus maurus</i> <i>Aves-Afrotis afra</i>). Therefore, a Biodiversity Assessment including the animal species theme was conducted by Aim360 Environmental Solutions, September 2025. No threatened

Theme	Very High Sensitivity	High Sensitivity	Medium Sensitivity	Low Sensitivity	Protocol for Specialist Study
					species (Red Data species) were recorded within the study site during the survey.
Aquatic Biodiversity Theme	X				The DFFE Screening Tool prescribed that an Aquatic Biodiversity Assessment be undertaken based on the very high sensitivity of a portion of the site which is located within an Aquatic ESA1 area. In terms of watercourses within the study area, the proposed development occurs within sub-quaternary catchment No. 8287 identified as a non-prioritised catchment which means it is not critical for the conservation of aquatic resource. One (1) prioritised FEPA wetland (Unit ID 227888) was identified approximately downstream from the site. The wetland is classified a floodplain wetland along the Sout River. The Sout River is a system with ephemeral flows, located within Reach Code G10L. A specialist will be commissioned to undertake the Aquatic and Freshwater Assessment
Archaeological and Cultural Heritage Theme				X	The DFFE Screening Tool prescribed that a site verification be undertaken for the archaeological and cultural heritage theme. However, the NHRA requires that a HIA be undertaken due to the extent of the Project site. A Phase 1 Archaeological and Heritage Impact Assessment was undertaken by Tsimba Archaeological Footprints, October 2025. During the survey no sites, features or objects of cultural significance were identified, and the low sensitivity was confirmed. The report concluded that there are no fatal flaws expected for this project.

Theme	Very High Sensitivity	High Sensitivity	Medium Sensitivity	Low Sensitivity	Protocol for Specialist Study
					The impacts of the proposed Green Hydrogen and eSAF processing facility development on the cultural landscape will not be significant as no cultural heritage resources were recorded during the field survey. The potential for stratified archaeological deposits was assessed as negligible given the local geology and predictive site patterning.
Civil Aviation Theme		X			The DFFE Protocol requires that a site verification be undertaken by the EAP or a specialist as the site is located within 8km from a civil aviation aerodrome therefore a compliance statement will be compiled. The South African Civil Aviation Authority has been added to the stakeholder database and will be provided with the opportunity to provide comment on the documents released as part of the S&EIR process.
Defence Theme			X		The DFFE protocol requires that a site verification be undertaken by an EAP for the defence theme. A defence theme compliance statement will be included in the Draft EIR.
Palaeontology Theme				X	The DFFE Screening Tool prescribed that a PIA be undertaken irrespective of the paleo-sensitivity of the site. Marion Bamford, the palaeontologist conducted a desktop assessment and provided a letter of exemption including a motivation for the exemption of a PIA.
Plant Species Theme			X		The DFFE Protocol requires that a Terrestrial Biodiversity compliance statement be completed for the Project.

Theme	Very High Sensitivity	High Sensitivity	Medium Sensitivity	Low Sensitivity	Protocol for Specialist Study
					A plant species assessment has been undertaken as part of the Biodiversity Assessment which revealed no SCC at the site.
Terrestrial Biodiversity Theme	X				The DFFE Screen Tool prescribed that a Terrestrial Biodiversity Assessment be undertaken based on the site being located partially within a CBA2 and ESA (aquatic and terrestrial).
Additional Specialist Studies					
Visual Impact Assessment	N/A				The DFFE Screening Tool did not prescribe a protocol for a Visual Impact Assessment (VIA). However, as best practice a VIA was undertaken to assess the anticipated visual impacts that the proposed project will have on the surrounding area, local residents as well as from roads in the surrounding area.
Social Impact Assessment	N/A				The DFFE Screening Tool prescribes that a site verification be undertaken. However as best practise, a Social Impact Assessment was undertaken. The assessment has been conducted to evaluate the potential social impacts both positive and negative arising from the proposed project, and to provide recommendations for enhancing benefits and mitigating adverse impacts.
Climate Change Risk Assessment	N/A				The DFFE Screening Tool did not prescribe a protocol for a Climate Change Risk Assessment (CCRA). However, as best practice a CCRA was undertaken to assess the climate-related risks and opportunities for the Project, and (ii) assess the impact of the Project's GHG emissions. The assessment also broadly considers the potential impact of the Project on communities,

Theme	Very High Sensitivity	High Sensitivity	Medium Sensitivity	Low Sensitivity	Protocol for Specialist Study
					priority ecosystem services, and sites of demonstrated importance for climate change mitigation or adaptation, that has or is likely to be adversely affected a changing climate.
Desktop Geohydrological Assessment			N/A		The DFFE Screening Tool did not prescribe a protocol for a Geohydrological Assessment, however an ~~desktop~~ assessment will be undertaken and include the following: - Assessment of the impact on geohydrological resources as a result of the proposed development. - Provide recommendations to minimize or mitigate impacts. - Assessment for groundwater to be used for construction, operational and decommissioning purposes for the proposed project.
Desktop Geotechnical Assessment			N/A		The DFFE Screening Tool did not prescribe a protocol for a ~~Desktop~~ Geotechnical Assessment, however an assessment will be undertaken and include the following: - Determining the potential impacts that the proposed e-SAF Plant may have on the environment from a geotechnical and geological perspective. - It also provides some insight on the expected soil and rock conditions, potential problem soils, drainage conditions, seismicity and excavation conditions.
Quantitative Risk Assessment			N/A		The DFFE Screening Tool did not prescribe a protocol for a Risk Assessment, however a Risk Assessment was undertaken based on the following:

Theme	Very High Sensitivity	High Sensitivity	Medium Sensitivity	Low Sensitivity	Protocol for Specialist Study
					Since off-site incidents may result due to hazards of some of the chemical components to be stored on, produced at or delivered to site, a quantitative risk assessment (QRA) to determine the impacts onto surrounding properties and communities as part of the EIA. The purpose of the Risk Assessment is to convey the essential details, which include a short description of hazards, the receiving environment and the current relevant designs, as well as risks and consequences of a major incident.
Traffic Assessment			N/A		The DFFE Screening Tool did not prescribe a protocol for a Traffic Assessment, however a Traffic Assessment was undertaken based on the following: The scope of the Traffic Assessment is to investigate the transportation implications associated with the abnormal load vehicles transporting components to the site and the transportation of construction materials, equipment and workers to the site during the construction and operational phases.
<u>Ambient Air Quality Assessment</u> Air Quality Impact Assessment			N/A		The DFFE Screening Tool did not prescribe a protocol for an Atmospheric Impact Report (AIR) however based on the nature of the project, an AIR has been compiled in support of the S&EIR and Air Emissions License (AEL) processes.
<u>Hydrology Assessment</u>			N/A		<u>The DFFE Screening Tool did not prescribe a protocol for a Hydrology assessment, however an assessment will be</u>

Theme	Very High Sensitivity	High Sensitivity	Medium Sensitivity	Low Sensitivity	Protocol for Specialist Study
					undertaken based on the following: The scope of the hydrology assessment is to assess the potential impacts of the activities on surface water resources. The primary objective of the SWMP is to ensure the separation of clean and dirty water within the project area and to establish an efficient water management system. The PCSWMM modelling tool will be used to assess stormwater runoff and evaluate the hydraulic performance of the proposed infrastructure. A static water balance model will be developed to conceptualise the Project water reticulation system and quantify the Project water requirements, usages, potential sources, and all losses. The water balance will also determine the water demand and supply, as well as the associated impacts of using this water for the Project.
<u>Hydrology Assessment</u>			N/A		The DFFE Screening Tool did not prescribe a protocol for a Hydrology assessment, however an assessment will be undertaken based on the following: The scope of the hydrology assessment is to assess the potential impacts of the activities on surface water resources. The primary objective of the SWMP is to ensure the separation of clean and dirty water within the project area and to establish an efficient water management system. The PCSWMM modelling tool will be used to assess stormwater runoff and evaluate the hydraulic

Theme	Very High Sensitivity	High Sensitivity	Medium Sensitivity	Low Sensitivity	Protocol for Specialist Study
					performance of the proposed infrastructure. A static water balance model will be developed to conceptualise the Project water reticulation system and quantify the Project water requirements, usages, potential sources, and all losses. The water balance will also determine the water demand and supply, as well as the associated impacts of using this water for the Project.
<u>Noise Assessment</u>			N/A		the DFFE Screening Tool does not identify noise as having any significant impacts and does not list a site sensitivity for such. In line with the NEMA protocol for specialist assessment and minimum report content requirements for noise impacts (GN No. 320), for a site that exhibits a Low Sensitivity Rating (no significant noise impact expected at the receptor) a Noise Compliance Statement will be compiled.
<u>Health Impact Assessment</u>			N/A		The DFFE Screening Tool did not prescribe a protocol for a Health Impact Assessment. An assessment will be undertaken.

LEGISLATIVE CONTEXT

In terms of Section 24(2) of the National Environmental Management Act (No. 107 of 1998) (NEMA), the Minister may identify activities which may not commence without prior authorisation. The Minister thus published GNR 327 (Listing Notice 1), 325 (Listing Notice 2) and 324 (Listing Notice 3), as amended, listing activities that may not commence prior to authorisation.

The regulations outlining the procedures required for authorisation are published in GNR 326 [2014 Environmental Impact Assessment Regulations (EIA)] (as amended) (EIA Regulations). Listing Notice 1 identifies activities that require a Basic Assessment (BA) process to be undertaken, in terms of the EIA Regulations, prior to commencement of that activity. Listing Notice 2 identifies activities that require an S&EIR process to be undertaken, in terms of the EIA Regulations, prior to commencement of that activity. Listing Notice 3 identifies activities within specific areas that require a BA process to be undertaken, in terms of the EIA Regulations, prior to commencement of that activity.

WSP undertook a legal review of the listed activities according to the proposed project description to conclude that the activities listed in this section are considered applicable to the development: A S&EIR process must be followed subject to confirmation by the DEA&DP.

The full legal context of the project is provided in **Section 4** of this document.

SUMMARY OF IMPACTS TO BE FURTHER INVESTIGATED

The table below is a summary of the impacts identified during the Scoping Phase that will require further assessment in the EIA phase:

Table 2 – Summary of impact to be further assessed in the EIA Phase

Aspect	Impact	Probability	Consequence	Significance (Before Mitigation)	Further Assessment Required
Climate	GHG emissions from mobile and stationary combustion	4	2	Medium	Climate Change Impact Assessment
	GHG emissions resulting from the clearance of the Project site and change in land use	4	2	Medium	
	Opportunities arising from the uptake of lower carbon fuels and opportunities arising from new markets	4	2	Medium	
	Displacement of Geologic Materials	2	3	Medium	
Geology	Contamination of the Subsurface and Loss of Topsoil	3	3	Medium	Geotechnical Assessment
	Increased Water Runoff and Erosion	2	3	Medium	

Aspect	Impact	Probability	Consequence	Significance (Before Mitigation)	Further Assessment Required
	Change to the future agricultural production potential of land	1	1	Very Low	
Agriculture	Impacts on water courses and habitat - Deterioration of watercourse health and loss of functionality	2	3	Medium	
Surface Water	Risk of groundwater depletion as a result of construction-phase abstraction and/or operational abstraction for process water	3	2	Medium	Wetland and Aquatic Assessment
Groundwater	Risk of groundwater quality deterioration resulting from contaminated stormwater, chemical spills, etc	3	4	High	Desktop Geohydrological Assessment
	Risk of contaminated groundwater percolating from the shallow intergranular aquifer into the deeper fractured aquifer (Moorreesburg Formation) and migrating downgradient	3	4	High	

Aspect	Impact	Probability	Consequence	Significance (Before Mitigation)	Further Assessment Required
	towards sensitive receptors (downstream groundwater users, the Sout River via baseflow, and ultimately the Langebaan Lagoon).				
	Loss of faunal habitat and red data species	4	4	High	
Biodiversity	Spread of alien vegetation	4	2	Medium	Biodiversity Assessment including plants, animals and avifauna
	Direct faunal and avifaunal impacts	4	4	High	
	Creation of employment	4	3	High	
Socio-economic	Skills Development and Capacity Building	4	3	High	Social Impact Assessment
	Economic Growth and Infrastructure Development	4	4	High	
	Improved Local Water Management	4	2	Medium	
	Influx of Job Seekers and Construction Workers	4	2	Medium	
	Altered Sense of Place due to Industrial Development	4	4	High	

Aspect	Impact	Probability	Consequence	Significance (Before Mitigation)	Further Assessment Required
	Destruction of archaeological remains	1	1	Very Low	
Heritage	Damage to fossil remains	1	1	Very Low	HIA
Palaeontology	Visual impact of construction related activities	4	2	Medium	Exemption from a PIA
Aesthetics	Visual disturbance of the proposed Project infrastructure	4	2	Medium	VIA
	Potential congestion and delays on the surrounding road network.	2	2	Low	
Access and Traffic	Potential impact on traffic safety and increase in accidents with other vehicles and animals	3	2	Medium	Traffic Assessment
	Degradation of road surface	3	1	Low	
	Dust Pollution	3	2	Medium	
	Noise Pollution	3	2	Medium	
	Exceeds NAAQS beyond facility boundary where there is public access, but not at nearest receptors	4	2	Medium	

Aspect	Impact	Probability	Consequence	Significance (Before Mitigation)	Further Assessment Required
Air Quality	Infrastructure failure resulting in potential incidents	2	4	Medium	Atmospheric Emissions Assessment
Infrastructure					Major Hazard Installation

SUMMARY OF THE SCOPING AND ENVIRONMENTAL IMPACT REPORTING PROCESS

The S&EIR process consists of various phases with associated timelines as defined in the EIA Regulations. The process can generally be divided into four main phases, namely; (i) an unregulated pre-application phase, (ii) an Application and Scoping Phase (**current phase**), (iii) an Impact Assessment Phase and (iv) Authorisation and Appeal Phase.

The main objectives of the phases can be described as follows:

- Pre-Application Phase:
 - Undertake consultation meetings with the relevant authorities to confirm the required process and general approach to be undertaken;
 - Identify stakeholders, including neighbouring landowners/residents and relevant authorities;
 - Compile a DSR describing the affected environment and present an analysis of the potential environmental issues and benefits arising from the proposed project that may require further investigation in the Impact Assessment Phase;
 - Develop draft terms of reference for the specialist studies to be undertaken in the EIA Phase; and
 - Inform stakeholders of the proposed project, feasible alternatives and the S&EIR process and afford them the opportunity to register and participate in the process and identify any issues and concerns associated with the proposed project.
- Application and Scoping Phase:
 - Compile and submit application forms to the CA and pay the relevant application fees;
 - Incorporate comments received from stakeholders during the pre-application phase into the DSR;
 - Release the DSR for a 30-day comment period to provide stakeholders with the opportunity to review as well as provide input; and
 - Submit the finalised Final Scoping Report (FSR), following the consultation period, to the relevant CA, in this case the DEA&DP, for acceptance/rejection.
- Impact Assessment Phase:
 - Continue to inform and obtain contributions from stakeholders, including relevant authorities, stakeholders, and the public and address their relevant issues and concerns;

- Assess in detail the potential environmental and socio-economic impacts of the project as defined in the DSR;
- Conduct the required specialist studies in accordance with Appendix 6 of the EIA Regulations;
- Identify environmental and social mitigation measures to avoid and/or address the identified impacts;
- Develop and/or amend environmental and social management plans based on the mitigation measures developed in the EIR;
- Submit the EIR to the competent authority to undertake the decision-making process;
- Authorisation and Appeal Phase;
- The CA to provide written notification of the decision to either grant or refuse environmental authorisation for the proposed project; and
- Notify all registered stakeholders of the decision and right to appeal.

SUMMARY OF THE PPP ON THE DSR

Public participation for the proposed project was undertaken in accordance with the EIA Regulations (2014), with the aim of ensuring inclusive stakeholder engagement and informed decision-making.

A stakeholder database was compiled during the pre-application phase, including authorities, municipalities, adjacent landowners, interested organisations, and other potentially affected parties.

During the scoping phase, stakeholders were notified through multiple channels, including direct email and SMS notifications, site notices placed at strategic public locations, and newspaper advertisements in both English and Afrikaans.

The Draft Scoping Report was made available for a 30-day public review period (07 May to 08 June 2026) at local libraries and online platforms, allowing stakeholders to access information and submit comments.

All comments received during the review period were recorded and addressed in a Comments and Responses Report, which informs the Final Scoping Report and will guide further assessment during the EIA phase.

CONCLUSION

A number of environmental impacts have been identified which require more in-depth investigation and the identification of detailed mitigation measures. Therefore, a detailed EIA is required to be undertaken to assess these potential impacts and recommend appropriate mitigation measures. The scoping phase did not identify any fatal flaws associated with the Project.

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STAKEHOLDER ENGAGEMENT REPORT

ABBREVIATIONS

Abbreviation	Definition
BA	Basic Assessment
BAR	Basic Assessment Report
BPEO	Best Practicable Environmental Option
CA	Competent Authority
CARA	The Conservation of Agricultural Resources Act (No. 43 of 1983)
CBA	Critical Biodiversity Areas
CRR	Comments and Responses Report
CV	Curriculum Vitae
DEADP	Department of Environmental Affairs and Development Planning
DFFE	Department of Forestry, Fisheries and the Environment
DSR	Draft Scoping Report
DWS	Department of Water and Sanitation
EA	Environmental Authorisation
EAP	Environmental Assessment Practitioner
EIA	Environmental Impact Assessment
EIA Regulations	Environmental Impact Assessment Regulations, 2014, as amended (GNR 326)
EIR	Environmental Impact Report
EMPR	Environmental Management Programme
EP	Equator Principles
ESA	Ecological Support Area
ESAF	Electro-Sustainable Aviation Fuel
ESMP	Environmental and Social Management Plan
FSR	Final Scoping Report
GA	General Authorisation

Abbreviation	Definition
GHG	Greenhouse Gas
GW	Gigawatt
Ha	Hectares
I&AP	Interested and Affected Parties
IDP	Integrated Development Plans
IFC	International Finance Corporation
LHC	Light Hydrocarbon Condensate
MLD	Minimum Liquid Discharge Plant
MSDP	Municipal Spatial Development Framework
NDP	National Development Plan of 2030
NEM:AQA	National Environmental Management: Air Quality Act 39 of 2004
NEMBA	National Environmental Management: Biodiversity Act, 2004 (No. 10 of 2004)
NEMA	National Environmental Management Act (No. 107 of 1998)
NEM:WA	National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008)
NHRA	The National Heritage Resource Act (No. 25 of 1999)
NWA	The National Water Act (No. 36 of 1998)
OEC	Obstacle Evaluation Committee
OHS	Occupational Health and Safety Act
ONAs	Other Natural Areas
PPP	Public Participation Process
PV	Photovoltaic
SACAA	South African Civil Aviation Authority
SAHRA	South African Heritage Resources Agency
SANBI	South African National Biodiversity Institute
S&EIR	Scoping and Environmental Impact Reporting
SDF	Spatial Development Framework

Abbreviation	Definition
SPLUMA	Spatial Planning and Land Use Management Act, 2013 (No. 6 of 2013) (SPLUMA)
SR	Scoping Report
TPA	Tonnes per Annum
WMLA	Waste Management Licence
WUL	Water Use License
WULA	Water Use License Application
ZLD	Zero Liquid Discharge

2 INTRODUCTION

Phelan eFuels Saldanha (Pty) Ltd (Phelan eFuels) is proposing the development of a *Phelan eFuels Project - Saldanha Bay* that will produce Electro-Sustainable Aviation Fuel (eSAF). The facility (the Project) will be located near Hopefield, Western Cape (**Figure 3-1** and **Appendix C.1**).

The facility will produce eSAF from biogenic CO₂, captured via carbon capture technology, and green hydrogen via electrolysis, which will be developed in phases as follows:

- Phase 1 - 35 000 tonne per annum (tpa) (Q4 2028);
- Phase 2 - 35 000 tpa (Q3 2030); and
- Phase 3 - 70 000 tpa (Q3 2032).

At full scale, the total project will output 140 000 tpa of eSAF. The operation strategy for the plant is that the processing plant downstream of electrolysis will operate 24/7 with the availability of the battery energy storage and hydrogen buffer storage to feed the downstream Reverse Water Gas Shift, Fischer Tropsch Synthesis and Refining when renewable energy is intermittent.

WSP Group Africa (Pty) Ltd (WSP) has been appointed by (Phelan eFuels) to undertake the Scoping and Environmental Impact Reporting (S&EIR) process and to act as the independent Environmental Assessment Practitioner (EAP) for the project.

The Draft Scoping Report (DSR) was compiled and released for a 30-day comment period as part of the S&EIR process. This is the Final Scoping Report (FSR) of which the primary purpose is to define the exact scope, terms of reference, and roadmap for the subsequent EIR phase.

2.1 PURPOSE OF THE FINAL SCOPING REPORT

The DSR documented the process and findings of the Scoping Phase of the S&EIR process for the proposed eSAF manufacturing plant project.

The DSR provided stakeholders with information on the proposed project including its considered location, layout and technological alternatives, identified potential impacts and the corresponding scope of the impact assessment and specialist studies, as well as the consultation process to be undertaken throughout the S&EIR process.

The outcome of the DSR did not identify any fatal flaws associated with the development of the eSAF manufacturing facility and associated infrastructure. The currently proposed footprint of the development may overlap with sensitive features identified by the participating specialists during the Environmental Impact Assessment (EIA) Phase.

The FSR marks the culmination of the initial Public Participation Process (PPP) phase. It formally integrates all comments, objections, and insights raised by Interested and Affected Parties (I&APs) into an official Comments and Responses Report (CRR).

It is the reasoned opinion of WSP that the project should proceed to the EIA Phase.

2.2 BACKGROUND INFORMATION

2.2.1 GREEN HYDROGEN AND E-SAF PRODUCTION

Green hydrogen is produced through the electrolysis of water using renewable energy sources, such as solar power and wind power, without the generation of carbon emissions. As a result, it represents a clean and sustainable energy carrier that can be utilised across multiple sectors, including transportation, energy storage, and manufacturing, contributing to the reduction of global greenhouse gas emissions.

The proposed project focuses on the production of Green Hydrogen and eSAF using energy supplied by various Independent Power Producers (IPPs) and supported by advanced battery storage technology (BESS), thereby eliminating reliance on grid-supplied electricity.

2.3 KEY ROLE PLAYERS

2.3.1 PROJECT PROPONENT

Phelan eFuels Saldanha (Pty) Ltd, subsidiary of Phelan Green Energy Group, is the project proponent (Applicant) with regards to this application for the development and operation of the proposed Project. **Table 2-1** provides the relevant details of the project proponent.

Table 2-1 – Details of Project Proponent

Applicant	Phelan eFuels Saldanha (Pty) Ltd
Contact Person:	Luca Guerrini
Postal Address	47 Main Rd Green Point Cape Town 8051
Telephone:	+27(0)60 525 1637
Email:	luca@phelangreen.com

2.3.2 COMPETENT AUTHORITY

According to Appendix 1 of Listing Notice 2 (GNR 325, as amended), the Competent Authority (CA) in respect of the activities listed in the Listing Notices is the CA in the province in which the activity is to be undertaken, unless—

(a) it is an application for an activity contemplated in section 24C(2) of the Act, in which case the competent authority is the Minister or an organ of state with delegated powers in terms of section 42(1) of the Act; or

(b) the application is a mining application in which case the competent authority is the Minister responsible for mineral resources.

Since the proposed Project does not trigger any of the exceptions listed above, the CA in this case will be the Western Cape Department of Environmental Affairs and Development Planning (DEA&DP).

2.3.3 ENVIRONMENTAL ASSESSMENT PRACTITIONER

WSP was appointed in the role of EAP to undertake the S&EIR process for the proposed Green Hydrogen and e-SAF manufacturing facility. The Curriculum Vitae (CV) of the EAP is available in **Appendix A**. The EAP declaration of interest and undertaking is included in **Appendix B**. **Table 2-2** provides details the relevant contact details of the EAP.

Table 2-2 – Details of the EAP

EAP	WSP Group Africa (Pty) Ltd
Contact Person:	Marie Schlechter
Physical Address:	The Pavilion, 1st Floor V&A Waterfront Cape Town 8001 South Africa
Telephone:	+27(0) 21 481 8706
Email:	marie.schlechter@wsp.com
EAP Qualifications and Registrations:	■ BSc (Earth Science) ■ BSc (Hons) (Geography and Environmental Management)
EAPASA Registration No.:	■ EAPASA 2020/1430

2.3.3.1 Statement of Independence

Neither WSP nor any of the authors of this DSR have any material present or contingent interest in the outcome of this report, nor do they have any business, financial, personal or other interest that could be reasonably regarded as being capable of affecting their independence. WSP has no beneficial interest in the outcome of the assessment.

2.4 SCOPING PHASE TERMS OF REFERENCE

The Environmental Impact Assessment Regulations, 2014, (GNR 982) as amended (hereafter referred to as the EIA Regulations) identifies the proposed Green Hydrogen and e-SAF manufacturing facility development as an activity being subject to an S&EIR process due to the applicability of the EIA Listing Notices 1, 2 and 3 (GNR 983, 984 and 985, as amended).

For the project to proceed, it will require an EA issued by the DEADP.

As defined in Appendix 2 of the EIA Regulations, the objective of the scoping process is to, through a consultative process:

- Identify the relevant policies and legislation relevant to the activity;
- Motivate the need and desirability of the proposed activity, including the need and desirability of the activity in the context of the preferred location;
- Identify and confirm the preferred activity and technology alternative through an impact and risk assessment and ranking process;
- Identify and confirm the preferred site, through a detailed site selection process, which includes an impact and risk assessment process inclusive of cumulative impacts and a ranking process of all the identified alternatives focusing on the geographical, physical, biological, social, economic, and cultural aspects of the environment;
- Identify the key issues to be addressed in the assessment phase;
- Agree on the level of assessment to be undertaken, including the methodology to be applied, the expertise required as well as the extent of further consultation to be undertaken to determine the impacts and risks the activity will impose on the preferred site through the life of the activity, including the nature, significance, consequence, extent, duration and probability of the impacts to inform the location of the development footprint within the preferred site; and
- Identify suitable measures to avoid, manage or mitigate identified impacts and to determine the extent of the residual risks that need to be managed and monitored.

The PPP a requirement of scoping; it consists of a series of inclusive and culturally appropriate interactions aimed at providing stakeholders with opportunities to express their views, so that these can be considered and incorporated into the S&EIR decision-making process. An effective PPP requires the prior disclosure of relevant and adequate project information to enable stakeholders to understand the risks, impacts, and opportunities of the project. The objectives of the PPP can be summarised as follows:

- Identify relevant individuals, organisations and communities who may be interested in or affected by the proposed Project;
- Clearly outline the scope of the proposed Project, including the scale and nature of the existing and proposed activities;
- Identify viable project alternatives that will assist the relevant authorities in making an informed decision;
- Identify shortcomings and gaps in existing information;
- Identify key concerns, raised by stakeholders that should be addressed in the subsequent specialist studies;
- Highlight the potential for environmental impacts, whether positive or negative; and
- To inform and provide the public with information and an understanding of the proposed Project, issues and solutions.

2.5 ASSUMPTIONS AND LIMITATIONS

This section provides a brief overview of specific assumptions and limitations having an impact on this environmental application process:

- All information pertaining to the Project related activities and infrastructure were supplied to WSP by the Applicant and is therefore assumed to be accurate.

- The contents of this DSR are a combination of EAP and specialist expertise which may be subject to change in the Draft EIR due to the possible revision of specialist studies or Project information.
- It is the EAPs opinion that this report will suffice in providing the CA with the necessary information to make an informed decision on this DSR.

2.6 SCOPING REPORT STRUCTURE

As per the Appendix 3 of the EIA Regulations, the legislated requirements must be contained within a SR for the CA to consider and come to a decision on the application.

Table 2-3 below details where the required information is located within this report.

Table 2-3 – Legislated Report Requirements as detailed in GNR 326

Section	Legislated requirements as per the NEMA GNR 326	Relevant Report Section
(a)	Details of	-
	the EAP who compiled the report; and	Section 2.3.3
	the expertise of the EAP, including a Curriculum Vitae	Appendix A
(b)	The location of the activity, including-	
	The 21digit Surveyor code for each cadastral land parcel;	Section 3.1
	Where available, the physical address and farm name	Section 3.1
	Where the required information in terms of (i) and (ii) is not available, the coordinates of the boundary of the property.	Section 3.1
(c)	A plan which locates the proposed activities applied for at an appropriate scale, or, if it is-	
	A linear activity, a description of the corridor in which the proposed activity or activities is to be undertaken; or	Section 3.1, Figure 3-3 and Appendix C.2
	On land where the property has not been defined, the coordinates within which the activity is to be undertaken.	Section 3.1
(d)	A description of the proposed activity, including-	
	All listed and specified activities triggered;	Section 5.5

Section	Legislated requirements as per the NEMA GNR 326	Relevant Report Section
	A description of the activities to be undertaken, including associated structures and infrastructure;	Section 3
(e)	A description of the policy and legislative context within which the development is proposed including an identification of all legislation, policies, plans, guidelines, spatial tools, municipal development planning frameworks and instruments that are applicable to this activity and are to be considered in the assessment process;	Section 5.1
(f)	A motivation for the need and desirability for the proposed development including the need and desirability of the activity in the context of the preferred location;	Section 4
(g)	A full description of the process followed to reach the proposed preferred activity, site and location within the site, including-	
	(i) Details of all the alternatives considered;	Section 3
	(ii) Details of the public participation undertaken in terms of regulation 41 of the Regulations, including copies of the supporting documents and inputs;	Section 6
	(iii) a summary of the issues raised by interested and affected parties, and an indication of the manner in which the issues were incorporated, or the reasons for not including them;	Section 6
	(iv) the environmental attributes associated with the alternatives focusing on the geographical, physical, biological, social, economic, heritage and cultural aspects;	Section 7
	(v) the impacts and risks identified for each alternative, including the nature, significance, consequence, extent, duration and probability of the impacts, including the degree to which these impacts- (aa) can be reversed; (bb) may cause irreplaceable loss of resources; and (cc) can be avoided, managed or mitigated;	Section 8
	(vi) the methodology used in determining and ranking the nature, significance, consequences, extent,	Section 6

Section	Legislated requirements as per the NEMA GNR 326	Relevant Report Section
	duration and probability of potential environmental impacts and risks associated with the alternatives;	
	(vii) positive and negative impacts that the proposed activity and alternatives will have on the environment and on the community that may be affected focusing on the geographical, physical, biological, social, economic, heritage and cultural aspects;	Section 8
	(viii) the possible mitigation measures that could be applied and level of residual risk;	Section 8
	(ix) the outcome of the site selection matrix;	N/A
	(x) if no alternatives, including alternative locations for the activity were investigated, the motivation for not considering such and	Section 3
	(xi) a concluding statement indicating the preferred alternatives, including preferred location of the activity;	Section 3
(h)	A plan of study for undertaking the environmental impact assessment process to be undertaken, including-	
	(i) a description of the alternatives to be considered and assessed within the preferred site, including the option of not proceeding with the activity;	Section 9
	(ii) a description of the aspects to be assessed as part of the environmental impact assessment process;	Section 9
	(iii) aspects to be assessed by specialists;	Section 9
	(iv) a description of the proposed method of assessing the environmental aspects, including a description of the proposed method of assessing the environmental aspects including aspects to be assessed by specialists;	Section 9
	(v) a description of the proposed method of assessing duration and significance;	Section 9

Section	Legislated requirements as per the NEMA GNR 326	Relevant Report Section
	(vi) an indication of the stages at which the competent authority will be consulted;	Section 9
	(vii) particulars of the public participation process that be conducted during the environmental impact assessment process; and	Section 9
	(viii) a description of the tasks that will be undertaken as part of the environmental impact assessment process;	Section 9
	(ix) identify suitable measures to avoid, reverse, mitigate or manage identified impacts and to determine the extent of the residual risks that need to be managed and monitored.	Section 9
(i)	An undertaking under oath or affirmation by the EAP in relation to-	
	(i) the correctness of the information provided in the report;	Appendix B
	(ii) the inclusion of comments and inputs from stakeholders and interested and affected parties; and	Section 6
	(iii) any information provided by the EAP to interested and affected parties and any responses by the EAP to comments or inputs made by interested or affected parties;	Section 6
(j)	An undertaking under oath or affirmation by the EAP in relation to the level of agreement between the EAP and interested and affected parties on the plan of study for undertaking the environmental impact assessment;	Appendix B
(k)	Where applicable, any specific information required by the competent authority; and	Section 4.2
(m)	Any other matter required in terms of section 24(4)(a) and (b) of the Act.	None

3 PROJECT DESCRIPTION

This section provides a description of the location of the Project area and the details associated with each phase of the project. The description encompasses the activities to be undertaken during the construction and operational phases as well as the consideration for access, bulk services and infrastructure in support of the overall operational efficiency of the Project.

This section fulfils the requirement stipulated in Appendix 3- 2(d) (ii) of the EIA Regulations:

- *A description of the activities to be undertaken, including associated structures and infrastructure.*

3.1 LOCATION OF THE PROPOSED PROJECT SITE

The proposed Project development area is located in the Saldanha Local Municipality within the West Coast District Municipality in the Western Cape Province (**Figure 3-1**). The Project structures and infrastructure are proposed to be located on the following land parcel:

- Remainder of the Farm Portugeesche Fontyn 167

Access to the site is obtained via the R27 to Velddrif, which borders the site along its eastern boundary. The surrounding land use is predominantly agricultural, with the Soutrivier located to the east of the site.

The approximate centre point co-ordinates of the proposed Project area are (Figure 3-1):

- Latitude (S): 33° 00' 47.41"S
- Longitude (E): 18° 20' 47.8"E.

The coordinates of the proposed new sewage pipeline from the site to the Hopefield Municipal Sewage Works is listed in Figure 3-3.

The closest town is Hopefield approximately 3km south of the proposed site, and 115km north of Cape Town. Hopefield is a small town located within a semi-arid agricultural area, where wheat cultivation, sheep farming, and honey production constitute the primary economic activities. The town lies along the R45 between Malmesbury and Vredenburg and is situated approximately 120 km north of the Cape Town central business district.

The locality of the site is depicted in **Figure 3-1** and the project layout plan is depicted in **Figure 3-2** and **Figure 3-3**.

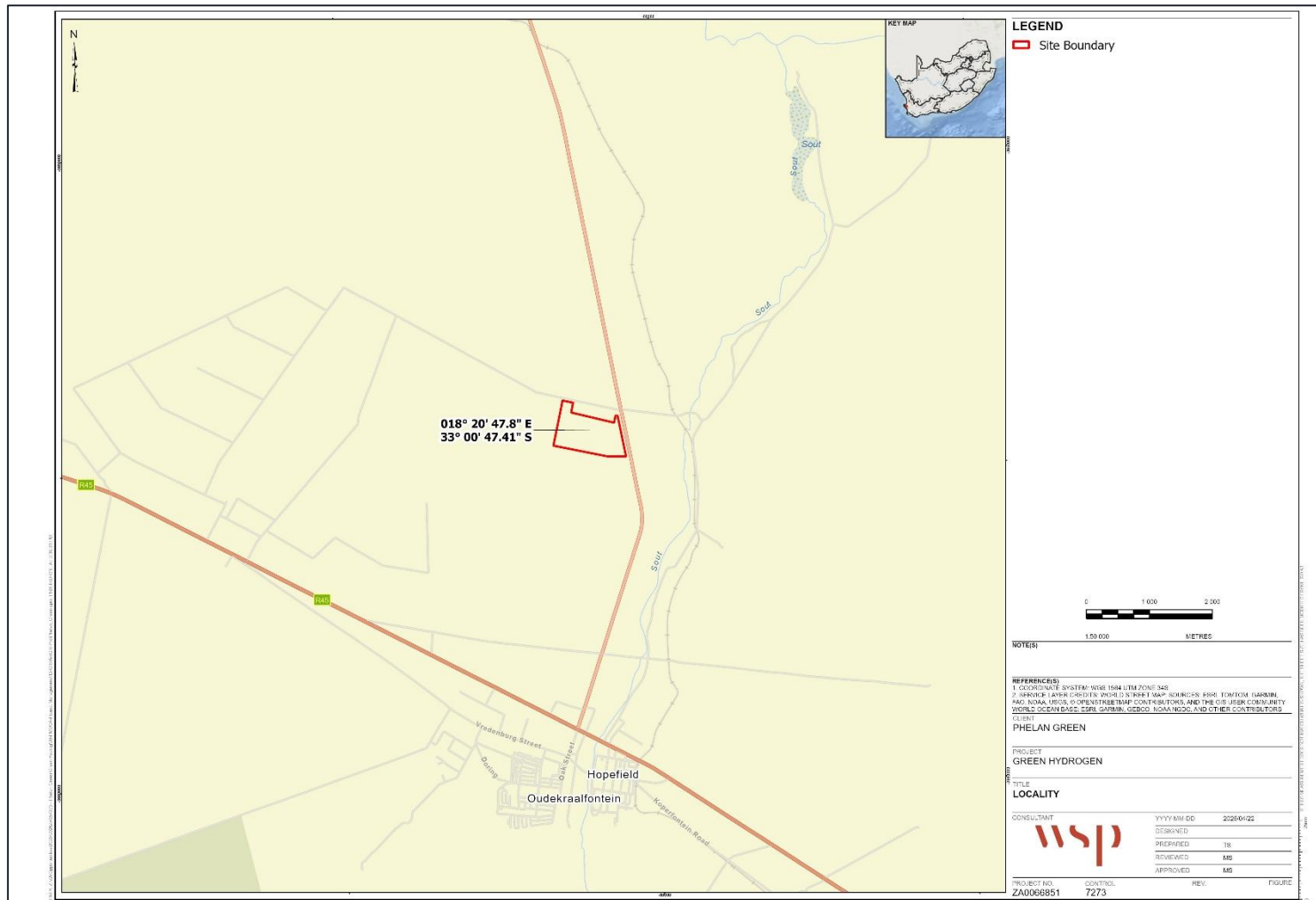


Figure 3-1 - Locality map of the Proposed eSAF manufacturing facility

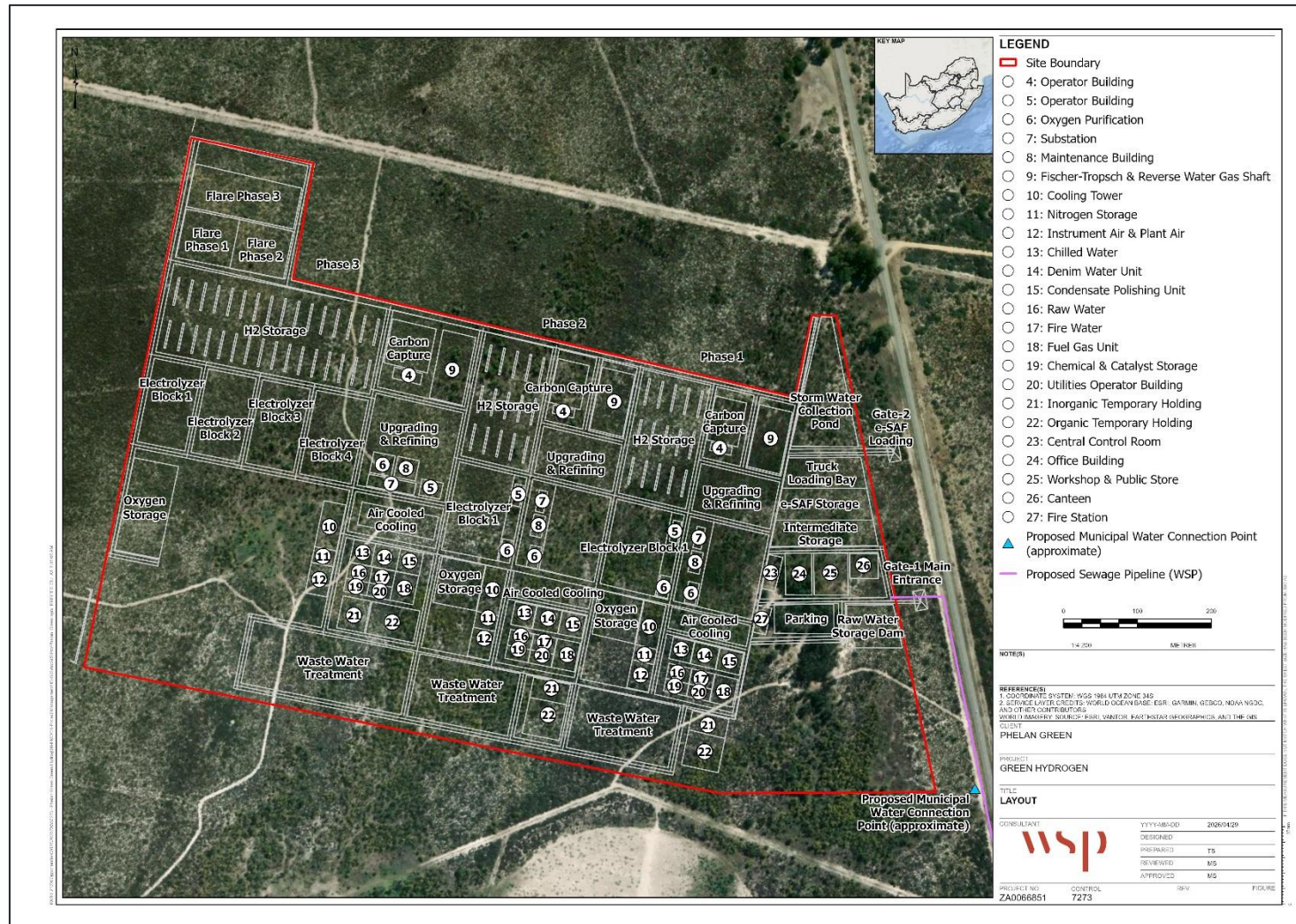


Figure 3-2 - Layout map of the Proposed Green Hydrogen and e-SAF facility

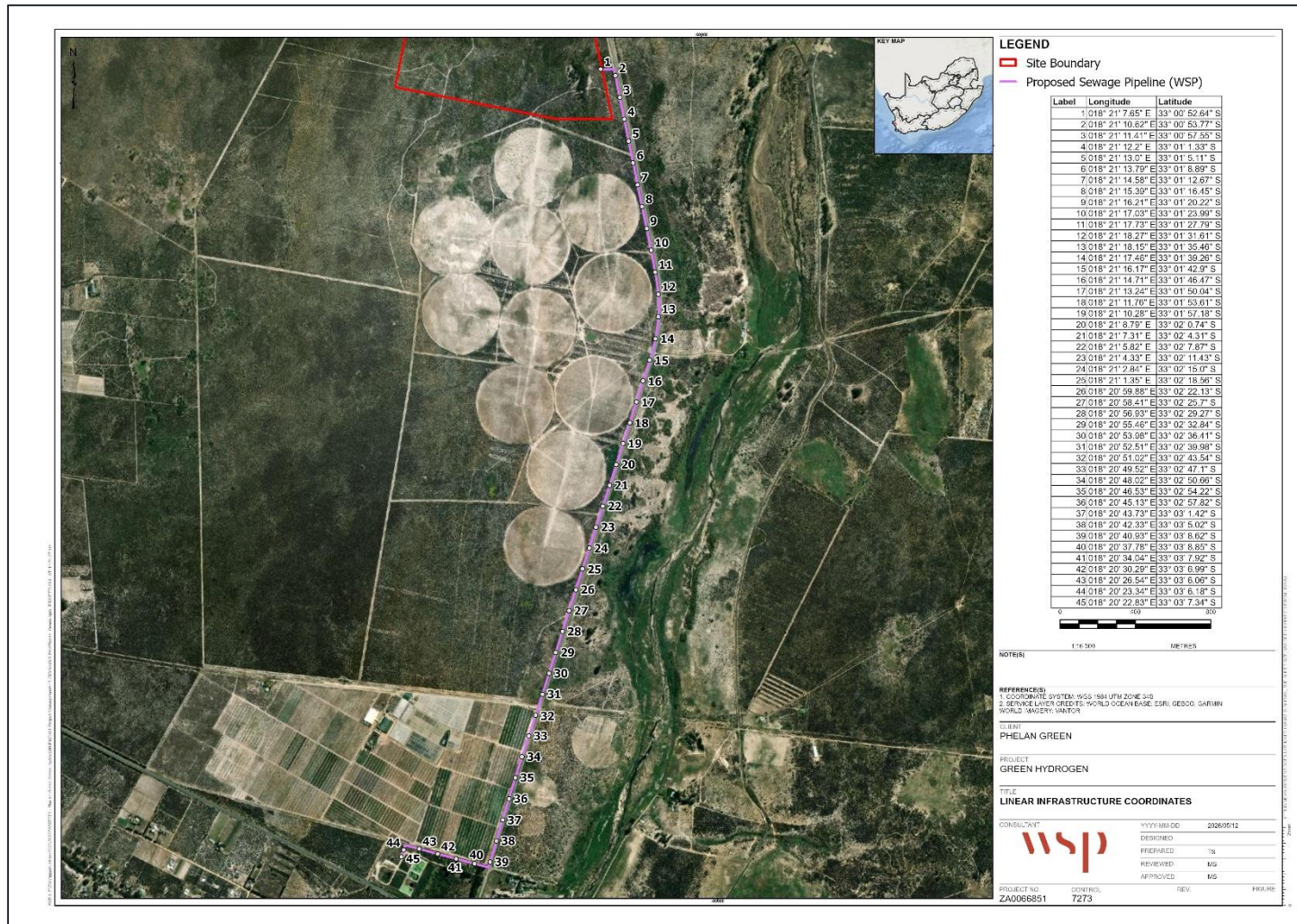


Figure 3-3 - Layout map of the Proposed Green Hydrogen and e-SAF facility, including the sewage pipeline

Table 3-1 below indicates the cadastral information of the site.

Table 3-1 –Cadastral Information of the Site

Details required as per GNR 326	Details
21 Digit Surveyor General Code of each Cadastral Land Parcel	■ C04600000000016700000
Physical Address and Farm Name	■ Remainder of the Farm Portugeesche Fontyn 167
Land use Zoning	Agricultural
Municipality	Local: Saldanha Local Municipality District: West Coast District Municipality

3.2 PROJECT INFRASTRUCTURE

The Project will produce eSAF from biogenic CO₂, captured via carbon capture technology, and green hydrogen via electrolysis, which will be developed in phases as follows:

- Phase 1 - 35 000 tonnes per annum (tpa) (Q4 2028)
- Phase 2 - 35 000 tpa (Q3 2030)
- Phase 3 - 70 000 tpa (Q3 2032)

At full scale, the total project will output 140 000 tpa of eSAF. The operation strategy for the plant is that the processing plant downstream of electrolysis will operate 24/7 where there will be battery energy storage and hydrogen buffer storage to feed the downstream Reverse Water Gas Shift, Fischer Tropsch Synthesis and Refining when renewable energy is intermittent.

The key infrastructure components of the Project are presented in **Figure 3-4** and **Table 3-2** below.

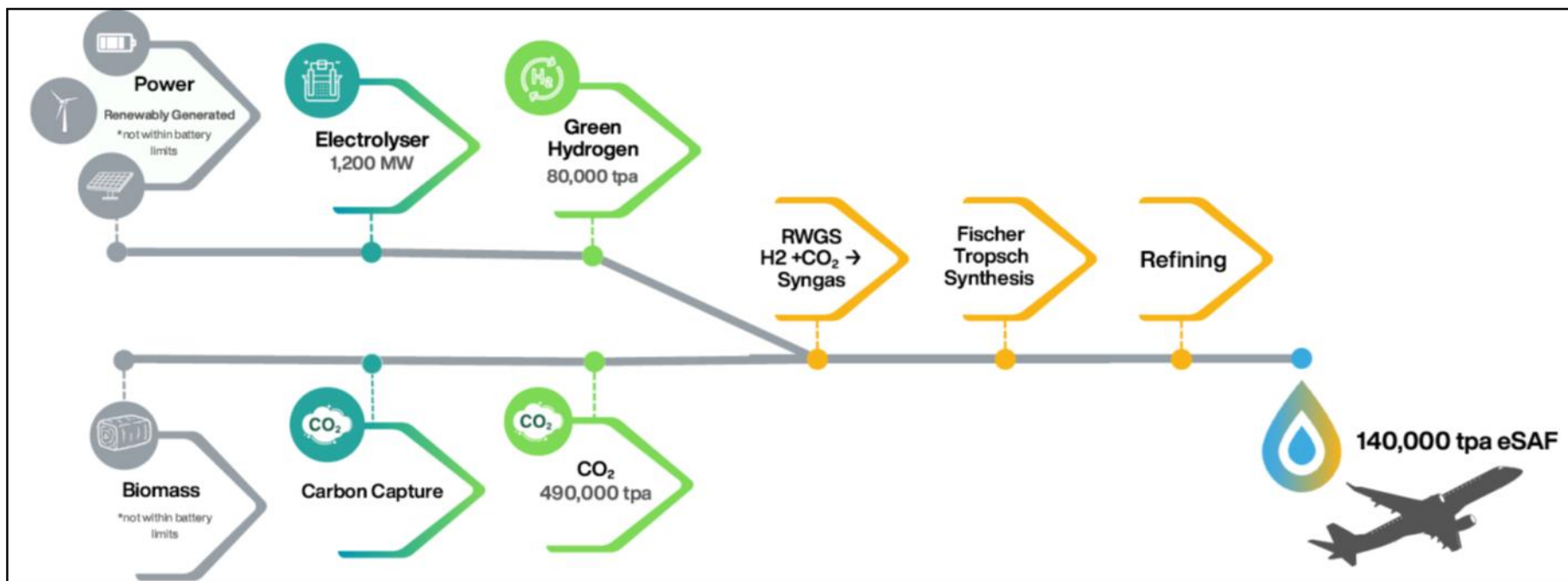


Figure 3-4 - Overall process schematic of Phelan eFuels project for eSAF production

Table 3-2 – Proposed eSAF production project process and infrastructure

TECHNICAL DETAILS OF THE PROPOSED ESAF MANUFACTURING FACILITY	
Farm Portions	Remainder of the Farm Portugeesche Fontyn 167
Total Site Extent	Approximately 61 ha
Design Specifications	
Quantity	Approximately 140 000 tpa
Hydrogen Generation	Hydrogen gas is produced by splitting purified water using renewably generated electricity in a process called electrolysis. The electrical current splits the water molecule into hydrogen and oxygen gases. These gases are collected separately. Some of the oxygen produced will be stored and utilised in later steps, such as for water treatment and, the Fischer-Tropsch process, while the rest will be safely released into the air. The hydrogen gas produced will be purified to remove any impurities to meet the quality requirements essential for the later processing. Hydrogen will be stored in pressurised tanks for the continuous production of eSAF in the downstream processes. The electrolyser technology that will be utilised is alkaline electrolysis. This technology utilises a liquid alkaline electrolyte, i.e., potassium hydroxide (KOH), to facilitate the electrolysis process. The drained potassium hydroxide media will be treated in the facility's wastewater treatment plant, and fresh potassium hydroxide will be added as a replacement. If the hydrogen pressure within the storage tanks gets too high, hydrogen will be safely released through a vent to relieve this pressure.
Carbon Capture	The carbon capture system will be capturing CO₂ from biomass boilers which is owned and operated by a third party. The process includes two carbon capture technology options. The carbon capture technologies include a flue gas cleaning process before the CO₂ is captured. Firstly, the solid particles, which includes heavy metals and other solids, present in the flue gas will be removed through either bag filtration or similar methods.
Syngas Generation and eSAF production	Syngas, which is a mixture of carbon monoxide and hydrogen, is made in a reactor using the reverse water gas shift reaction. This process converts the captured carbon dioxide and hydrogen, along with oxygen, generated by the electrolyser into the required gas composition/ratio for downstream processing. The syngas is then fed into a Fischer Tropsch Unit, where it is converted into hydrocarbons. The heat generated during this process will be recovered and reused within the system to improve overall energy efficiency. Any unconverted syngas will be recycled back into the reactor to maximise conversion. The Fischer Tropsch products will be subsequently separated into heavy hydrocarbons (referred to as FT waxes), light hydrocarbon condensate (LHC), and water. The produced water will be separated from the hydrocarbon products and sent to the facility's wastewater treatment plant. The heavy hydrocarbons and the light hydrocarbon condensate, known as FT Crude, will be further processed in a catalytic upgrading unit to produce

TECHNICAL DETAILS OF THE PROPOSED ESAF MANUFACTURING FACILITY

	synthetic paraffinic kerosene (SPK). The SPK product will be distilled, producing eSAF. By products, such as naphtha, are not discarded but are recycled back into the Fischer Tropsch process to enhance overall conversion efficiency. Intermediate storage tanks will be used to temporarily store the naphtha products prior to being reprocessed.
Product Storage	eSAF will be stored in bulk on site at ambient conditions. Day tanks for intermediate quality control of off process products are also included in this storage capacity. Product storage is 35 000 tonnes of on-site eSAF storage after Phase 3 of the project. Off specification intermediate FT Crude product will be split into two streams, a heavy wax and light hydrocarbons. After the FT Crude goes through the refining step where eSAF is produced there is also a byproduct of Naphtha which is recycled back into the process as 100% eSAF is targeted. The tank farm has an allocated area, which provides adequate volume to allow for secondary containment of 110% of the largest vessel in the tank farm.
Product Transfer	During Phase 1 of the project, eSAF will be transported from the production site using certified ISO tank containers, providing a flexible, low-CAPEX logistics solution suitable for early production volumes. These containers will be loaded onsite and transported by road to either the Port of Saldanha or the Port of Cape Town, depending on vessel availability, scheduling, and export logistics optimization. As production capacity increases in later phases, the logistics strategy will transition to a bulk handling model to improve efficiency and reduce unit transport costs. eSAF will be transported by road tanker over the approximately 40 km distance from the production facility to a dedicated bulk storage terminal at the Port of Saldanha (not part of the current project). This facility will provide large-scale storage capacity, enabling accumulation of sufficient volumes for efficient parcel-sized shipments. From the storage terminal, the eSAF will be transferred via pipeline directly into marine export vessels for shipment to international markets.
Bulk Materials	The eSAF project will require the on-site storage of several bulk materials to support the operation of the facility. These materials include feedstocks, intermediate products, final products, and utility chemicals. The bulk materials will be stored in dedicated storage tanks onsite and will be designed in accordance with the applicable South African codes and standards. Table 3-3 provides a summary of the bulk materials that will be stored onsite the eSAF plant facility. The listed storage tank dimensions listed in are indicative and represent the maximum dimensions of each bulk material tank.

TECHNICAL DETAILS OF THE PROPOSED ESAF MANUFACTURING FACILITY

Table 3-3 – Summary of bulk material on site

Product	Storage Phase	Volume (m³)	No. of storage tanks	Total mass on site (t)
Hydrogen	Gas	28	4 x 48	300
Carbon dioxide	Liquid	28	4 x 10	1500
Oxygen	Gas	28	4 x 10	450
Nitrogen	Liquid	28	4	-
Day tank	Liquid	200	8	2133
Naptha	Liquid	600	8	6400
eSAF	Liquid	6000	8	35 000
LPG	Liquid	200	4	420

Flare

A flare is required for the safe combustion of flammable gases at either ground level or at an elevated height to control flame visibility, noise, and radiation. The flare will be fuelled by LPG to ensure continuous ignition capability. The presence of the flare will aid in the removal of dangers associated with the release of gases into the atmosphere. The gases combusted are non-toxic, mainly composed of methane, hydrogen, and carbon monoxide.

Water Treatment Chemicals

The following chemicals are estimated to be used for the various steps of water treatment. All chemicals to be suitably banded, and oxidative chemicals to be stored separately from flammable ones.

- Caustic – 12 tonnes
- Anti-scalant (antifoul/biocide) – 12 tonnes
- Acid cleaner – HCL based - 12 tonnes
- Sodium Metabisulfite – 12 tonnes
- Sodium Hypochlorite – 12 tonnes
- Peroxide based chemical for advanced oxidation – quantities to be determined upon final design

Table 3-4 – Summary of the water chemicals to be stored on-site

Utilities	Storage Phase	Volume (m³)	No. of storage tanks	Total mass on site (t)
R-124a	Liquid	7.5	1	8
Ammonia	Liquid	15.5	1	8
Potassium Hydroxide (KOH)	Liquid	205	4	1000

TECHNICAL DETAILS OF THE PROPOSED ESAF MANUFACTURING FACILITY

Amine	Liquid	-	8	180
Water treatment chemicals				
Caustic	Liquid solution or solid lye	28	-	12
Anti-scalant	Liquid	13.6	-	12
Acid cleaner (HCl)	Liquid	13	-	12
SMBS	Solid	10	-	12
Sodium Hypochlorite	Liquid	12.5	-	12

Caustic

Sodium Hydroxide (caustic) will be required for pH balance in the process and scrubbing – inventories and recycles are to be finalized during detailed design. Caustic will be stored in suitable dry and bunded areas as lye or in solution up to 40% by mass concentration. Liquid caustic offloading will be designed to contain potential spills.

Amine

Amine continuous makeup for carbon capture process will be supplied either in bulk or in ISO flow bins. These will be offloaded and stored in bunded and contained areas as required. Estimated consumption of 130 t/a. (site inventory in equipment 180 t).

KOH

Potassium hydroxide (KOH) is required as the alkaline medium for electrolyzers. KOH will be available on site for top-ups of the system, as required. KOH will need to be replaced in electrolyzers every 3 years – which will be disposed of off-site. KOH will be stored in suitable dry and bunded areas as required. KOH offloading will be designed to contain potential spills. Estimated consumption of 1000 t when all electrolyzers are re-charged (estimated every 3 years).

3.3 UTILITIES

3.3.1 WATER

3.3.1.1 Plant Water

The water that will be used on the plant will be sourced from the municipal potable water line. In addition, the plant will recycle and reuse water from the onsite wastewater treatment works.

It is envisaged that approximately 8MLD of gross water usage per day for the plant is estimated at full production. With water recycling optimisation in detailed design, this figure is estimated to drop to about 3-5MLD of net water usage.

Raw Water Storage Dam

The raw water storage dam will store water sourced from the municipal potable water line as well as clean water recovered from the organic and inorganic treatment processes. Water from the dam will either be sent for demineralisation for use in the processing plant or used directly for cooling purposes.

3.3.1.2 Demineralised Water

Source water for the plant will be potable water received from the local municipal potable water reticulation system, and recycled water. This water will need to be demineralized for use in the process, which includes the electrolyzers.

Demineralization is preferred by reverse osmosis method; however, this may also be done by ion exchange methods or a combination of both.

3.3.1.3 Estimated water storage capacities

The proposed facility will include the following water storage facilities:

- Raw Water: 16 mega litres (ML) in tanks, with an additional 70 ML in the raw water storage dam.
- Demineralised Water: 2ML in tanks.
- Temporary Holding Ponds - Organic 27 ML, Inorganic 12ML.
- Fire Water: the proposed volume of the fire water storage facility will be included in the Draft EIA Report.
- Storm Water: The outcome of the Stormwater Management Assessment and Plan will determine the final size of the stormwater pond, and the details will be included in the Draft EIA Report.

3.3.1.4 Chillers

Chilled water systems will be used to assist in lowering the process temperatures of the Electrolyser systems. R-124a or similar non-ozone depleting refrigerant systems are proposed to be used. An estimated on-site capacity of 8000kg of R-124a is expected to be present on site. Further process development may require cooler refrigeration temperatures through the use of ammonia chillers. It is estimated that approximately 8000kg of ammonia used for refrigeration is allocated for this application.

3.3.1.5 Cooling Water

A selection of evaporative, air-cooled and hybrid evaporative and air-cooled systems are proposed to be used on site, pending final design. Cooling water will be reticulated and have blowdown, filtration biocide, antifoam and anti-scalant addition as required. Final quantities to be decided during detailed engineering. Blowdown will be to the wastewater treatment plant on site.

3.3.2 POWER

Power will be reticulated on the processing plant with Medium Voltage reticulation (33 kV) and be reduced to suitable low voltage use at each area as required. Transformers will be oil filled and contained in suitably bunded areas to contain oil spills.

The facility will be powered primarily by renewable power source ensuring a dedicated, reliable, and low-cost source of renewable electricity for eSAF production. The PV installation, which forms part of the broader integrated project infrastructure, will generate clean electricity that is transmitted directly to the processing facility via on-site medium-voltage electrical reticulation systems. The electricity supplied from renewable power plants will power all major process units, including the electrolyzers for green hydrogen production, carbon capture systems, reverse water-gas shift reactors, Fischer-Tropsch synthesis, and downstream refining and utilities. Where required, battery energy storage, the wheeling of nighttime wind power (from a separate Wind Energy Facility (WEF) and intelligent energy management systems will be incorporated to smooth intermittency, maintain stable plant operations, and ensure consistent baseload power to critical process units.

3.4 WASTE STREAMS

3.4.1 WASTEWATER

Aqueous process wastes are to be treated on site as well as in a suitably licenced offsite treatment facility. These aim to recover as much water as possible. Where possible and with the appropriate approvals given, wastewater meeting municipal specifications and capacities will be sent to the local wastewater treatment facility. Additional waste/sludges/brines to be treated and disposed of off-site in a suitable manner, the wastewater methodology to be finalized in detailed design.

Wastewater will be collected and contained in tanks, for further processing. Wastewater streams of similar effluent constituents will be combined together and treated in the required processing step. This processing step will concentrate and remove the unwanted constituents so they can be safely taken off-site for further treatment or disposal, in line with regulatory approvals.

The intended process description is detailed in the subsections below and presented in the figure below.

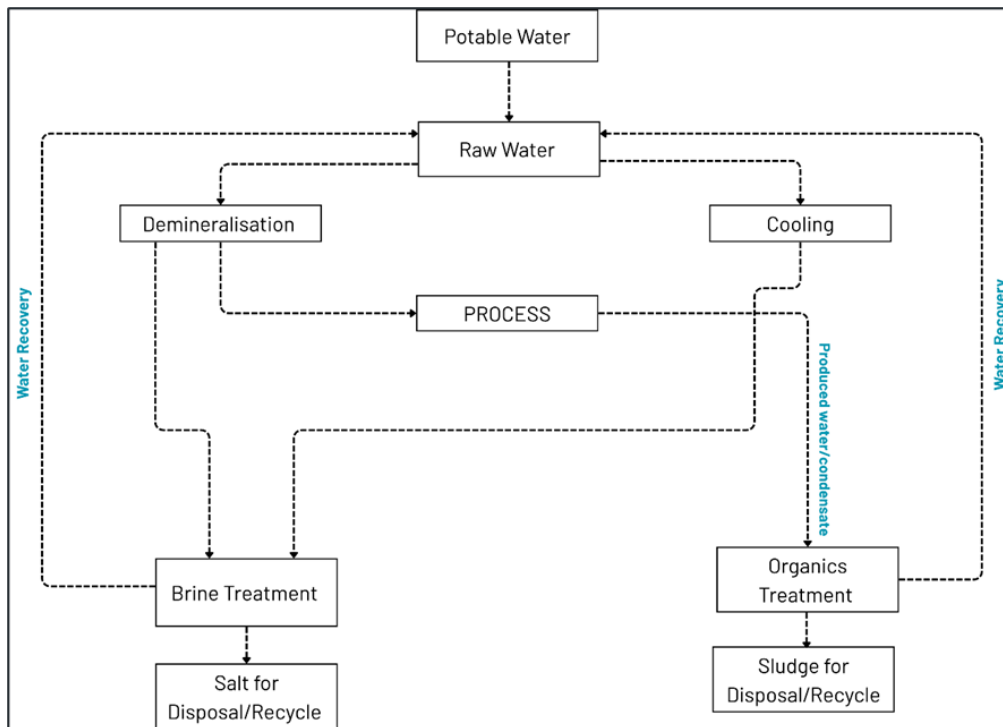


Figure 3-5 - Schematic of the water management and wastewater management systems

3.4.1.1 Brine Water Processing

Streams with a high TDS (total dissolved solids) will be collected and treated via reverse osmosis to concentrate dissolved salts into a brine stream. Further concentration and volume reduction of this brine will be achieved through engineered treatment processes within the downstream zero liquid discharge (ZLD) system. The initial brine treatment capacity is envisaged to be approximately 6 MLD (megalitres per day), which will continuously be processed. In the case of an emergency within this system, the inorganic temporary holding will be utilised to ensure continuity and prevent plant shutdown.

3.4.1.2 Minimum Liquid Discharge Plant /Zero Liquid Discharge Plant (MLD Plant / ZLD Plant)

Concentrated brine from the brine processing plant is to be sent to the Minimum Liquid or Zero Liquid discharge plant. This plant is expected to consist of reverse osmosis, evaporators, as well as crystallisers to concentrate the salts for removal from site and an appropriate manner.

The expected size of this plant is to treat 3.5 MLD of feed. Concentrated brine and salts from this facility will be stored temporarily on-site in tanks and will be disposed of by a registered waste handler in an approved disposal method.

3.4.1.3 Organics Treatment

This plant is planned to treat the streams from the process which contain organics, including hydrocarbons and oils. Treatment steps as required include Oil/Water separation, Dissolved Air Flotation, Membrane Bio Reactors, Aerobic/Anaerobic digestion and Ultrafiltration. Purge to either the municipal sewer or to the brine processing to stem dissolved content buildup. Sizing estimated to treat 9 MLD. Recovered organics are to be sent back to the process for reprocessing, while there is expected to produce a sludge from digestion, as well as filter cakes from filter cleaning. Backwashes to be sent to municipal effluent treatment, or alternatively to the ZLD/MLD plant. Sludge to be reprocessed within the process facility, and sludge wastes to be stored temporarily in tanks and containers and to be sent off site for disposal in an approved method.

3.4.1.4 Sewage Water

It is expected that sewerage generated at the facility will be treated both on site, using a packaged plant/modular system (without drying beds). The additional treatment of the raw sewerage or blackwater generated at the facility that cannot be treated onsite will be sent for treatment at the Hopefield Municipal Wastewater Treatment Works, pending final authorization from the Municipality.

A new pipeline of approximately 4.99 km along the MR234, the road towards Hopefield, is being proposed. The pipeline will convey raw sewerage or blackwater, generated at the facility that cannot be treated onsite to the Hopefield Municipal Wastewater Treatment Works, pending final authorisation from the Municipality. The diameter of the pipeline is expected to be above 0.36 m. Estimated Volume of sewage treated on site or off site is 0.04 ML/day.

3.4.1.5 Backwash Water

The above processes will typically require backwashes and other system purges. It is envisaged that these streams will be treated on site via a selection of technologies as required which could include, clarification, decanting, filter presses. Water recovery will be optimised by sending washes back to the requisite treatment plant, and dewatered sludges will be recycled in process where possible or sent off site for disposal by an approved means.

3.4.1.6 Temporary Holding Ponds

The temporary holding ponds are a dedicated, fully contained buffer for off-spec process wastewater arising from upsets, maintenance, or partial failures of the wastewater or ZLD treatment system. Its primary function is not disposal, but temporary, controlled storage that protects the environment and upstream units while preserving the ability to recover and re-process all contained water within the wastewater treatment system.

All process drains, off-spec product waters, and diverted streams from the wastewater/ZLD system that cannot meet internal reuse criteria are routed to the temporary holding pond. The pond is hydraulically and functionally separate from the stormwater pond to avoid diluting process liquors with stormwater and to keep stormwater reuse/discharge options open.

The pond is a lined, dam structure with a sloped floor and sump to facilitate sludge accumulation and removal. Because process upsets may carry elevated solids, salts, and organics, the geometry and access are designed to allow periodic cleaning and inspection. Where hydrocarbons or volatile components are credible, provisions for skimming, vapour management, and fire safety are incorporated in line with the broader facility design, these to be determined during detailed design.

A dedicated pump station and return line connect the pond back to identified points wastewater/ZLD system, such points determined by the type of water discharged to the temporary holding pond. Re-feed is metered and controlled to avoid shocking biological units or overloading downstream crystallisers and solids-handling equipment. The pond is equipped with level monitoring, sampling points, and basic instrumentation to support operations and incident investigation. In this way, the temporary holding pond acts as a deliberate, engineered buffer that underwrites the ZLD philosophy by ensuring that even during abnormal events, process waters remain contained, recoverable, and ultimately treated within the facility boundary.

3.4.1.7 Stormwater

Stormwater management for the facility is based on a clear separation between “clean”, “potentially contaminated”, and “process-related” waters, with the objective of preventing uncontrolled environmental releases while maintaining operational flexibility.

The philosophy follows a hierarchy of ‘avoid → separate → contain → verify → reuse/discharge’, aligned with South African best-practice for industrial sites and the project’s ZLD intent.

The site is zoned into “clean” and “dirty” stormwater catchments. Clean areas (primarily building roofs and paved surfaces with no credible contamination pathway) are drained directly to natural stormwater channels with appropriate erosion control.

Dirty areas include all process units, hydrocarbon handling zones, chemical storage, loading/unloading areas, and any surface where spills or firewater runoff could occur. These areas are drained to a dedicated stormwater/emergency runoff pond, which provides both hydraulic buffering and water-quality control.

A “first-flush” approach is applied to dirty areas. The first portion of rainfall over all potentially contaminated hardstand and process areas will be captured and routed to a “first flush chamber” of the stormwater/emergency runoff pond. Later, cleaner runoff may bypass the pond depending on the final drainage design and regulatory commitments, but the current default position is that all runoff from dirty areas is contained unless proven clean. All volumes and design to be detailed in detailed design.

The first-flush water is always returned for treatment and reclamation. The remainder of the potentially dirty water contained can either be released/reinjected (once tested and not contaminated) or treated in the wastewater treatment plant on site as required.

The full stormwater/emergency runoff pond is a lined, fully contained structure designed to capture runoff from the dirty catchment for a defined design storm, as well as firewater runoff from the largest credible fire scenario. The pond provides sufficient residence time for settling of suspended solids, hydrocarbon separation, and sampling before any

decision is made on reuse or discharge. Freeboard is included to accommodate rainfall during an event, wind setup, and operational uncertainty.

Water stored in the stormwater pond is managed through a quality-based decision process. After each significant storm or firewater event, the pond is sampled and analysed for key indicators such as hydrocarbons, suspended solids, COD, pH, and any site-specific contaminants of concern. Depending on the results, the water may be:

- (1) reused internally (e.g., firewater makeup, cooling tower supply),
- (2) discharged under permit if compliant with regulatory limits, or
- (3) transferred to the process wastewater treatment/ZLD system if off-spec. This approach ensures that the pond functions as a protective buffer rather than a routine treatment unit.

Monitoring and record-keeping form part of the stormwater philosophy. Event-based sampling, periodic baseline monitoring, and documentation of volumes, quality, and final disposition of stormwater ensure transparency and compliance with environmental commitments. This framework supports the project's ZLD objectives while providing robust protection against accidental releases, firewater runoff, and storm-related contamination.

Note that the stormwater pond is functionally separate from raw water storage dam, which is dedicated to run-off water. A one-way, normally closed connection may be provided from the stormwater pond to the raw water storage dam for extreme events, but routine mixing of the two systems is avoided to preserve the ability of the contamination of the raw water storage dam.

3.4.2 SOLID WASTES

The following solid wastes will be generated by the process, temporarily stored on-site and will be safely disposed of at a licenced waste management facility or recycled:

- FT Catalyst – returned and recycled at supplier/manufacturer.
- Upgrading catalyst – Spent catalyst approximately 25 000kg every 2 years (alumina, silica, coke). Metals to be recycled at appropriately licenced facilities where possible.
- Activated Carbon - 6 000 kg every 6 months.
- Sludge – Non recycled portions from wastewater treatment plant.
- Salt/brine – from ZLD/MLD plant.
- Filter cakes/solids from wastewater treatment.

3.4.3 ADDITIONAL INFRASTRUCTURE

The following infrastructure will be constructed and operated in support of the plant operations:

- Truck loading area, truck weighbridge and security room-gate;
- Maintenance workshop and store area;
- Administration buildings, canteen, parking;
- Office building;
- Control room;

- Storm Water Collection Pond, including First Flush Pond;
- Fire station

3.4.4 ACCESS TO THE SITE

Two access roads will be constructed from the MR234 to provide access to the proposed facility:

- Main staff access road – 8 m wide and approximately 40m in length; and
- Heavy vehicle / truck access road – 12 m wide and approximately 40m in length.

Both roads will accommodate tow-way entrance and exit.

3.5 ALTERNATIVES

The EIA Regulations of 2014 (as amended) require that the S&EIA process must identify and describe alternatives to the proposed activity that were considered, or motivation for not considering alternatives. Different types or categories of alternatives could be considered including different locations, technology types, and project layouts. At the scoping level the evaluation of alternatives is provided at a high level in the absence of detailed environmental comparators for each alternative; due to the two-staged nature of the S&EIA process it is more suitable to identify and describe the potential alternatives on a high-level basis within scoping and to perform a more detailed analysis of alternatives (with environmental comparators) in the EIA phase of the project. As such, the S&EIA will holistically assess the impacts and risks of each alternative in a comparative way, as suggested by Appendix 2 of the EIA Regulations of 2014 (as amended).

3.5.1 SITE ALTERNATIVES

The selection of the Project infrastructure site is the outcome of a feasibility assessment by the proponent, which *inter alia* served to identify site options that would be optimal for eSAF production and associated infrastructure requirements. The study area is considered suitable for the establishment of the proposed processing facility due to several key factors, including proximity to solar resources, favourable climatic conditions, site extent, land availability and the site's close proximity to the Aurora Substation.

Due to the requirement to have the plant in close proximity of the Solar PV and BESS facility, the current site position is the only feasible alternative and therefore no other site alternatives are being considered.

3.5.2 TECHNOLOGY ALTERNATIVES

The following technology alternatives are currently under consideration.

3.5.2.1 Carbon Capture

The process comprises two carbon capture technology options, namely an amine wash and a cryogenic system, as detailed below.

The selection of the appropriate technology is determined by the configuration of the third-party biomass boilers. If the third-party biomass boilers are air-fired, the suitable carbon capture technology is an amine wash system.

If the third-party boiler operates in oxy-firing mode, using oxygen supplied from the electrolyzers, the appropriate carbon capture technology is a cryogenic solution.

Option 1: Amine wash

Following the removal of particulates, the gas will be passed through a quench column which cools down the gas stream while removing excess water present in the stream. The flue gas is then sent to a scrubber that uses sodium hydroxide (or other chemicals) to chemically clean the flue gas, removing sulphur and any other impurities still present in the stream. The excess water coming out the quench column as well as the impurities from the scrubber will be sent for treatment at the facility's wastewater treatment plant.

The treated flue gas is then sent to an absorber column to extract CO₂ via the use of a liquid solvent. The flue gas enters the bottom of the absorber column where it flows upwards while a cooled amine liquid flows downwards. As the gas and the amine solvent come into contact, the CO₂ from the flue gas is adsorbed by the amine solvent. Before the remaining gas can exit the top of the column, it is washed with water to prevent any solvent loss. This gas is then safely vented out the top of the absorber column. The CO₂ rich solvent is then sent to a stripper column, where the unit is heated using steam to release the CO₂ from the solvent. The amine solvent is separated out and will be reused in the absorber column. Most of the solvent will be recycled, while a small portion of the solvent that can no longer be used will be sent to the wastewater treatment plant. The released CO₂ is then purified, compressed, and dried to meet the required quality. If needed, additional polishing steps may be added to ensure that the CO₂ is at the desired quality for the reverse water gas shift reaction. To ensure a steady and reliable supply, the CO₂ will be stored temporarily in buffer tanks to ensure constant CO₂ supply for the downstream processes.

There may be some nitrogen oxides (NO_x) in the flue gas that get captured along with CO₂ during the carbon capture process. This can be removed during the eSAF production process, depending on the process's requirements. On the other hand, the flue gas could go through an additional pre-treatment step, where chemicals such as sodium bicarbonate and ammonia could be used to remove NO_x from the flue gas before it enters the carbon capture system.

Option 2: Cryogenic

The cryogenic CO₂ capture system is used to collect pure carbon dioxide from the flue gas. This captured CO₂ is the main carbon source for making eSAF.

Firstly, the gas will be compressed to increase the CO₂ pressure as this helps to separate it out more easily at lower temperatures. Once compressed, the gas passes through a drying system to remove all water. This step is important as any moisture present in the gas stream would freeze during the cooling process. The dry, compressed gas is then cooled to very low temperatures in a cryogenic heat exchanger using a refrigeration system. The refrigerant used in this system are CO₂ and NH₃. These are in separate loops and do not mix. At these temperatures, CO₂ turns into a liquid while lighter gases like oxygen and nitrogen stay as gas. The cooled mixture is fed into a fractionation column, where liquid CO₂ collects at the bottom and the other gases are removed from

the top. A reflux system is used to improve the purity of the CO₂ and the refrigeration keeps the column at the ideal temperature for efficient separation. If needed, extra purification steps can be added to remove unwanted chemicals like sulphur dioxide or to further clean the CO₂, ensuring it is suitable for later chemical reactions such as the Reverse Water Gas Shift process. These steps may include but are not limited to guard and polishing beds. To achieve a very high recovery (over 95%), a pressure swing adsorption (PSA) unit can be added to increase the amount of CO₂ captured.

3.5.3 **NO-GO ALTERNATIVE**

Under the no-go alternative, the proposed Green Hydrogen and e-SAF processing plant and associated infrastructure would not be developed. The site would remain in its current state, with land use continuing predominantly as natural vegetation and existing agricultural or low-intensity uses.

Existing pressures (such as the continued spread and densification of alien invasive vegetation) are likely to persist and potentially worsen in the absence of active management.

From a socio-economic perspective, the no-go alternative would avoid short-term construction-related disturbances (e.g. noise, traffic, labour influx), but would also result in the loss of potential long-term benefits associated with the project, including employment creation, skills development, and regional economic stimulation linked to the green hydrogen economy and energy transition.

In summary, the no-go alternative represents a continuation of current environmental conditions and land uses, with ongoing baseline pressures remaining unmanaged, while foregoing the potential socio-economic and climate-transition benefits associated with the proposed development.

4 NEED AND DESIRABILITY OF THE PROJECT

The DEA&DP Guideline (2013) states that the essential aim of need and desirability is to determine the suitability (i.e., is the activity proposed in the right location for the suggested land-use/activity) and timing (i.e., is it the right time to develop a given activity) of the development. Therefore, need and desirability addresses whether the development is being proposed at the right time and in the right place. Similarly, the 'Best Practicable Environmental Option' (BPEO) as defined in NEMA is *"the option that provides the most benefit and causes the least damage to the environment as a whole, at a cost acceptable to society, in the long term as well as in the short term."*

The proposed e-SAF facility is consistent with the BPEO principle under the NEMA, as it represents an option that delivers substantial socio-economic and climate change benefits while ensuring that potential environmental impacts are avoided, minimised, managed or mitigated to acceptable levels.

There is a growing need for sustainable aviation fuel to support the decarbonisation of the aviation sector. The proposed e-SAF plant, producing synthetic aviation fuel using renewable electricity and green hydrogen, responds directly to national and international commitments to reduce greenhouse gas emissions. The development aligns with emerging market demand for low carbon fuels, particularly in the aviation and export sectors.

4.1 GLOBAL PERSPECTIVE

Climate change is a global emergency that goes beyond national borders. It is an issue that requires international cooperation and coordinated solutions at all levels. To tackle climate change and its negative impacts, world leaders at the UN Climate Change Conference (COP21) in Paris reached a breakthrough on 12 December 2015 i.e. the historic Paris Agreement.

The Agreement sets long-term goals to guide all nations:

- substantially reduce global greenhouse gas emissions to limit the global temperature increase in this century to 2 degrees Celsius while pursuing efforts to limit the increase even further to 1.5 degrees.
- review countries' commitments every five years.
- provide financing to developing countries to mitigate climate change, strengthen resilience and enhance abilities to adapt to climate impacts.

The Agreement is a legally binding international treaty. It entered into force on 4 November 2016. To date, 194 parties have joined the Paris Agreement. The Agreement includes commitment from all countries to reduce their emissions and work together to adapt to the impacts of climate change and calls on countries to strengthen their commitments over time. The Agreement provides a pathway for developed nations to assist developing nations in their climate mitigation and adaptation efforts while creating a framework for the transparent monitoring and reporting of countries' climate goals.

The Paris Agreement provides a durable framework guiding the global effort for decades to come. It marks the beginning of a shift towards a net-zero emissions world.

Implementation of the Agreement is also essential for the achievement of the Sustainable Development Goals.

Most experts agree that the use of green hydrogen to decarbonize industries will be essential to meeting the goals of the Paris Agreement, since there are certain portions of the economy whose emissions are difficult to eliminate such as transportation, electricity generation and industry.

4.1.1 GENERAL BENEFITS OF GREEN HYDROGEN AND E-SAF

Green hydrogen and e-SAF are critical for decarbonizing heavy industry and aviation, offering up to 80-90% lifecycle greenhouse gas reductions. They enable a circular carbon economy using renewable power, provide high-energy density storage for long-haul transport, and are compatible with existing infrastructure, making them essential for net-zero goals.

4.1.1.1 Benefits of Green Hydrogen

The following are the accepted benefits of green hydrogen:

- Decarbonization: Produces zero emissions at the point of use and near-zero over its lifecycle.
- Versatility: Acts as a clean feedstock for industries (steel, fertilizer) and a fuel for transportation.
- Energy Storage: Converts and stores surplus renewable electricity (solar/wind), solving intermittency issues.
- Industrial Application: Replaces grey hydrogen (fossil-based) in existing processes.

4.1.1.2 Benefits of e-SAF

- Drop-in Capability: E-SAF (like e-kerosene) can be used directly in conventional jet engines and existing airport infrastructure, eliminating the need for new specialized aircraft or fueling systems.
- Circular Carbon Use: Produced by combining green hydrogen with captured, ensuring no new fossil is added to the atmosphere.
- High Performance: Offers equivalent or superior energy performance compared to conventional jet fuel.
- Improved Air Quality: Burns cleaner than conventional jet fuel, reducing particulate matter and harmful contrail formation.
- Scalability: Unlike some biofuels, e-SAF is highly scalable as it does not rely on limited agricultural land.

4.2 NATIONAL CONTEXT

In October 2021, at the second Sustainable Infrastructure Development Symposium, President Cyril Ramaphosa stated that green energy had the potential to drive industrialisation and establish a whole new industrial reality.

Furthermore, the President stated that *"We stand ready to be a major exporter in this market, to use hydrogen to rapidly decarbonise our existing industries, and attract industrial investment from across the globe seeking to meet new standards of green power in the production process"*. South Africa currently has limited dedicated facilities

for the production of sustainable aviation fuel, including e-SAF, despite increasing national and international demand for low carbon aviation fuels. Existing fuel and petrochemical infrastructure are largely geared towards conventional fossil fuel-based products and does not adequately support the scale or technology required for the production of synthetic sustainable aviation fuel derived from renewable energy and green hydrogen.

The proposed e-SAF facility is intended to address this gap by establishing new, purpose-built infrastructure to support the decarbonisation of the aviation sector and the transition to cleaner fuels. The development responds to growing market demand and policy drivers aimed at reducing greenhouse gas emissions while complementing existing fuel production and logistics infrastructure.

4.2.1 DEVELOPMENT FRAMEWORKS

4.2.1.1 Saldanha Bay Local Municipality Spatial Development Framework (2025-2030)

The proposed facility aligns with the objectives of the Saldanha Bay Municipal Spatial Development Framework (SBM SDF), which guides land-use planning, economic development, and infrastructure investment within the municipality. The SDF supports economic diversification, strategic industrial and energy-related development, and investment that contributes to long-term economic resilience, while requiring environmental sensitivities to be identified and managed through appropriate planning and assessment processes.

According to the SBM SDF 2025, clean energy was identified as an overarching theme aligning international policies and legislation with the SBM Integrated Development Plan. The objective of the IDP in relation to clean energy is to provide enhanced basic services that are reliable, efficient and affordable. The source of energy for the project is renewable aligning with the objective of the New Urban Agenda, 2016 which is to ensure environmental sustainability by promoting clean energy and sustainable use of land and resources.

The first spatial objective of the SBM SDF which is informed by the strategic objective of the IDP, is the promotion of innovative and modern technology to enhance service delivery and increase opportunities. The objective places emphasis on the growth and unlocking of the economic sector to drive prosperity in the region. The SDF highlights that this can be achieved by stimulating sector diversification and product development and maximise zoned land.

The project directly responds to this objective by establishing purpose-built infrastructure that will support the opportunity to decarbonise the aviation sector as highlighted in Section 4.2 above.

The SBM SDP also identifies climate change as an overarching theme and the implication is to integrate climate change action plans into spatial planning, prioritising the development of green corridors and climate resilient infrastructure. Although not directly contributing to the SBM climate change plan, the proposed project aims to contribute to the overall objective of zero emissions of fossil fuels and energy conservation whilst contributing positively to the economy. Section 6.4.2 of the SBM

SDF relates directly to the establishment of commercial renewable energy structures which must be linked to place specific characteristics and desirability factors not restricted to the confines of an urban edge and can occur in the rural hinterland subject to the desirability evaluation of a relevant land use application. The MSDF therefore refrains from identification of specific localities for such uses but provide for buffer zones in specific areas where the establishment of these uses are not supported due to potential impacts on view corridors and township character.

Although not a renewable energy project, the proposed development falls within the vicinity of a renewable energy development which will serve as the source of energy for the projects operational phase.

Industrial Policy Action Plan (IPAP) (2018/19-202/21) within the SBM SDF

According to the SBM SDF, the mission of IPAP is to drive South Africa's industrial development through targeted and strategic interventions. It aims to revitalise the manufacturing sector, expand and diversify the industrial base, and enhance global competitiveness by promoting innovation and technology adoption. It emphasises sustainable industrial development through environmentally friendly practices and the promotion of green industries. In this way, the proposed project aligns with the IPAP as it is an industrial development aimed at decarbonisation of the aviation industry through environmentally friendly practices, it also forms part of the green industry.

4.2.1.2 Western Cape Land Use Planning Guidelines for Rural Areas - March 2019

The Western Cape Land Use Planning Guidelines for Rural Areas - March 2019, provides a framework for managing land use and development in rural areas throughout the Western Cape. The vision of the Western Cape Land Use Planning Guidelines for Rural Areas is to create a sustainable balance between development and conservation in rural areas of the Western Cape.

The following principles as noted in the SBM SDF underpins the Rural Areas Guidelines in relation to the proposed project:

Land development must avoid negative impact on river systems and should therefore not be permitted below the 1:100 flood line or within 100m of a riverbank, whichever distance is greater. Where the flood line has not been determined or is out of date, a flood line study is required; and

Only activities that are appropriate in a rural context, generate positive socio-economic returns, and do not compromise the environment or ability of the municipality to deliver on its mandate is supported;

The EIA phase of the project will assess the impact on the watercourses as well as its socio-economic impact.

4.2.1.3 Greater Saldanha Environmental Management Framework (EMF)

The objectives of the EMF are to provide:

- A framework to facilitate the pursuit of a sustainable development path in the geographical area with which it is concerned, specifically in relation to land use and development.

- A comprehensive and integrated information base on the environmental attributes of an area and their sensitivity, together with management information in respect of the management zones into which these environmental attributes occur (e.g. limits of acceptable change, thresholds, management objectives).
- A tool to support the identification of issues that require consideration/investigation in an EIA process through referring to the management objectives of the Environmental Management Zones (EMZs).
- The identification of activities that should be considered for either exclusion or restriction, based on the significance of anticipated impacts and the sensitivity of the environmental attributes.
- A decision-support tool for environmental authorities when considering environmental applications in terms of section 24 of NEMA and the associated EIA Regulations.
- Guidance to applicants with respect to the appropriateness of development or land use proposals and to any professionals that are assisting in the application process, particularly in the environmental and planning fields.
- Assistance and support to other authorities in the consideration of environmental factors in their decision-making processes, especially where these are concerned with the use of land and resources.
- Support for cooperative governance, particularly with regard to land and resource use planning and development.
- A decision-support tool that will inform and be integrated with spatial development tools, specifically the SBM and BPM Spatial Development Frameworks (SDF), for more effective land and resource use planning and development.

The EMF in conjunction with the Western Cape Biodiversity Spatial Plan (WCBSP) delineates, on a map (via a Geographic Information System (GIS)), Critical Biodiversity Areas (CBAs) and Ecological Support Areas (ESAs) which require safeguarding to ensure the continued existence and functioning of species and ecosystems, including the delivery of ecosystem services, across terrestrial and freshwater realms.

Upon examination of the WCBSP dataset in relation to the study site it was found that:

- The western portion of the study site (>30%) was determined as within three (3) CBA 1 Subcategories, namely: terrestrial, wetland and river. The implication that these area in a natural condition required to meet biodiversity targets, for species, ecosystems or ecological processes and infrastructure, consequently the management objective is to maintain in a natural or near-natural state, with no further loss of natural habitat. Degraded areas should be rehabilitated. Only low-impact, biodiversity-sensitive land uses are appropriate.
- Two (2) ESA subcategories (aquatic and terrestrial) were modelled within the study area. The management objective of the area is identified as: Restore from other land use.
- The West Coast National Park is modelled as situated within a 5km and 10km radius of the study site.

Based on the above, it is understood that developments that are considered to be sustainable land-use change may be acceptable in such areas.

The proposed development has not been assumed to be compatible with the EMF by default. Rather, the purpose of the Scoping Phase is to identify environmental sensitivities and potential constraints associated with the site, and to define the scope of specialist studies required to assess the extent to which the development can meet EMF objectives.

The EIA Phase will therefore include specialist investigations to determine the acceptability of potential impacts and to identify avoidance, minimisation and mitigation measures. Where necessary, the refinement of the development footprint will be considered to avoid or reduce impacts on areas of higher ecological sensitivity, consistent with the EMF's spatial planning intent.

4.2.1.4 Western Cape Green Economy Strategy Framework:

The proposed facility is consistent with the Western Cape Green Economy Strategy Framework which aims to “*position the Western Cape as the lowest carbon province in South Africa and the leading green economic hub of the African continent*”. The proposed e-SAF facility directly supports this framework by enabling green fuels production, fostering green-economy investment and contributing to climate aligned economic growth.

4.2.1.5 National Development Plan (2030):

The proposed facility aligns with Chapter 5 of the National Development Plan 2030 – *Transition to a low carbon economy*, which promotes sustainable development, economic diversification and reduced carbon intensity, while addressing unemployment and inequality. The proposed e-SAF facility supports these objectives through the establishment of new green economy infrastructure and associated employment opportunities.

5 GOVERNANCE FRAMEWORK

5.1 APPLICABLE LEGISLATION

The South African regulatory framework establishes well-defined requirements and standards for environmental and social management of industrial and civil infrastructure developments. Different authorities at both national and regional levels carry out environmental protection functions. The applicable national legislation is explained in **Table 5-1** below.

Table 5-1 – Applicable National Legislation¹

Legislation	Description of Legislation and Applicability
The Constitution of South Africa (No. 108 of 1996)	The Constitution cannot manage environmental resources as a stand-alone piece of legislation hence additional legislation has been promulgated in order to manage the various spheres of both the social and natural environment. Each promulgated Act and associated Regulations are designed to focus on various industries or components of the environment to ensure that the objectives of the Constitution are effectively implemented and upheld in an on-going basis throughout the country. In terms of Section 7, a positive obligation is placed on the State to give effect to the environmental rights. Applicability: An environmental permitting process will be undertaken to identify and determine the potential impacts associated with the proposed Project. The recommended mitigation measures will aim to adequately address the potential impacts and are managed to acceptable levels to support the rights as enshrined in the Constitution.
National Environmental Management Act (No. 107 of 1998) (NEMA) Government Notice Regulation (GN R) 982 to 985 dated 4 December 2014 (as amended): Environmental	In terms of Section 24(2) of the NEMA, the Minister may identify activities which may not commence without prior authorisation. The Minister thus published GNR 983 (Listing Notice 1), 984 (Listing Notice 2) and 985 (Listing Notice 3), as amended, listing activities that may not commence prior to authorisation. The regulations outlining the procedures required for authorisation are published in the 2014 EIA Regulations, as amended. Listing Notice 1 identifies activities that require a BA process to be undertaken, in terms of the EIA Regulations, prior to commencement of that activity. Listing Notice 2 identifies activities that require an S&EIR process to be undertaken, in terms of the EIA Regulations, prior to commencement of that activity. Listing Notice 3 identifies activities within specific areas

¹ It should be noted that all dimensions outlined in relation to Listing Notice 1, 2 and 3 are provisional and are subject to final design.

Legislation	Description of Legislation and Applicability
Impact Assessment Regulations 2014. The EIA Regulations, 2014 (as amended) were published under GN982 and came into operation on 8 December 2014. GN 983, 984 and 985 (Listing Notices 1-3) identify activities requiring authorisation.	that require a BA process to be undertaken, in terms of the EIA Regulations, prior to commencement of that activity. Applicability: WSP undertook a legal review of the listed activities according to the proposed project description to conclude that the activities listed in this section are considered applicable to the development: A S&EIR process must be followed. Refer to Table 5-6 for the list listed activities applicable to the proposed project.
National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004) (NEM:BA) and the Western Cape Nature Conservation Ordinance 19 of 1974	The National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004) (NEM:BA) was promulgated in June 2004 within the framework of the NEMA to provide for the management and conservation of national biodiversity. The NEM:BA's primary aims are for the protection of species and ecosystems that warrant national protection, the sustainable use of indigenous biological resources, the fair and equitable sharing of benefits arising from bioprospecting involving indigenous biological resources. In addition, the NEM:BA provides for the establishment and functions of a South African National Biodiversity Institute (SANBI). SANBI was established by the NEM:BA with the primary purpose of reporting on the status of the country's biodiversity and conservation status of all listed threatened or protected species and ecosystems. The NEM:BA and Western Cape Nature Conservation Ordinance 19 of 1974 place an emphasis on conserving biodiversity in each province and as such all indigenous resources must be sustainably utilised. Applicability: A Biodiversity Impact Assessment has been conducted by Aim360 Environmental Solutions (2025) to confirm the vegetation status of the site and if any protected species are found within the project area. Plants of conservation significance, as protected by the Western Cape Nature Conservation Ordinance 19 of 1974, that were encountered within the study site during previous assessments include the following: <i>Leucadendron foedum</i>, <i>Leucospermum rodolentum</i>, <i>A. ternata</i>, <i>Leucospermum hypophyllocarpodendron</i>, <i>Metalasia capitata</i>, <i>Phyllica harveyi</i>, <i>Serruria decipiens</i>, <i>S. fucifolia</i>. It must be noted that infield assessment for this project was unproductive in locating and identifying any of the species of conservation significance despite the high probability of occurrence. If encountered during construction, permits for removal of these species will be applied for from the relevant authorities. In addition, according to the DFFE Screening Tool the site is located within a Critical Biodiversity Area 2 (CBA2). This implies that any degradation of vegetation resulting from the development of the Green

Legislation	Description of Legislation and Applicability
	Hydrogen Processing Facility Project is likely to impact negatively on conservation targets.
The National Heritage Resources Act (No. 25 of 1999) (NHRA)	The National Heritage Resource Act (Act No. 25 of 1999) (NHRA) serves to protect national and provincial heritage resources across South Africa. The NHRA provides for the protection of all archaeological and palaeontological sites, the conservation and care of cemeteries and graves by the South African Heritage Resources Agency (SAHRA), and lists activities that require any person who intends to undertake to notify the responsible heritage resources agency and furnish details regarding the location, nature, and extent of the proposed development. Part 2 of the NHRA details specific activities that require a Heritage Impact Assessment (HIA) that will need to be approved by SAHRA. Parts of Section 35, 36 and 38 apply to the proposed project, principally: Section– 35 (4) - No person may, without a permit issued by the responsible heritage resources authority- ■ destroy, damage, excavate, alter, deface or otherwise disturb any archaeological or palaeontological site or any meteorite; ■ destroy, damage, excavate, remove from its original position, collect or own any archaeological or palaeontological material or object or any meteorite. ■ Section 38 (1) Subject to the provisions of subsections (7), (8) and (9), any person who intends to undertake a development categorised as- ■ any development or other activity which will change the character of a site— (i) exceeding 5 000 m² in extent, must at the very earliest stages of initiating such a development, notify the responsible heritage resources authority and furnish it with details regarding the location, nature and extent of the proposed development. In terms of Section 38(8), approval from the heritage authority is not required if an evaluation of the impact of such development on heritage resources is required in terms of any other legislation (such as NEMA), provided that the consenting authority ensures that the evaluation of impacts fulfils the requirements of the relevant heritage resources authority in terms of Section 38(3) and any comments and recommendations of the relevant resources authority with regard to such development have been taken into account prior to the granting of the consent. However, should heritage resources of significance be affected by the proposed project, a permit is required to be obtained prior to disturbing or destroying such resources as per the requirements of Section 48 of the NHRA, and the SAHRA Permit Regulations (GN R668). Applicability: An Archaeological and Heritage Impact Assessment was undertaken by Tsimba Archaeological Footprints, 2025. The objective of the report is to fulfil the requirements of SAHRA in the in terms of Section 38(1) of the NHRA as read together with the NEMA. The proposed project site is located on the Remainder of Farm Portugeesche Fontyn 167 with an area of 941 ha, but the area being

Legislation	Description of Legislation and Applicability
	considered for the processing facility is 61 ha and therefore Section 38(1) of the NHRA is triggered. Section 38 of the NHRA requires that a HIA is required for certain kinds of development such as rezoning of land greater than 10 000 sqm in extent or exceeding 3 or more subdivisions, or for any activity that will alter the character of a site greater than 5000 m². During the survey no sites, features or objects of cultural significance were identified.
National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008) (NEM:WA)	A list of 'Category A', and 'Category B' and subsequently 'Category C' waste management activities were first published, in GN 718 of 3 July 2009. These were amended, with the latest amendment being GN 1094 at the time of submission of this application. Category A and B activities require a Waste Management Licence in terms of section 20(b) of NEMWA, whereas Category C activities require that the person conducting these activities complies with the relevant requirements or standards as stated in GN. R.921, as amended. A number of regulations and standards regulating waste management have been published under NEMWA and updated to Government Gazette 46602 dated 24 June 2022 including: ■ List of waste management activities that have, or are likely to have, a detrimental effect on the environment, 2013 (as amended) ■ National Waste Management Strategy, 2020 ■ Waste Classification & Management Regulations, 2013 ■ National Norms & Standards for the Assessment of Waste for Landfill Disposal, 2013 ■ National Norms & Standards for Disposal of Waste to Landfill, 2013 ■ National Norms and Standards for the Remediation of Contaminated Land and Soil Quality, 2014 Applicability: Based on the details of the project provided, the proposed project does not constitute a Listed Activity requiring a Waste Management Licence (WML) as defined in GNR 921. The facility will have to register and comply with the Norms and Standards for Storage of Waste, published under Government Notice 926 of 29 November 2013 (Refer to Table 5-7).
National Environmental Management: Air Quality Act 39 of 2004 (NEM:AQA)	NEM:AQA provides for the protection of the environment by regulating air quality in order to prevent air pollution. Applicability: The Project is a new facility (plant) that does not yet have an Air Emission Licence (AEL) and would need to apply for an AEL to operate. In the event where an application for an AEL is being made, Chapter 5 of the NEM: AQA provides the procedure for licence application. Air emissions from the project must comply with the Minimum Emission Standards (MES) applicable to new plants.

Legislation	Description of Legislation and Applicability
	The production of eSAF is regulated under <i>Subcategory 2.4: Storage and Handling of Petroleum Products</i>, specifically with reference to the proposed storage of Naphtha and LPG. . In addition, the storage of chemicals (refer to Table 3-3 and Table 3-4) required for the process is likely regulated under the broader <i>Category 6: Organic Chemicals Industry</i>, which covers “<i>the production or use in production of organic chemicals not specified elsewhere, including...</i>”. These categories apply to all permanent, immobile petroleum or organic liquid storage tanks with a cumulative capacity exceeding 1 000 m³ at a site. Therefore, an AEL is required.
The National Water Act (No. 36 of 1998) (NWA)	The purpose of the National Water Act (No. 36 of 1998) (NWA) is to provide a framework for the equitable allocation and sustainable management of water resources. Both surface and groundwater sources are national resources, which cannot be owned by any individual, and rights to which are not automatically coupled to land rights, but for which prospective users must apply for authorisation and register as users. The NWA also provides for measures to prevent, control and remedy the pollution of surface and groundwater sources. The Act aims to regulate the use of water and activities (as defined in Part 4, Section 21), which may impact on water resources through the categorisation of ‘listed water uses.’ Defined water-use activities require the approval of DWS in the form of a General Authorisation (GA) or Water Use Licence (WUL) authorisation. Applicability: The project will require an application for a WUL to the Department of Water and Sanitation (DWS) for water uses as specified in section 21 of the National Water Act (No. 36 of 1998) (NWA). These water uses include: ■ Section 21 (a) taking water from a water resource ■ Section 21 (b) storing water ■ Section 21 (c) impeding or diverting the flow of water in a watercourse ■ Section 21 (g) disposing of waste in a manner which may detrimentally impact a water resource. ■ Section 21 (i) altering the bed, banks, course or characteristics of a watercourse.

Legislation	Description of Legislation and Applicability
Conservation of Agricultural Resources Act (No. 43 of 1983)	The Conservation of Agricultural Resources Act 43 of 1983 (CARA) promotes the conservation of natural agricultural resources (soil, water, vegetation) by maintaining production potential, preventing erosion, and controlling invasive plants. It mandates land users to comply with regulations, including managing weeds and invader plants. Rehabilitation after disturbance to agricultural land is managed by CARA. A consent in terms of CARA is required for the cultivation of virgin land. Cultivation is defined in CARA as “any act by means of which the topsoil is disturbed mechanically”. The purpose of this consent for the cultivation of virgin land is to ensure that only land that is suitable as arable land is cultivated. Therefore, despite the above definition of cultivation, disturbance to the topsoil that results from construction of infrastructure does not constitute cultivation as it is understood in CARA. Applicability: The construction and operation of the facility will therefore not require consent from the Department of Agriculture, Land Reform and Rural Development in terms of this provision of CARA.
Climate Change Act (No.22 of 2024)	The Climate Change Act (No.22 of 2024) signed into law in South Africa on 23 July 2024, and effective from 17 March 2025, provides a legal framework for transitioning to a low-carbon, climate-resilient economy. It enforces mandatory emission reductions, establishes carbon budgets, and requires sectoral targets to meet international obligations. The purpose of the Act is to enable the development of an effective climate change response and a long-term, just transition to a low-carbon and climate-resilient economy and society for South Africa in the context of sustainable development. Applicability: Although the Act does not have any specific requirements for the Project, the potential impact of the Project’s GHG emissions on the country’s national GHG emissions trajectory has been considered.

Legislation	Description of Legislation and Applicability
Occupational Health and Safety Act, 1993 (No. 85 of 1993)	The Occupational Health and Safety Act (OHS) provide for the health and safety of persons at work against hazards to health and safety arising from the work they are engaged in. Every employer shall provide and maintain, as far as is reasonably practicable, a working environment that is safe and without risk to the health of his employees. Applicability: The construction and operation of the proposed Project structures and infrastructure will include activities that are deemed as hazards and/risk to the health and safety of the employees employed on the project. Such hazards/risks should be managed in accordance with the relevant requirements of the Act. Hazard identification and risk assessments should be done for each project component such that the health and safety of employees on construction, establishment, operation and maintenance of the facilities.
Spatial Planning and Land Use Management Act, 2013 (No. 6 of 2013) (SPLUMA)	The SPLUMA aims to confirm and regulate the role of municipalities in land use planning and management. The municipalities have development programmes for the management of the residential, industrial and commercial environments within their jurisdiction. Applicability: The proposed project should consider the Integrated Development Plans (IDP) for West Coast District municipalities to ensure that the spatial planning and land use management is promoted. The social and economic priorities for the municipalities should be recognised to provide for the sustainable and efficient use of land and in line with SPLUMA. Land zoning, development requirements and associated responsibilities to local government should be considered.
Civil Aviation Act (No. 13 of 2009)	Civil aviation in South Africa is governed by the Civil Aviation Act (Act 13 of 2009). This Act provides for the establishment of a stand-alone authority mandated with controlling, promoting, regulating, supporting, developing, enforcing and continuously improving levels of safety and security throughout the civil aviation industry. This mandate is fulfilled by the South African Civil Aviation Authority (SACAA) as an agency of the Department of Transport (DoT). SACAA achieves the objectives set out in the Act by complying with the Standards and Recommended Practices (SARPs) of the International Civil Aviation Organisation (ICAO), while considering the local context when issuing the South African Civil Aviation Regulations. All proposed developments or activities in South Africa that potentially could affect civil aviation must thus be assessed by SACAA in terms of the Civil Aviation Regulations and South African Civil Aviation Technical Standards (SA CATS) to ensure aviation safety. Potential impacts from the pigging station must be reviewed by these authorities. The Obstacle Evaluation Committee (OEC) which consists of members from both the SACAA and South African Air Force (SAAF) fulfils the role of streamlining and coordinating the assessment and approvals of proposed developments or activities that have the potential to affect civil aviation, military aviation, or military areas of interest. With both being national and international priorities, the OEC

Legislation	Description of Legislation and Applicability
	is responsible for facilitating the coexistence of aviation and renewable energy development, without compromising aviation safety. Applicability: The details of the proposed project will be provided to the SACAA who will be registered on the stakeholder list.

5.2 PROVINCIAL AND LOCAL LEGISLATION AND PLANNING

The table below summarises the key policies and plans as an outline of the governance framework for the project.

Table 5-2 – National, Provincial and Local Legislation including Policies, Plans and Strategies

Applicable Plan	Description of Plan
Saldanha Bay Integrated Development Plan, 2022	Saldanha Bay Municipality's 4th generation Integrated Development Plan (IDP) provides the framework to guide the municipality's planning and budgeting over the course of a set legislative time frame. The IDP seeks to support sustainable development of the municipal area and its communities through integration and balancing of the economic, ecological and social factors which influence development. This integration and balancing must be achieved without compromising the institutional capacity required to implement and coordinate the actions required across different sectors and spheres of government. Integrated development planning as an instrument is the driving force for making municipalities more strategic, inclusive, responsive and performance driven. The IDP is therefore the main strategic planning instrument which guides and informs all planning, budgeting and development undertaken by the Saldanha Bay Municipality in its municipal area.
Saldanha Bay Municipal Spatial Development Framework (MSDF), 2025	The purpose of the Saldanha Bay Municipal Spatial Development Framework (MSDF) is to guide growth and development in the Saldanha Bay municipal area in a sustainable manner. Hence, future growth, development and land use planning will embrace the spatial vision and principles to protect and develop integrated, sustainable settlements and liveable environments, and promote economic and social prosperity.
Saldanha Bay Municipality Integrated Waste Management Policy, 2022	The Saldanha Bay Municipalities' Integrated Waste Management Policy was developed in 2017 on the back of the 3rd Generation Integrated Waste Management Plan (IWMP). The Municipality recognised the need to adopt an integrated waste management policy in order to regulate waste management within its area of jurisdiction and to ensure that it had the capacity to deal with the expected increase in the generation of waste.

Applicable Plan	Description of Plan
Saldanha Bay Municipality: Air Quality By-law, 2022	The purpose and objectives of this By-Law are to give effect to the right contained in section 24 of the Constitution of the Republic of South Africa, 1996 by- (i) the protection and enhancement of the quality of air within the jurisdictional area of the municipality; (ii) the prevention of air pollution and ecological degradation; and (iii) securing ecologically sustainable development while promoting justifiable economic and social development
National Ambient Air Quality Standards (NAAQS), 2012	The initial NAAQS were published for comment on 9 June 2007. A revised set of standards were subsequently published for comment on 13 March 2009. The final NAAQS were published on 24 December 2009 (Government Gazette 32816) and additional standards for particulate matter less than 2.5 µm in aerodynamic diameter (PM_{2.5}), published on 29 June 2012. The standards were developed for those pollutants that are most commonly found in the atmosphere; that have proven detrimental health effects when inhaled and are regulated by ambient air quality criteria. These include CO, NO₂, SO₂, benzene, lead (Pb), PM₁₀, PM_{2.5}, and ground level ozone (O₃)
National Dust Control Regulations (NDCR), 2013	The NDCR was gazetted on 1 November 2013 (Government Gazette 36974) with updated NDCR gazetted on 8 March 2024 (GG 50272). The purpose of the regulations is to prescribe general measures for the control of dust in residential and non-residential areas. It is important to note that dustfall is assessed for nuisance impact and not inhalation health impact.
Atmospheric Dispersion Modelling Regulations, 2014	Air dispersion modelling provides a cost-effective means for assessing the impact of air emission sources, the major focus of which is to determine compliance with the relevant ambient air quality standards. Dispersion modelling provides a versatile means of assessing various emission options for the management of emissions from existing or proposed installations. The Regulations Regarding Air Dispersion Modelling recommend a suite of dispersion models to be applied for regulatory practices as well as guidance on modelling input requirements, protocols, and procedures to be followed. These Regulations are applicable: ■ in the development of an air quality management plan, as contemplated in Chapter 3 of the NEM:AQA; ■ in the development of a Priority Area Air Quality Management Plan, as contemplated in Section 19 of the NEM:AQA; ■ in the development of an Atmospheric Impact Report (AIR), as contemplated in Section 30 of the NEM:AQA; and, ■ in the development of a specialist air quality impact assessment study, as contemplated in Chapter 5 of the NEM:AQA.
The Draft White Paper on the Conservation and Sustainable Use of	In 2021, the Department of Forestry, Fisheries and the Environment (DFFE) initiated a process to review, update and

Applicable Plan	Description of Plan
South Africa's Biodiversity (1997) and cabinet approved White Paper, 2023	build on the 1997 Draft White Paper on the Conservation and Sustainable Use of South Africa's Biodiversity. This White Paper on Conservation and Sustainable Use of South Africa's Biodiversity was developed to promote the conservation of the rich biodiversity and ecological infrastructure that supports ecosystem functioning for livelihoods and the well-being of people and nature.
Western Cape Biodiversity Spatial Plan (WCBSP) (2017)	The WCBSP is a spatial tool that comprises the Biodiversity Spatial Plan Map (BSP Map) of biodiversity priority areas, accompanied by contextual information and land use guidelines that make the most recent and best quality biodiversity information available for land use and development planning, environmental assessment and regulation, and natural resource management. The BSP Map covers both the terrestrial and freshwater realms, as well as major coastal and estuarine habitats.
South African Green Hydrogen (GH2) Commercialisation Strategy, 2023	The vision of the Green Hydrogen (GH2) Commercialisation Strategy ("GHSC") is to establish a sustainable green hydrogen industry for South Africa by 2050. The GHSC builds on the Hydrogen Society Roadmap ("HSRM").
Draft National Guideline for Consideration of Climate Change Implications in Applications for Environmental Authorisation, Atmospheric Emission Licences, and Waste Management Licence, 2021	The purpose of the guideline is to give guidance on the consideration of climate change impacts in EIA processes linked to Environmental Authorisation, Atmospheric Emission Licences, and Waste Management Licences.
South Africa First Nationally Determined Contribution (Updated September 2021)	The purpose of the South Africa's Nationally Determined Contribution ("NDC") is to outline the country's plans to mitigate GHG emissions and to adapt to climate change. South Africa's first NDC was updated in September 2021 to align with the Paris Agreement, and to reduce the country's national GHG emissions target range to 398 - 510 million tonnes of carbon dioxide equivalent ("MtCO₂e") by 2025 and 350 - 420 MtCO₂e by 2030.
National Climate Change Adaptation Strategy, 2019	The purpose of the National Climate Change Adaptation Strategy is to provide a common vision of climate change adaptation and climate resilience for the country, and to outline priority areas for achieving this vision.

5.3 ADDITIONAL PERMITS AND AUTHORISATIONS

Table 5-3 – Additional Permits and Authorisations required for the Proposed Project

Permits / Authorisation	Legislation	Relevant Authority	Status
Section 38 (8) for the review of environmental documents	Section 38 (1) & (8) of the NHRA	SAHRA	In progress
WUL/GA	NWA	DWS	In progress
AEL	NEM:AQA	West Coast District Municipality	In progress
Permits for removal or destruction of nationally protected plant species	NEM:BA	DFFE	If required, permits will be obtained prior to the commencement of construction.

5.4 INTERNATIONAL STANDARDS AND GUIDELINES

5.4.1 IFC PERFORMANCE STANDARDS

The International Finance Corporation (IFC) is an international financial institution that offers investment, advisory, and asset management services to encourage private sector development in developing countries. The IFC is a member of the World Bank Group (WBG) and is headquartered in Washington, D.C., United States. It was established in 1956 as the private sector arm of the WBG to advance economic development by investing in strictly for-profit and commercial projects that purport to reduce poverty and promote development.

The IFC's Sustainability Framework articulates the Corporation's strategic commitment to sustainable development and is an integral part of IFC's approach to risk management. The Sustainability Framework comprises IFC's Policy and Performance Standards on Environmental and Social Sustainability, and IFC's Access to Information Policy. The Policy on Environmental and Social Sustainability describes IFC's commitments, roles, and responsibilities related to environmental and social sustainability. IFC's Access to Information Policy reflects IFC's commitment to transparency and good governance on its operations and outlines the Corporation's institutional disclosure obligations regarding its investment and advisory services. The Performance Standards (PSs) are directed towards clients, providing guidance on how to identify risks and impacts, and are designed to help avoid, mitigate, and manage risks and impacts as a way of doing business in a sustainable way, including stakeholder engagement and disclosure obligations of the client in relation to project-level activities. In the case of its direct investments (including project and corporate finance provided through financial intermediaries), IFC requires its clients to apply the PSs to manage environmental and social risks and impacts so that development opportunities are

enhanced. IFC uses the Sustainability Framework along with other strategies, policies, and initiatives to direct the business activities of the Corporation to achieve its overall development objectives. The PSs may also be applied by other financial institutions (FIs).

The Proposed Development is considered a Category B project in terms of the IFC Policy on E&S Sustainability (2012), having the potential to cause limited adverse environmental or social risks and/or impacts that are few in number, generally site specific, largely reversible, and readily addressed through mitigation measures.

A brief overview of the PS is outlined below.

Table 5-4 – Objectives and Applicability of the IFC Performance Standards

Reference	Requirements	Project Specific Applicability
Performance Standard 1: Assessment and Management of Environmental and Social Risks and Impacts		
Overview	Performance Standard 1 underscores the importance of managing environmental and social performance throughout the life of a project. An effective Environmental and Social Management System (ESMS) is a dynamic and continuous process initiated and supported by management, and involves engagement between the client, its workers, local communities directly affected by the project (the affected communities) and, where appropriate, other stakeholders. The IFC Standards state under PS 1 (Guidance Note 23) that “<i>the breadth, depth and type of analysis included in an ESIA must be proportionate to the nature and scale of the proposed project’s potential impacts as identified during the course of the assessment process.</i>” This document is the DSR compiled for the proposed project. The impact assessment phase will comprehensively assess the key environmental and social impacts and complies with the requirements of the South African EIA Regulations.	
Performance Standard 2: Labour and Working Conditions;		
Overview	Performance Standard 2 recognises that the pursuit of economic growth through employment creation and income generation should be accompanied by protection of the fundamental rights of workers. PS2 is considered applicable as a contractor will be appointed to undertake the required scope of work. Formal human resource and labour policies will be compiled in the event that the project is developed in the future as part of the project specific ESMS/corporate ESMS.	
Performance Standard 3: Resource Efficiency and Pollution Prevention		
Overview	Performance Standard 3 recognises that increased economic activity and urbanisation often generate increased levels of pollution to air, water, and land, and consume finite resources in a manner that may threaten people and the environment at the local, regional, and global levels. There is also a growing global consensus that the current and projected atmospheric concentration of greenhouse gases (GHG) threatens the public health and welfare of current and future generations. At the same time, more efficient and effective resource use	

Reference	Requirements	Project Specific Applicability
	and pollution prevention and GHG emission avoidance and mitigation technologies and practices have become more accessible and achievable in virtually all parts of the world. PS3-related impacts, such as the management of construction waste, hazardous substances, stormwater, use of water, etc will be further assessed during the EIA phase. The project is not GHG emissions intensive and will seek to facilitate resource efficiency and pollution prevention. Pollution in the construction phase be further assessed during the EIA phase. In addition, a Climate Change Impact Assessment has been undertaken to determine the GHG emissions and the related impacts of the project.	
Performance Standard 4: Community Health, Safety, and Security		
Overview	Performance Standard 4 recognizes that project activities, equipment, and infrastructure can increase community exposure to risks and impacts. The requirements included in PS 4 will be addressed in the EIA process. The following generic plans will be included in the EMP: ■ Emergency Response Plan; ■ Transport Management Plan; ■ HIV/AIDS Management Plan; and ■ Security Policy. All plans will be made site specific where necessary.	
Performance Standard 5: Land Acquisition and Involuntary Resettlement		
Overview	Performance Standard 5 recognises that project-related land acquisition and restrictions on land use can have adverse impacts on communities and persons that use this land. Involuntary resettlement refers both to physical displacement (relocation or loss of shelter) and to economic displacement (loss of assets or access to assets that leads to loss of income sources or other means of livelihood) as a result of project-related land acquisition and/or restrictions on land use. PS5 is not applicable to the proposed project as the site is owned by the Applicant.	
Performance Standard 6: Biodiversity Conservation and Sustainable Management of Living Natural Resources		
Overview	Performance Standard 6 recognizes that protecting and conserving biodiversity, maintaining ecosystem services, and sustainably managing living natural resources are fundamental to sustainable development. The proposed development is located within a CBA therefore a terrestrial biodiversity assessment has been undertaken. The methodologies for the specialist assessments will include a combination of literature review, in-field surveys and sensitivity mapping. This substantively complies with the PS 6 general requirements for scoping and baseline assessment for determination of biodiversity and ecosystem services issues. The determination of habitat sensitivity was undertaken within the legal and best practice reference framework for South Africa.	

Reference	Requirements	Project Specific Applicability
	The prevalence of invasive alien species will be determined, and mitigation and management measures are included in the EMP.	
Performance Standard 7: Indigenous People		
Overview	Performance Standard 7 recognizes that Indigenous Peoples, as social groups with identities that are distinct from mainstream groups in national societies, are often among the most marginalized and vulnerable segments of the population. In many cases, their economic, social, and legal status limits their capacity to defend their rights to, and interests in, lands and natural and cultural resources, and may restrict their ability to participate in and benefit from development. Indigenous Peoples are particularly vulnerable if their lands and resources are transformed, encroached upon, or significantly degraded. As per the international instruments under the United Nations (UN) Human Rights Conventions, no indigenous peoples are present within the study area.	
Performance Standard 8: Cultural Heritage		
Overview	Performance Standard 8 recognizes the importance of cultural heritage for current and future generations. A Heritage Assessment has been conducted as part of the EIA process by a suitably qualified specialist.	

5.4.2 WORLD BANK GROUP ENVIRONMENTAL HEALTH AND SAFETY GUIDELINES

In support of the Performance Standards, the World Bank Group (WBG) has published a number of Environmental Health and Safety (EHS) Guidelines. The EHS Guidelines are technical reference documents that address IFC's expectations regarding the industrial pollution management performance of its projects. They are designed to assist managers and decision makers with relevant industry background and technical information. This information supports actions aimed at avoiding, minimising, and controlling EHS impacts during the construction, operation, and decommissioning phase of a project or facility. The EHS Guidelines serve as a technical reference source to support the implementation of the IFC Performance Standards, particularly in those aspects related to PS3: Pollution Prevention and Abatement, as well as certain aspects of occupational and community health and safety.

Where host country regulations differ from the levels and measures presented in the EHS Guidelines, projects seeking international funding may be expected to achieve whichever is more stringent. If less stringent levels or measures are appropriate in view of specific project circumstances, a full and detailed justification for any proposed alternatives is required.

The following IFC / WBG EHS Guidelines have been generally consulted during the preparation of the DSR in order to aid the identification of EHS aspects applicable to the project:

- General EHS Guidelines – this includes a section on a range of environmental, occupational health and safety, community health and safety, and construction

activities that would apply to the project. The guideline also contains recommended guidelines adopted from the World Health Organisation (WHO) for ambient air and water quality, which are referred to in the relevant impact assessment sections in the ESIA report.

5.4.3 EQUATOR PRINCIPLES

The Equator Principles (EPs) is a risk management framework, adopted by financial institutions, for determining, assessing, and managing environmental and social risk in projects and is primarily intended to provide a minimum standard for due diligence to support responsible risk decision-making.

The EPs apply globally to all industry sectors and to five financial products 1) Project Finance Advisory Services, 2) Project Finance, 3) Project-Related Corporate Loans, 4) Bridge Loans and 5) Project-Related Refinance and Project-Related Acquisition Finance. The relevant thresholds and criteria for application is described in detail in the Scope section of the EP. Currently 125 Equator Principles Financial Institutions (EPFIs) in 37 countries have officially adopted the EPs, covering the majority of international project finance debt within developed and emerging markets. EPFIs commit to implementing the EPs in their internal environmental and social policies, procedures and standards for financing projects and will not provide Project Finance or Project-Related Corporate Loans to projects where the client will not, or is unable to, comply with the EPs.

While the EPs are not intended to be applied retroactively, EPFIs apply them to the expansion or upgrade of an existing project where changes in scale or scope may create significant environmental and social risks and impacts, or significantly change the nature or degree of an existing impact. The EPs have greatly increased the attention and focus on social/community standards and responsibility, including robust standards for indigenous peoples, labour standards, and consultation with locally affected communities within the Project Finance market.

The EPs have also helped spur the development of other responsible environmental and social management practices in the financial sector and banking industry and have supported member banks in developing their own Environmental and Social Risk Management Systems.

The requirements and applicability of the EPs are outlined in

Table 5-5.

It should be noted that Principles 8 and 10 relate to a borrower's code of conduct and are therefore not considered relevant to this process and have not been included in this discussion.

Table 5-5 - Requirements and Applicability of the Equator Principles

Requirement		Project Specific Applicability
Principle 1: Review and Categorisation		
Overview	When a project is proposed for financing, the EPFI will, as part of its internal social and environmental review and due diligence, categorise such project based on the magnitude of its potential impacts and risks in accordance with the environmental and social screening criteria of the IFC. Using categorisation, the EPFI's environmental and social due diligence is commensurate with the nature, scale, and stage of the Project, and with the level of environmental and social risks and impacts. The categories are: ■ Category A: Projects with potential significant adverse environmental and social risks and/or impacts that are diverse, irreversible or unprecedented; ■ Category B: Projects with potential limited adverse environmental and social risks and/or impacts that are few in number, generally site-specific, largely reversible and readily addressed through mitigation measures; and ■ Category C: Projects with minimal or no adverse environmental and social risks and/or impacts.	The proposed project can be regarded as a Category B project i.e. a project with potential limited adverse environmental or social risks and/or impacts that are few in number, generally site-specific, largely reversible, and readily addressed through mitigation measures.
Principle 2: Environmental and Social Assessment		
Overview	For all Category A and Category B Projects, the EPFI will require the client to conduct an appropriate Assessment process to address, to the EPFI's satisfaction, the relevant environmental and social risks and scale of impacts of the proposed project.	The impact assessment supported by specialist input will comprehensively assess the key environmental and social impacts in accordance with the requirements of the South African EIA Regulations (2014, as amended). In addition, a site-specific EMPr will be compiled.
Principle 3: Applicable Environmental and Social Standards		
Overview	The Assessment process should, in the first instance, address compliance with relevant host country laws, regulations and permits that pertain to environmental and social issues.	As South Africa has been identified as a non-designated country, the reference framework for environmental and social assessment is based on the IFC PS. In addition, this S&EIR process will

Requirement		Project Specific Applicability
		be undertaken in accordance with NEMA (the host country's relevant legislation).
Principle 4: Environmental and Social Management System and Equator Principles Action Plan		
Overview	For all Category A and Category B Projects, the EPFI will require the client to develop or maintain an Environmental and Social Management System (ESMS). Further, an Environmental and Social Management Plan (ESMP) will be prepared by the client to address issues raised in the assessment process and incorporate actions required to comply with the applicable standards.	The EMPr will serve to management and monitor activities associated with all phases of the proposed project.
Principle 5: Stakeholder Engagement		
Overview	EPFI will require the client to demonstrate effective Stakeholder Engagement as an ongoing process in a structured and culturally appropriate manner with Affected Communities Workers and, where relevant, Other Stakeholders. For Projects with potentially significant adverse impacts on Affected Communities, the client will conduct an Informed Consultation and Participation process.	The S&EIR process will include a stakeholder engagement process which complies with the South African EIA Regulations. The process includes consultations with local communities, nearby businesses, and a range of government sector stakeholders (state owned enterprises, national, provincial and local departments). The stakeholder engagement process solicits interest from potentially interested parties through the placement of site notices and newspaper advertisements as well as written and telephonic communication.
Principle 6: Grievance Mechanism		
Overview	For all Category A and, as appropriate, Category B Projects, the EPFI will require the client, as part of the ESMS, to establish effective grievance mechanisms which are designed for use by Affected Communities and Workers, as appropriate, to receive and facilitate resolution of concerns and grievances about the Project's environmental and social performance.	The EMPr will include a Grievance Mechanism Process for public complaints and issues. This procedure effectively allows for external communications with members of the public to be undertaken in a transparent and structured manner.
Principle 7: Independent Review		

Requirement		Project Specific Applicability
Overview	For all Category A and, as appropriate, Category B Projects, an Independent Environmental and Social Consultant, not directly associated with the client, will carry out an Independent Review of the Assessment Documentation including the ESMPs, the ESMS, and the Stakeholder Engagement process documentation in order to assist the EPFI's due diligence, and assess Equator Principles compliance.	This principle is not applicable
Principle 9: Independent Monitoring and Reporting		
Overview	To assess Project compliance with the Equator Principles after Financial Close and over the life of the loan, the EPFI will require independent monitoring and reporting for all Category A, and as appropriate, Category B projects. Monitoring and reporting should be provided by an Independent Environmental and Social Consultant; alternatively, the EPFI will require that the client retain qualified and experienced external experts to verify its monitoring information, which will be shared with the EPFI in accordance with the frequency required.	This principle is not applicable

5.5 LISTED ACTIVITIES UNDER THE NEMA EIA REGULATIONS AND THE NEM:WA

The listed activities that have been identified in terms of the NEMA EIA Regulations are presented in **Table 5-6** below.

Table 5-6: Listed Activities under the NEMA EIA Regulations

Activity No(s):	Provide the relevant Basic Assessment Activity(ies) as set out in Listing Notice 1 of the EIA Regulations, 2014 as amended	Describe the portion of the proposed project to which the applicable listed activity relates.
9	The development of infrastructure exceeding 1 000 metres in length for the bulk transportation of water or storm water (i) with an internal diameter of 0.36 metres or more; or (ii) with a peak throughput of 120 litres per second or more; excluding where (a) such infrastructure is for bulk transportation of water or storm water or storm water drainage inside a road reserve or railway line reserve; or (b) where such development will occur within an urban area.	The Project is located outside an urban area and will require an above or below ground water supply pipeline exceeding 1 000 metres in length, of internal diameter in excess of 0,36m towards feed water supply of the Facility. The exact pipeline specifications will be confirmed once final designs have been provided.
10	The development and related operation of infrastructure exceeding 1 000 metres in length for the bulk transportation of sewage, effluent, process water, waste water, return water, industrial discharge or slimes – (i) with an internal diameter of 0.36 metres or more; or (ii) with a peak throughput of 120 litres per second or more; excluding where (a) such infrastructure is for the bulk transportation of sewage, effluent, process water, waste water, return water, industrial discharge or slimes inside a road reserve or railway line reserve; or (b) where such development will occur within an urban area.	Additional treatment of the raw sewerage or blackwater generated at the facility that cannot be treated onsite will be sent for treatment at the Hopefield Municipal Wastewater Treatment Works, pending final authorization from the Municipality. A new pipeline of approximately 4.99 km along the road towards Hopefield is proposed. The diameter of the pipeline is expected to be above 0.36 m.

Activity No(s):	Provide the relevant Basic Assessment Activity(ies) as set out in Listing Notice 1 of the EIA Regulations, 2014 as amended	Describe the portion of the proposed project to which the applicable listed activity relates.
13	The development of facilities or infrastructure for the off-stream storage of water, including dams and reservoirs, with a combined capacity of 50 000 cubic metres or more, unless such storage falls within the ambit of activity 16 in Listing Notice 2 of 2014.	The proposed facility will include the storage of potable, raw, process, demineralised and fire water in storage tanks and ponds, exceeding 50 000 cubic metres.
24	The development of a road (i) for which an environmental authorisation was obtained for the route determination in terms of activity 5 in Government Notice 387 of 2006 or activity 18 in Government Notice 545 of 2010; or (ii) with a reserve wider than 13.5 metres, or where no reserve exists where the road is wider than 8 metres; but excluding a road (a) which is identified and included in activity 27 in Listing Notice 2 of 2014; (b) where the entire road falls within an urban area; or (c) which is 1 kilometre or shorter.	Two access roads will be constructed from the MR234 to provide access to the proposed facility: - Main staff access road – 8m wide and approximately 40 m in length; and - Heavy vehicle / truck access road – 12 m wide and approximately 40 m in length. Both roads will accommodate two-way entrance and exit. These access roads will, once inside the facility, divert into internal roads that may be longer than 1 kilometre combined.
28	Residential, mixed, retail, commercial, industrial or institutional developments where such land was used for agriculture, game farming, equestrian purposes or afforestation on or after 01April 1998 and where such development: a) will occur inside an urban area, where the total land to be developed is bigger than 5 hectares; or b) will occur outside an urban area, where the total land to be developed is bigger than 1 hectare;	The site is situated outside of an urban area and used for agricultural purposes. The total footprint will be 61 hectares, and the future use will be an industrial land use.

Activity No(s):	Provide the relevant Basic Assessment Activity(ies) as set out in Listing Notice 1 of the EIA Regulations, 2014 as amended	Describe the portion of the proposed project to which the applicable listed activity relates.
	excluding where such land has already been developed for residential, mixed, retail, commercial, industrial or institutional purposes.	
Activity No(s):	Provide the relevant Scoping and EIA Activity(ies) as set out in Listing Notice 2 of the EIA Regulations, 2014 as amended	Describe the portion of the proposed project to which the applicable listed activity relates.
4	The development and related operation of facilities or infrastructure, for the storage, or storage and handling of a dangerous good, where such storage occurs in containers with a combined capacity of more than 500 cubic metres.	The facility will include storage tanks numerous dangerous goods product storage (e-SAF), bulk materials to support the operations (hydrogen, potassium hydroxide, carbon dioxide, oxygen, nitrogen, Naphta, Amine, Amonia), water treatment chemicals (caustic, anti-scalant, HCL based acid cleaner, sodium metabisulfite, sodium hypochlorite, peroxide based chemical for advanced oxidation). The combined capacity of hazardous goods stored will exceed 500m ³ .
6	The development of facilities or infrastructure for any process or activity which requires a permit or licence or an amended permit or licence in terms of national or provincial legislation governing the generation or release of emissions, pollution or effluent, excluding- i) activities which are identified and included in Listing Notice 1 of 2014; ii) activities which are included in the list of waste management activities published in terms of section 19 of the National Environmental Management: Waste Act, 2008 (Act 59 of 2008) in which case the National Environmental Management: Waste Act, 2008 applies;	Due to the proposed activities of the Project, an Atmospheric Emission Licence (AEL) would be required in terms of Section 21 of the National Environmental Management: Air Quality Act, 2004 (NEM: AQA) for: ■ Category 6: Organic Chemicals Industry

Activity No(s):	Provide the relevant Basic Assessment Activity(ies) as set out in Listing Notice 1 of the EIA Regulations, 2014 as amended	Describe the portion of the proposed project to which the applicable listed activity relates.
	iii) the development of facilities or infrastructure for the treatment of effluent, polluted water, wastewater or sewage where such facilities have a daily throughput capacity of 2 000 cubic metres or less; or where the development is directly related to aquaculture facilities or infrastructure where the wastewater discharge capacity will not exceed 50 cubic metres per day.	
15	The clearance of an area of 20 hectares or more of indigenous vegetation, excluding where such clearance of indigenous vegetation is required for- (i) the undertaking of a linear activity; or (ii) maintenance purposes undertaken in accordance with a maintenance management plan.	The project area is 61 ha and currently consists of indigenous vegetation (Hopefield sandy fynbos).
25	The development and related operation of facilities or infrastructure for the treatment of effluent, wastewater or sewage with a daily throughput capacity of 15 000 cubic metres or more.	Aqueous process wastes will be treated on site by means of the following effluent treatment facilities: ■ Brine water processing – 6ML per day; ■ Minimum Liquid Discharge Plant / Zero Liquid Discharge Plant – 3.5 ML per day; ■ Organics treatment – 9 ML per day. An approximate combined capacity of 18.5 ML per day (18 500 cubic metres) will be treated on site.
Activity No(s):	Provide the relevant Basic Assessment Activity(ies) as set out in Listing Notice 3 of the EIA Regulations, 2014 as amended	Describe the portion of the proposed project to which the applicable listed activity relates. Ensure to include thresholds/area/footprint applicable.

Activity No(s):	Provide the relevant Basic Assessment Activity(ies) as set out in Listing Notice 1 of the EIA Regulations, 2014 as amended	Describe the portion of the proposed project to which the applicable listed activity relates.
4	The development of a road wider than 4 metres with a reserve less than 13.5 metres. (i) Western Cape (i) Areas zoned for use as public open space or equivalent zoning; (ii) Areas outside urban areas: (aa) Areas containing indigenous vegetation; (bb) Areas on the estuary side of the development setback line or in an estuarine functional zone where no such setback line has been determined; or Inside urban areas: (aa) Areas zoned for conservation use; or (bb) Areas designated for conservation use in Spatial Development Frameworks adopted by the competent authority.	Two access roads will be constructed from the MR234 to provide access to the proposed facility. The project area currently consists of indigenous vegetation (Hopefield sandy fynbos).
10	The development and related operation of facilities or infrastructure for the storage, or storage and handling of a dangerous good, where such storage occurs in containers with a combined capacity of 30 but not exceeding 80 cubic metres (i) Western Cape (i) Areas zoned for use as public open space or equivalent zoning; (ii) All areas outside urban areas; or (i) Inside urban areas:	The facility will include storage tanks numerous dangerous goods product storage (e-SAF), bulk materials to support the operations (hydrogen, potassium hydroxide, carbon dioxide, oxygen, nitrogen, Naphta, Amine, Amonia), water treatment chemicals (caustic, anti-scalant, HCL based acid cleaner, sodium metabisulfite, sodium hypochlorite, peroxide based chemical for advanced oxidation). The combined capacity of hazardous goods stored will exceed 500m³.

Activity No(s):	Provide the relevant Basic Assessment Activity(ies) as set out in Listing Notice 1 of the EIA Regulations, 2014 as amended	Describe the portion of the proposed project to which the applicable listed activity relates.
	(aa) Areas seawards of the development setback line or within 200 metres from the high water mark of the sea if no such development setback line is determined; (bb) Areas on the watercourse side of the development setback line or within 100 metres from the edge of a watercourse where no such setback line has been determined; or (cc) Areas on the estuary side of the development setback line or in an estuarine functional zone where no such setback line has been determined.	
12	The clearance of an area of 300 square metres or more of indigenous vegetation except where such clearance of indigenous vegetation is required for maintenance purposes undertaken in accordance with a maintenance management plan. (i) Western Cape (i) Within any critically endangered or endangered ecosystem listed in terms of section 52 of the NEMBA or prior to the publication of such a list, within an area that has been identified as critically endangered in the National Spatial Biodiversity Assessment 2004; (ii) Within critical biodiversity areas identified in bioregional plans; (iii) Within the littoral active zone or 100 metres inland from high water mark of the sea or an estuarine functional zone, whichever distance is the greater, excluding where such removal will occur behind the development setback line on erven in urban areas; (iv) On land, where, at the time of the coming into effect of this Notice or thereafter such land was zoned open space, conservation or had an equivalent zoning; or	The project area is 61 ha and currently consists of indigenous vegetation (Hopefield sandy fynbos).

Activity No(s):	Provide the relevant Basic Assessment Activity(ies) as set out in Listing Notice 1 of the EIA Regulations, 2014 as amended	Describe the portion of the proposed project to which the applicable listed activity relates.
	On land designated for protection or conservation purposes in an Environmental Management Framework adopted in the prescribed manner, or a Spatial Development Framework adopted by the MEC or Minister.	

The listed activities that have been identified in terms of the NEMA EIA Regulations are presented in **Table 5-6** below.

Table 5-7: Listed Activities under the NEM:WA

Indicate the No. & Date of the Relevant Notice	Activity Numbers (As listed in the Waste Management Activity List)	Describe Each Listed Activity
GN 921 of November 2013	Category C (1) The storage of general waste at a facility that has the capacity to store in excess of 100 m of general waste at any one time, excluding the storage of waste in lagoons or temporary storage of such waste. (2) The storage of hazardous waste at a facility that has the capacity to store in excess of 80 m of hazardous waste at 3 any one time, excluding the storage of hazardous waste in lagoons or temporary storage of such waste.	The facility will have to register and comply with the Norms and Standards for Storage of Waste, published under Government Notice 926 of 29 November 2013.

6 SCOPING METHODOLOGY

6.1 S&EIR PROCESS AND PHASING

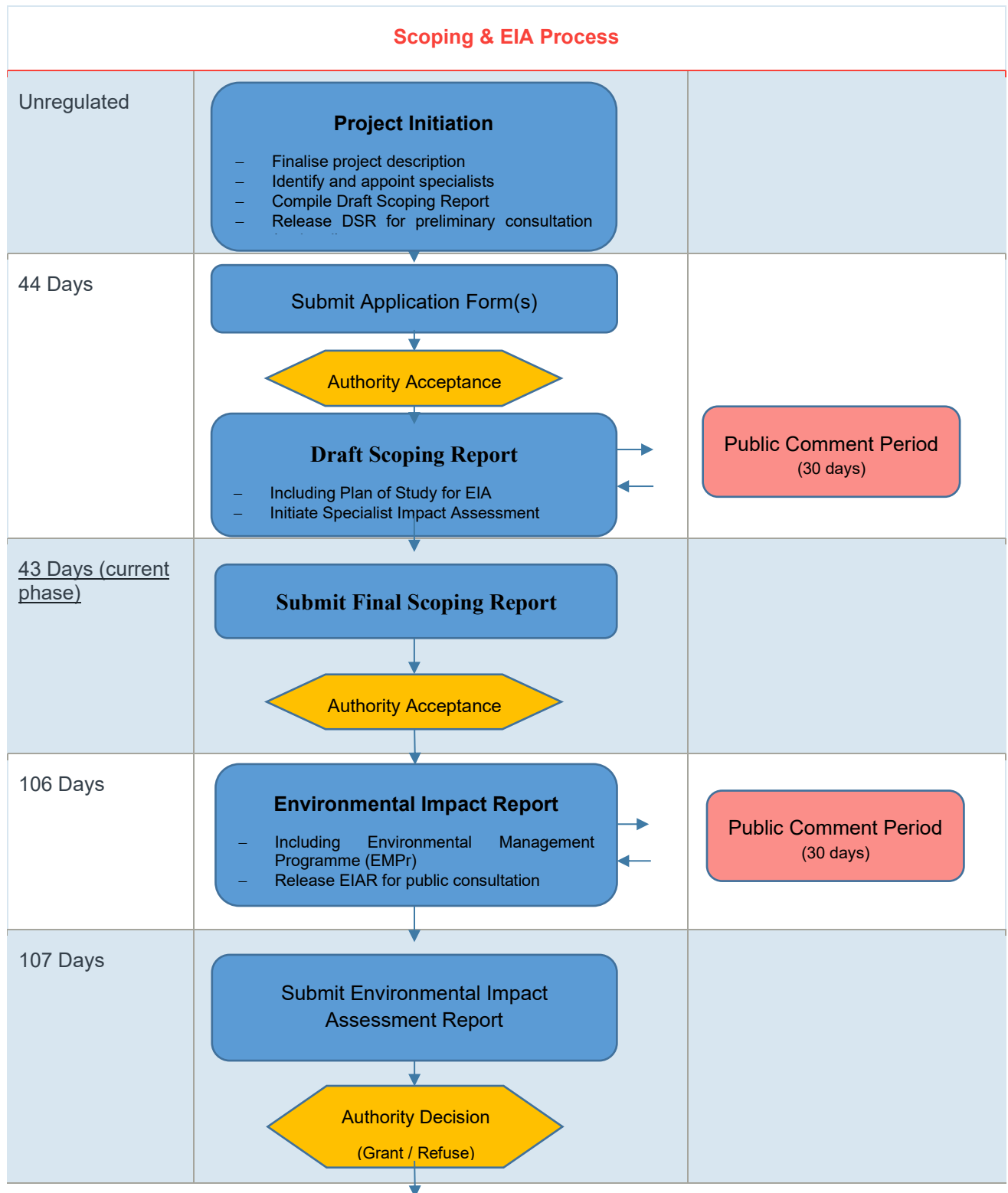
The S&EIR process consists of various phases with associated timelines as defined in the EIA Regulations. The process can generally be divided into four main phases, namely; (i) an unregulated pre-application phase, (ii) an Application and Scoping Phase (**current phase**), (iii) an Impact Assessment Phase and (iv) Authorisation and Appeal Phase.

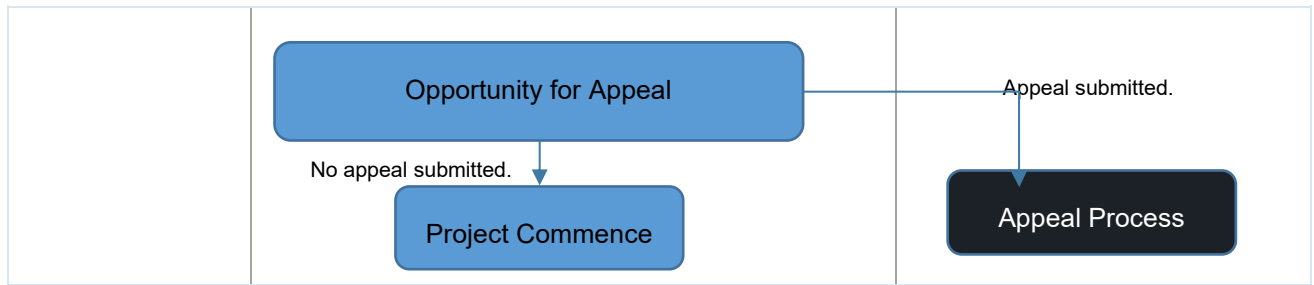
The main objectives of the phases can be described as follows:

- Pre-Application Phase:
 - Undertake consultation meetings with the relevant authorities to confirm the required process and general approach to be undertaken;
 - Identify stakeholders, including neighbouring landowners/residents and relevant authorities;
 - Compile a DSR describing the affected environment and present an analysis of the potential environmental issues and benefits arising from the proposed project that may require further investigation in the Impact Assessment Phase;
 - Develop draft terms of reference for the specialist studies to be undertaken in the Impact Assessment Phase; and
 - Inform stakeholders of the proposed project, feasible alternatives and the S&EIR process and afford them the opportunity to register and participate in the process and identify any issues and concerns associated with the proposed project.
- Application and Scoping Phase:
 - Compile and submit application forms to the CA and pay the relevant application fees;
 - Incorporate comments received from stakeholders during the pre-application phase into the DSR;
 - Release of the DSR for a 30-day comment period; and
 - Submit the finalised FSR including a comments and responses report, following the consultation period, to the relevant authority, in this case the DEA&DP, for acceptance/rejection.
- Impact Assessment Phase:
 - Continue to inform and obtain contributions from stakeholders, including relevant authorities, stakeholders, and the public and address their relevant issues and concerns;
 - Assess in detail the potential environmental and socio-economic impacts of the project as defined in the DSR;
 - Identify environmental and social mitigation measures to avoid and/or address the identified impacts;
 - Conduct the required specialist studies;
 - Develop and/or amend environmental and social management plans based on the mitigation measures developed in the EIR;
 - Submit the EIR and the associated EMP to the competent authority to undertake the decision making process;
 - Authorisation and Appeal Phase;

- The DEA&DP to provide written notification of the decision to either grant or refuse EA for the proposed project; and
- Notify all registered I&APs of the decision and right to appeal.

Table 6-1 – Scoping and EIA Process





6.1.1 APPLICATION FOR ENVIRONMENTAL AUTHORISATION

An application for EA was submitted to the DEA&DP simultaneously with the DSR on 23 March 2026. Proof of submission of the application is included in **Appendix E** of this FSR.

6.1.2 PUBLIC PARTICIPATION PROCESS (PPP)

6.1.2.1 Purpose of the PPP

The PPP comprises a series of inclusive and culturally appropriate interactions aimed at providing I&APs with opportunities to express their views, so that these can be considered and incorporated into the S&EIR process. An Effective PPP requires the prior disclosure of relevant and adequate project information to enable stakeholders to understand the risks, impacts, and opportunities of the proposed project.

The objectives of the PPP can be summarised as follows:

- Identify relevant individuals, organisations and communities who may be interested in or affected by the project;
- Clearly outline the scope of the project, including the scale and nature of the existing and proposed activities;
- Identify viable proposed project alternatives that will assist the relevant authorities in making an informed decision;
- Identify shortcomings and gaps in existing information;
- Identify key concerns, raised by stakeholders that should be addressed in the subsequent specialist studies;
- Highlight the potential for environmental impacts, whether positive or negative; and
- To inform and provide the public with information and an understanding of the proposed project, issues and solutions.

The EIA Regulations, in Chapter 6, provide clear guidelines regarding the minimum requirements for public participation as part of the EIA process. Although these regulations do not prescribe in detail the methods of public participation, the 2017 Public Participation Guidelines in terms of the EIA Regulations, as amended, give direction and emphasise the importance of meaningful consultation.

6.1.3 AUTHORITY CONSULTATION

Before the start of the S&EIR process, it is necessary for the EAP to convene a pre-application consultation meeting with the CA. The key objectives of the pre-application consultation meeting are to notify the CA of the applicant's intent to submit an EA application, provide information about the technical scope of the proposed project and confirm the approach to the EIA and the PPP.

A pre-application meeting was held with the DEADP on 21 January 2026. The outcome of the pre-application meeting confirmed the process to be undertaken, the requirements for the PPP and the specialist studies.

6.1.3.1 I&AP Identification

Chapter 6 (40) (2) (a -d) and (41)(2)(b) of the EIA Regulations require consultation with-

- The CA.
- Every State Department that administers a law relating to a matter affecting the environment relevant to an application for an EA.
- All organs of state which have jurisdiction in respect of the activity to which the application refers.
- All potential or, where relevant, registered I&APs.
- In addition to the above, the following I&APs must receive notification of the proposed application:
- The occupiers of the site and, if the applicant is not the owner or person in control of the site on which the activity is to be undertaken, the owner or person in control of the site where the activity is or is to be undertaken or to any alternative site where the activity is to be undertaken.
- Owners, persons in control of, and occupiers of land adjacent to the site where the activity is or is to be undertaken or to any alternative site where the activity is to be undertaken.
- The municipal councillor of the ward in which the site or alternative site is situated and any organisation of ratepayers that represent the community in the area.
- The municipalities which have jurisdiction in the related areas.
- Any other party required by the CA.

Section 41 of the EIA Regulations states that written notices must be given to identified stakeholders as outlined in **Table 6-2**.

Relevant commenting authorities have been automatically registered I&APs. In accordance with the EIA Regulations, all other persons must request in writing to be placed on the register, submit written comments or attend meetings in order to be registered as stakeholders and included in future communication regarding the project.

Table 6-2 – Interested and Affected Parties

NEMA Requirement	Discussion
The owner or person in control of that land if the applicant is not the owner or person in control of the land.	The applicant is the owner of the land.
The occupiers of the site where the activity is or is to be undertaken or to any alternative site where the activity is to be undertaken.	The applicant is the owner of the land.
Owners and occupiers of land adjacent to the site where the activity is or is to be undertaken or to any alternative site where the activity is to be undertaken.	The S&EIR process will include a PPP in which all neighbouring landowners will be notified of the Project and provided with opportunity to comment on the relevant documents during the regulated comment periods.
The municipal councillor of the ward in which the site or alternative site is situated and any	The Ward Councillor for the site has been included in the stakeholder database.

NEMA Requirement	Discussion
organisation of ratepayers that represent the community in the area.	
The municipality which has jurisdiction in the area.	Saldanha Bay Local Municipality, (WC014) is located within the West Coast District Municipality (DC1) in the Western Cape Province of South Africa. Representatives from the local and district municipalities have been added to the stakeholder database.
Any organ of state having jurisdiction in respect of any aspect of the activity.	The DEA&DP has been consulted as the CA regarding the EA application.
Any other party as required by the competent authority.	All tiers of government, namely, national, provincial, local government and parastatals have been included on the stakeholder database. All other identified organisations, community members and individuals have also been included on the stakeholder database.

6.1.3.2 Stakeholder Notification

Direct Notification

The objectives of the notification process are as follows:

- Notify potential I&APs of Phelan eFuels' intent to apply for an EA for the Green Hydrogen and e-SAF manufacturing facility.
- Share information about the proposed Project, EA application, Scoping and EIA and proposed PPP, and opportunities for comment.
- Invite stakeholders to register as I&APs and to participate in the EIA process by contributing comments as milestones are achieved.
- In terms of the Protection of Personal Information Act (POPIA), to obtain I&APs' consent to use their contact details for the sole purpose of providing them with information about the proposed Project and inviting them to contribute comments, as well as reflecting their names in the Comments and Response Register (CRR).

Notification of the project was issued to potential I&APs, via direct correspondence (i.e., site notices, SMSs and e-mail) on **07 May 2026**. Proof of the Background Information Letter (BIL), and the site notices that were erected are included in **Appendix E** of this FSR.

Newspaper Advertisements

According to Regulation 41 (1) (c) of the EIA Regulations, an advertisement must be placed in one local newspaper or any official Gazette and in at least one provincial or national newspaper if the activity extends beyond the metropolitan or district municipality boundaries.

Given the location of the project, which is confined to one local municipality, newspaper advertisements were placed in one local newspaper. However, considering the nature of the project, a newspaper advert was also placed in a regional newspaper to satisfy the requirements of the AEL.

Notification of the proposed project is issued to the general public via an advertisement published in the *Weslander* (in English and Afrikaans) and *Cape Times* (in English) newspapers on 7 May 2026. As mentioned above, the purpose of the advertisement is to notify the general public of the proposed

project and provide an opportunity to register on the project database and provide input into the process through the availability of the DSR.

Copies of the advertisements are included in **Appendix E** of this FSR.

6.1.4 SITE NOTICES, DSR AND BACKGROUND INFORMATION LETTER

The site notices provide background information about the application, the nature and location of the activity, where further information on the application could be obtained, the manner in which, and the person to whom representations in respect of the application could be made. The site notices are published in A2 size. Proof of the site notices that were erected are included in **Appendix E** of this FSR.

WSP placed site notices at locations that are visible to the larger public including road intersections in the vicinity of the Project site. The site notices are also placed at the public places, with permission, in English and Afrikaans.

Printed copies and electronic copies of the DSR, BIL and Registration and Comment Form were also made available during the public comment period.

The DSR was made available for public review from **07 May 2026 to 08 June 2026** on the WSP website (<https://www.wsp.com/en-za/services/public-documents>) and a data-free website (<https://wsp-engage.com/>). The DSR was also available for review in hard copies at the Hopefield, Langebaan and Saldanha Public Libraries.

Proof of placement is included in **Appendix E**.

6.1.5 COMMENTS AND RESPONSES

All the issues, questions, comments, and recommendations contributed by registered I&APs during the S&EIR process have been incorporated into, and responded to, in a CRR. Contributions received by I&APs are summarised according to relevant topics in Table 6-3. An important consideration during the scoping phase is that the DSR is released into the public domain within the same timeframe as the PPP and I&APs are provided with the notification of the project and of the DSR comment period simultaneously, therefore the DSR did not contain all the details of the PPP that was undertaken; this has now been included in this FSR.

Table 6-3 - Summary of Key Stakeholder Issues and Concerns

Issue Theme	Summary of Stakeholder Concerns	Key Aspects Raised by Stakeholders
<u>Water Resources & Availability</u>	<u>Significant concern was raised regarding the sustainability of water use in a water-scarce region and potential impacts on groundwater resources.</u>	■ <u>High water demand (municipal and groundwater)</u> ■ <u>Risk of aquifer depletion and reduced recharge</u> ■ <u>Potential contamination of groundwater, boreholes and nearby rivers</u> ■ <u>Uncertainty regarding water sources and WULA details</u>

<u>Biodiversity & Ecological Sensitivity</u>	<u>Stakeholders highlighted the ecological sensitivity of the site and surrounding areas, including threatened ecosystems and species.</u>	- Impacts on CBAs, ESAs and Hopefield Sand Fynbos - Risks to avifauna and species of conservation concern - Habitat loss and fragmentation - Insufficient baseline surveys and seasonal data limitations
<u>Agricultural Impacts & Land Use Compatibility</u>	<u>Concerns were raised regarding incompatibility with agricultural land use and impacts on surrounding farming activities.</u>	- Location within Swartland Protected Agricultural Area - Effects on crops, livestock and horticulture - Dust, emissions and chemical deposition risks - Potential loss of agricultural productivity
<u>Socio-economic Impacts & Community Wellbeing</u>	<u>Stakeholders questioned the extent of local benefits and raised concerns about social disruption.</u>	- Limited long-term local employment opportunities - Influx of construction workers and strain on services - Potential increase in crime and social instability - Impacts on tourism, property values and rural character
<u>Infrastructure & Municipal Services</u>	<u>Concerns were raised about the capacity of existing infrastructure to accommodate the development.</u>	- Limited municipal water supply capacity - Pressure on roads, waste management and services - Need for upgrades to municipal infrastructure - Capacity of wastewater treatment facilities
<u>Traffic, Noise & Air Quality</u>	<u>Potential operational and construction impacts on local living conditions were highlighted.</u>	- Increased heavy vehicle traffic and road safety risks - Dust generation and air pollution - Continuous operational noise impacts - Emissions associated with industrial processes
<u>Health, Safety & Hazard Risks</u>	<u>Stakeholders expressed concern about risks associated with hazardous materials and industrial operations.</u>	- Storage and handling of hydrogen and chemicals - Fire, explosion and accident risks - Lack of detail on emergency preparedness and response - Potential classification as a Major Hazard Installation
<u>Public Participation &</u>	<u>Numerous stakeholders raised concerns regarding procedural aspects and adequacy of engagement.</u>	- Perceived lack of transparency and access to information - Complexity of technical documentation

<u>Process Transparency</u>		
<u>Project Splitting & Integration of Applications</u>	<u>Stakeholders expressed concern that related developments are being assessed separately, limiting understanding of cumulative impacts.</u>	■ <u>Separation of hydrogen and solar PV projects</u> ■ <u>Potential underestimation of full project impacts</u>
<u>Alternatives & Site Selection</u>	<u>Concerns were raised regarding limited consideration of alternatives and justification of the proposed location.</u>	■ <u>Lack of feasible site alternatives</u> ■ <u>Preference for industrial zones (e.g. Saldanha IDZ)</u>
<u>Cumulative Impacts</u>	<u>Stakeholders emphasised the need for integrated assessment of cumulative impacts.</u>	■ <u>Combined impacts with solar PV and other regional developments</u> ■ <u>Pressure on shared water resources</u> ■ <u>Landscape-scale biodiversity impacts</u>
<u>Need and Desirability</u>	<u>Stakeholders questioned whether the project is appropriate for the proposed location despite policy alignment.</u>	■ <u>Local environmental and social trade-offs</u> ■ <u>Benefit of project primarily perceived as external (export-driven)</u> ■ <u>Compatibility with rural/agricultural setting</u>

The CRR as contained in the Stakeholder Engagement Report (SER) (**Appendix E**) include the following:

- List of all issues raised;
- Record of who raised the issues;
- Record of where the issues were raised;
- Record of the date on which the issue was raised; and
- Response to the issues.

6.2 DEFINING THE BASELINE ENVIRONMENT

The site has been the subject of a number of specialist assessments in support of a parallel planning and statutory approvals process being undertaken for the proposed development. The specialist studies from this process and further research have been utilised to support the environmental application process. Therefore, the description of the baseline environment has been compiled through a combination of site investigations, desktop reviews and information obtained from the specialist assessments. Desktop reviews made use of available information including existing reports, aerial imagery and mapping.

6.2.1 DFFE WEB BASED SCREENING TOOL

The DFFE has developed the National Web-based Environmental Screening Tool to flag areas of potential environmental sensitivity related to a site as well as a development footprint and produces the screening report required in terms of regulation 16 (1)(v) of the EIA Regulations. The Notice of the requirement to submit a report generated by the national web-based environmental screening tool in terms of section 24(5)(h) of the NEMA and regulation 16(1)(b)(v) of the EIA regulations states that the submission of a report generated from the national web-based environmental screening tool, as contemplated in Regulation 16(1)(b)(v) of the EIA Regulations, is compulsory when submitting an application for EA in terms of Regulation 19 and Regulation 21 of the EIA Regulations.

The Screening Reports generated by the National Web-based Environmental Screening Tool contains a summary of any development incentives, restrictions, exclusions or prohibitions that apply to the proposed development footprint as well as the most environmentally sensitive features on the footprint based on the footprint sensitivity screening results for the application classification that was selected.

The screening reports for the proposed Project were generated and is attached as **Appendix D**. The Screening Reports for the project identified various sensitivities for the site. The report also generated a list of specialist assessments that should form part of the S&EIR process based on the development type and the environmental sensitivity of the site. Assessment Protocols in the report provide minimum information to be included in a specialist report to facilitate decision-making.

Table 6-4 below provides a summary of the sensitivities identified for the development footprint.

Table 6-4 - Sensitivities Identified in the DFFE Screening Report

Theme	Very High Sensitivity	High Sensitivity	Medium Sensitivity	Low Sensitivity	Protocol for Specialist Study
Agriculture Theme	X				The site is considered very high sensitivity due to the site being located within the Swartland Protected Agricultural Area therefore the Screening Tool prescribes that an Agricultural Assessment be undertaken. An Agricultural Assessment was undertaken by SoilZa, 2025. The assessment disputed the very high sensitivity because the Project leads to no loss of potential cropland and therefore

Theme	Very High Sensitivity	High Sensitivity	Medium Sensitivity	Low Sensitivity	Protocol for Specialist Study
					minimal loss of future agricultural production potential. The cropping potential of the site is limited by the combination of climate and soil constraints. The dominant constraint is the very low water and nutrient holding capacity of the very sandy soils. In combination with the relatively low rainfall the soils retain too small a moisture reservoir for viable crop production. Because of these constraints, the site is completely unsuitable for viable rainfed crop production. This assessment disputes the very high sensitivity classification of the assessed area by the screening tool and rates the entire assessed area as being of medium agricultural sensitivity because of the site's assessed cropping potential.
Animal Species Theme		X			The DFFE Screening Tool prescribed an animal species assessment be conducted based on the likely presence of sensitive avifaunal species (<i>Aves-Circus maurus</i> <i>Aves-Afrodis afra</i>). Therefore, a Biodiversity Assessment including the animal species theme was conducted by Aim360 Environmental Solutions, September 2025. No threatened species (Red Data species) were recorded within the study site during the survey.
Aquatic Biodiversity Theme	X				The DFFE Screening Tool prescribed that an Aquatic Biodiversity Assessment be undertaken based on the very high sensitivity of a portion of the site which is located within an Aquatic ESA1 area. In terms of watercourses within the study area, the proposed development occurs within sub-quaternary catchment No. 8287 identified

Theme	Very High Sensitivity	High Sensitivity	Medium Sensitivity	Low Sensitivity	Protocol for Specialist Study
					as a non-prioritised catchment which means it is not critical for the conservation of aquatic resource. One (1) prioritised FEPA wetland (Unit ID 227888) was identified approximately downstream from the site. The wetland is classified a floodplain wetland along the Sout River. The Sout River is a system with ephemeral flows, located within Reach Code G10L. A specialist will be commissioned to undertake the Aquatic and Freshwater Compliance Statement; a full assessment is deemed not necessary due to the distance of the wetland from the site
Archaeological and Cultural Heritage Theme				X	The DFFE Screening Tool prescribed that a site verification be undertaken for the archaeological and cultural heritage theme. However, the NHRA requires that a HIA be undertaken due to the extent of the Project site. A Phase 1 Archaeological and Heritage Impact Assessment was undertaken by Tsimba Archaeological Footprints, October 2025. During the survey no sites, features or objects of cultural significance were identified, and the low sensitivity was confirmed. The report concluded that there are no fatal flaws expected for this project. The impacts of the proposed Green Hydrogen and eSAF processing facility development on the cultural landscape will not be significant as no cultural heritage resources were recorded during the field survey. The potential for stratified archaeological deposits was assessed as negligible given the local geology and predictive site patterning.

Theme	Very High Sensitivity	High Sensitivity	Medium Sensitivity	Low Sensitivity	Protocol for Specialist Study
Civil Aviation Theme		X			The DFFE Protocol requires that a site verification be undertaken by the EAP or a specialist as the site is located within 8km from a civil aviation aerodrome therefore a compliance statement will be compiled. The South African Civil Aviation Authority has been added to the stakeholder database and will be provided with the opportunity to provide comment on the documents released as part of the S&EIR process.
Defence Theme			X		The DFFE protocol requires that a site verification be undertaken by an EAP for the defence theme. A defence theme compliance statement will be included in the Draft EIR.
Palaeontology Theme				X	The DFFE Screening Tool prescribed that a PIA be undertaken irrespective of the paleo-sensitivity of the site. Marion Bamford, the palaeontologist conducted a desktop assessment and provided a letter of exemption including a motivation for the exemption of a PIA.
Plant Species Theme			X		The DFFE Protocol requires that a Terrestrial Biodiversity compliance statement be completed for the Project. A plant species assessment has been undertaken as part of the Biodiversity Assessment which revealed no SCC at the site.
Terrestrial Biodiversity Theme	X				The DFFE Screen Tool prescribed that a Terrestrial Biodiversity Assessment be undertaken based on the site being located partially within a CBA2 and ESA (aquatic and terrestrial).

Theme	Very High Sensitivity	High Sensitivity	Medium Sensitivity	Low Sensitivity	Protocol for Specialist Study
Additional Specialist Studies					
Visual Impact Assessment	N/A				The DFFE Screening Tool did not prescribe a protocol for a Visual Impact Assessment (VIA). However, as best practice a VIA was undertaken to assess the anticipated visual impacts that the proposed project will have on the surrounding area, local residents as well as from roads in the surrounding area.
Social Impact Assessment	N/A				The DFFE Screening Tool prescribes that a site verification be undertaken. However as best practise, a Social Impact Assessment was undertaken. The assessment has been conducted to evaluate the potential social impacts both positive and negative arising from the proposed project, and to provide recommendations for enhancing benefits and mitigating adverse impacts.
Climate Change Risk Assessment	N/A				The DFFE Screening Tool did not prescribe a protocol for a Climate Change Risk Assessment (CCRA). However, as best practice a CCRA was undertaken to assess the climate-related risks and opportunities for the Project, and (ii) assess the impact of the Project's GHG emissions. The assessment also broadly considers the potential impact of the Project on communities, priority ecosystem services, and sites of demonstrated importance for climate change mitigation or adaptation, that has or is likely to be adversely affected a changing climate.
Desktop Geohydrological Assessment	N/A				The DFFE Screening Tool did not prescribe a protocol for a Geohydrological Assessment, however an ~~desktop~~ assessment will be undertaken and include the following:

Theme	Very High Sensitivity	High Sensitivity	Medium Sensitivity	Low Sensitivity	Protocol for Specialist Study
					- Assessment of the impact on geohydrological resources as a result of the proposed development. - Provide recommendations to minimize or mitigate impacts. - Assessment for groundwater to be used for construction, operational and decommissioning purposes for the proposed project.
Desktop Geotechnical Assessment			N/A		The DFFE Screening Tool did not prescribe a protocol for a Desktop Geotechnical Assessment, however an desktop assessment will be undertaken and include the following: - Determining the potential impacts that the proposed e-SAF Plant may have on the environment from a geotechnical and geological perspective. - It also provides some insight on the expected soil and rock conditions, potential problem soils, drainage conditions, seismicity and excavation conditions.
Quantitative Risk Assessment			N/A		The DFFE Screening Tool did not prescribe a protocol for a Risk Assessment, however a Risk Assessment was undertaken based on the following: Since off-site incidents may result due to hazards of some of the chemical components to be stored on, produced at or delivered to site, a quantitative risk assessment (QRA) to determine the impacts onto surrounding properties and communities as part of the EIA. The purpose of the Risk Assessment is to convey the essential details, which include a short description of hazards, the

Theme	Very High Sensitivity	High Sensitivity	Medium Sensitivity	Low Sensitivity	Protocol for Specialist Study
					receiving environment and the current relevant designs, as well as risks and consequences of a major incident.
Traffic Assessment			N/A		The DFFE Screening Tool did not prescribe a protocol for a Traffic Assessment, however a Traffic Assessment was undertaken based on the following: The scope of the Traffic Assessment is to investigate the transportation implications associated with the abnormal load vehicles transporting components to the site and the transportation of construction materials, equipment and workers to the site during the construction and operational phases.
<u>Ambient Air Quality Assessment</u>			N/A		The DFFE Screening Tool did not prescribe a protocol for an Atmospheric Impact Report (AIR) however based on the nature of the project, an AIR has been compiled in support of the S&EIR and Air Emissions License (AEL) processes.
Air Quality Impact Assessment					
<u>Hydrology Assessment</u>			N/A		<u>The DFFE Screening Tool did not prescribe a protocol for a Hydrology assessment, however an assessment will be undertaken based on the following:</u> <u>The scope of the hydrology assessment is to assess the potential impacts of the activities on surface water resources.</u> <u>The primary objective of the SWMP</u> <u>is to ensure the separation of clean and dirty water within the project area and to establish an efficient water management system. The PCSWMM modelling tool will be used to assess stormwater runoff and</u>

Theme	Very High Sensitivity	High Sensitivity	Medium Sensitivity	Low Sensitivity	Protocol for Specialist Study
					evaluate the hydraulic performance of the proposed infrastructure. A static water balance model will be developed to conceptualise the Project water reticulation system and quantify the Project water requirements, usages, potential sources, and all losses. The water balance will also determine the water demand and supply, as well as the associated impacts of using this water for the Project.
<u>Noise Assessment</u>			N/A		the DFFE Screening Tool does not identify noise as having any significant impacts and does not list a site sensitivity for such. In line with the NEMA protocol for specialist assessment and minimum report content requirements for noise impacts (GN No. 320), for a site that exhibits a Low Sensitivity Rating (no significant noise impact expected at the receptor) a Noise Compliance Statement will be compiled.
<u>Health Impact Assessment</u>			N/A		The DFFE Screening Tool did not prescribe a protocol for a Health Impact Assessment. An assessment will be undertaken.

6.3 IDENTIFICATION AND EVALUATION OF POTENTIALLY SIGNIFICANT IMPACTS DURING THE SCOPING PHASE

The potential impacts associated with the proposed development were determined at both a desktop level based on existing information, as well as the field assessment. The following methodology was used:

- Identify potential sensitive environments and receptors that may be impacted on by the proposed development (**Section 8**);
- Identify the type of impacts that are most likely to occur (including cumulative impacts) (**Section 8**);
- Determine the nature and extent of the potential impacts during the various developmental phases, including, construction, operation and decommissioning;
- Identify potential No-Go areas (if applicable); and
- Summarise the potential impacts that will be considered further in the EIA phase through detailed specialist studies.

Appendix 2 of the EIA Regulations requires the identification of the significance of potential impacts during scoping (**Section 8.15**). To this end, an impact screening tool has been used in the scoping phase. The screening tool is based on two criteria, namely probability; and, consequence, where the latter is based on general consideration to the intensity, extent, and duration.

The scales and descriptors used for scoring probability and severity are detailed in **Table 6-5** and **Table 6-6** respectively.

Table 6-5 - Significance Screening Tool

	Consequence Scale				
Probability Scale		1	2	3	4
	1	Very Low	Very Low	Low	Medium
	2	Very Low	Low	Medium	Medium
	3	Low	Medium	Medium	High
	4	Medium	Medium	High	High

Table 6-6 - Probability Scores and Descriptors

Score	Descriptor
4	Definite: The impact will occur regardless of any prevention measures
3	Highly Probable: It is most likely that the impact will occur
2	Probable: There is a good possibility that the impact will occur
1	Improbable: The possibility of the impact occurring is very low

7 BASELINE ENVIRONMENT

The following chapter presents an overview of the biophysical and socio-economic environment in which the proposed Project is located. It is important to gain an understanding of the Project area and its surroundings, as it will provide for a better understanding of the receiving environment in which the project is being considered.

The description of the baseline environment is essential in that it represents the conditions of the environment before the construction of the Project (i.e., the current, or status quo, environment) against which environmental impacts of the proposed Project can be assessed and future changes monitored.

The area has previously been studied to some extent and is recorded in various sources of information. Consequently, some components of the baseline have been generated based on literature review. However, where appropriate, baseline information has been supplemented or generated by specialists appointed to undertake baseline and impact assessments for the proposed project.

The following characteristics of the receiving environment for the project area are described in the table below.

Table 7-1 – Characteristics of the receiving environment

Receiving Environment	Characteristics
Physical	- Climate - Geology - Soils - Agriculture - Catchment and Topography - Hydrogeology
Biological	- Vegetation - Habitats - Biodiversity Conservation Plans - Plant Species - Animal Species - Avifauna
Social and Economic	- Socio-Economic - Heritage - Palaeontology - Visual - Traffic

7.1 CLIMATE

The Hopefield area experiences a Mediterranean climate with cool, wet winters and warm, dry summers. **Figure 7-1** illustrates the monthly average minimum and maximum air temperatures, and **Figure 7-2** illustrates the monthly mean rainfall and evaporation distribution for the study area (Schulze, 2009). The study area receives a mean annual precipitation of 251 mm/a. Precipitation in the study area is in the form of coastal fog and low and variable winter rainfall. The peak groundwater recharge period will be in the winter months when the rainfall is almost equal to the evaporation. Groundwater plays a crucial role in meeting both domestic and irrigation requirements, and outside of town boundaries, it is the only readily available source of water.

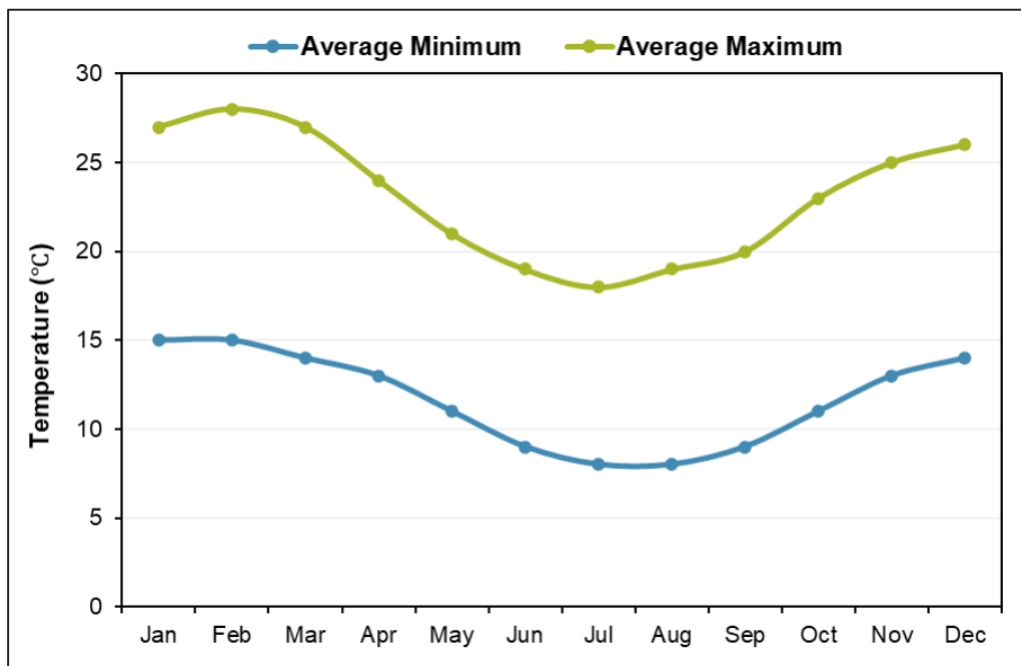


Figure 7-1 - Monthly average minimum and maximum air temperatures for the study area (Schulze, 2009 as cited in GEOSS,2025).

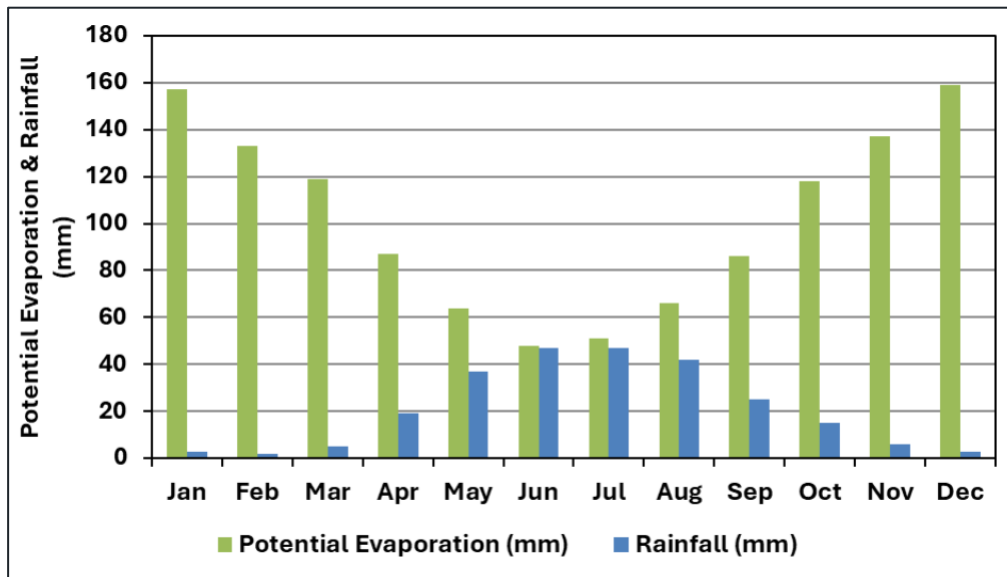


Figure 7-2 - Monthly average rainfall and evaporation distribution for the study area (Schulze, 2009 as cited in GEOSS,2025).

7.2 GEOLOGY

The Geological Survey of South Africa (now the Council for Geoscience (CGS)) has mapped the area at 1:125 000 scale (3217D & 3218C St. Helena Bay and 3317B & 3318A Saldanha Bay; 1972). The geological setting is shown in **Figure 7-3** and the main geology of the area is listed in **Table 7-2**.

Table 7-2 – Geological formations within the study area

Code	Formation	Group	Lithology
	n/a – Quaternary Age		Alluvium
Q2	n/a – Quaternary Age		Quaternary-aged loamy soils
A1	Springfontyn Formation	Sandveld Group	White to pale red, unconsolidated sands
Ma	Moorreesburg Formation	Malmesbury Group	Grey mudstone, subordinate siltstone and shales

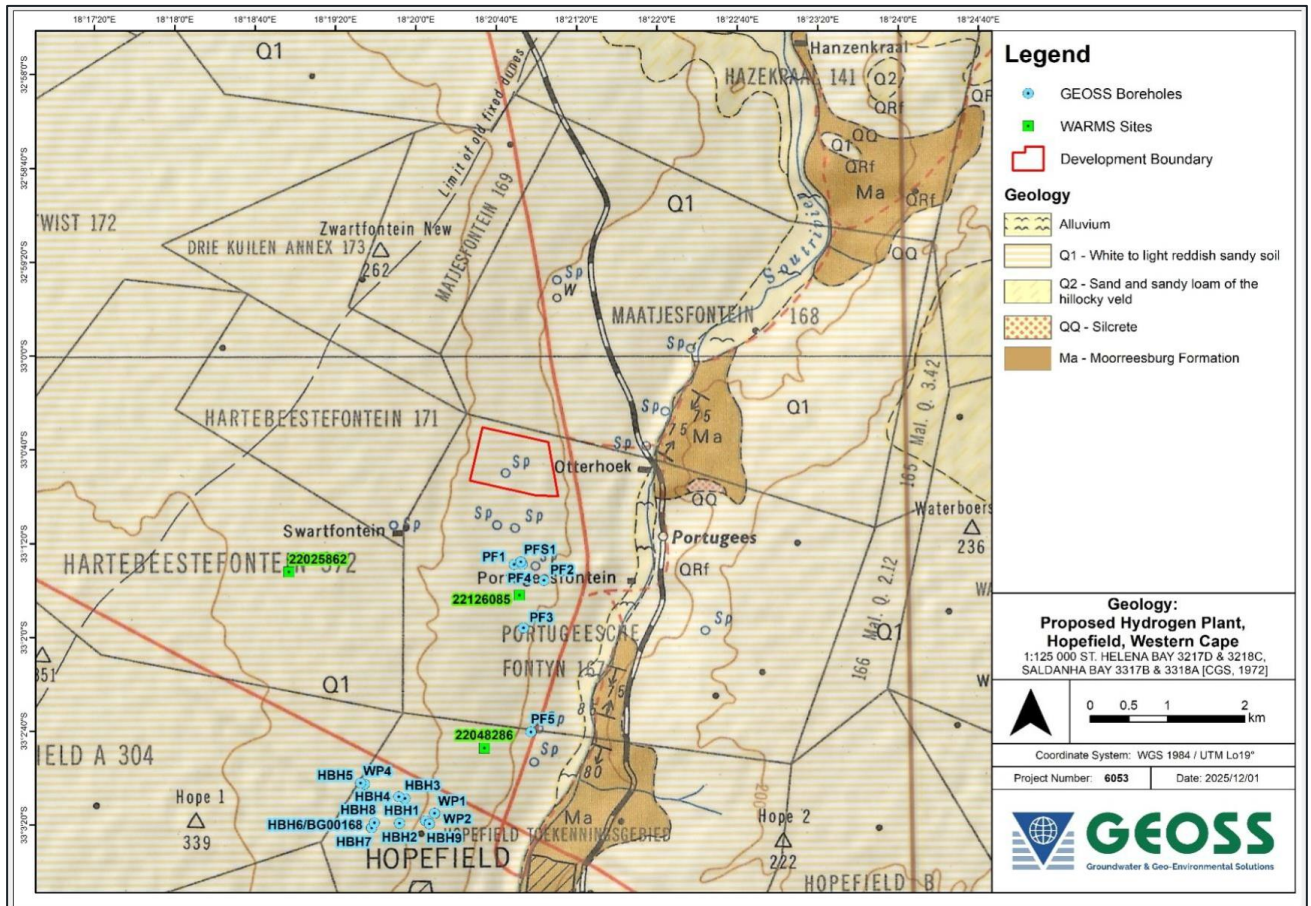


Figure 7-3 - Geological setting of the study site and the WARMS and GEOSS groundwater sites (CGS, 3317B & 3318A; St. Helena Bay and 3317 B & 3318C Saldanha Bay) (GEOSS,2025)

7.3 SOILS

7.3.1 EXPECTED SOIL PROFILE AND DISTRIBUTION

Soils encompass the uppermost layer of sediments in a given area. While all soils share a common composition of five essential elements i.e., organic matter, minerals, gases, liquids, and organisms, diverse pedogenic (soil-forming) processes contribute to a broad range of soil types, exhibiting significant variations in both chemical and engineering properties. The proposed e-SAF Plant overlies one principal land type, namely Ha13, with an additional land type, namely Hb24 occurring further east of the site (Land Type Survey Staff, 1972 – 2002), with the distribution of land types presented in **Figure 7-4**.

A land type is an area which can be demarcated at a scale of 1:250 000 with similar soil forming factors and therefore soil distribution patterns. A land type, therefore, does not represent uniform soil polygons, but rather information regarding the soil distribution patterns. Ha13 constitutes the major land type underlying the site and is characterised mainly by the Fernwood soil form, which consists of a thin Orthic A horizon overlying a thick, bleached E horizon consisting of Quaternary aged quartz sands of the Springfontyn Formation and calcretes of the Langebaan Formation. To the east of the proposed site, soils are characterised as the Hb24 land type, which is also mainly comprised of the Fernwood soil form, with the only major difference being that Hb24 is occasionally underlain by greywacke and phyllite of the Moorreesburg Formation (GEOSS, 2025a).

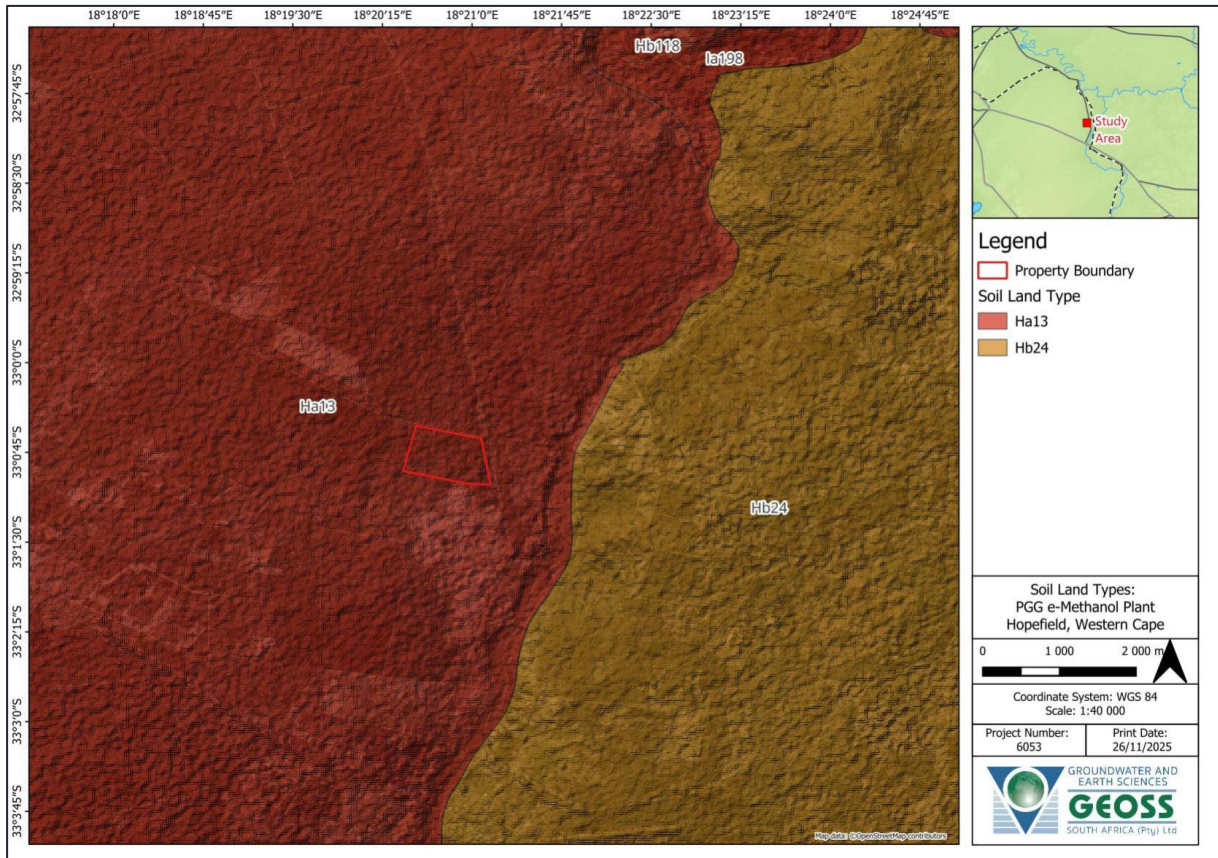


Figure 7-4 - Land type distribution across the study site (Land Type Survey Staff, 1972 – 2002 as cited in (GEOSS,2025)).

7.4 AGRICULTURE

Agricultural production potential, and particularly cropping potential, is one of three factors that determines the significance of an agricultural impact, together with size of footprint and duration of impact. Cropping potential also directly determines the true agricultural sensitivity of the land and therefore informs the site sensitivity verification.

All the important parameters that control the agricultural production potential of the site are given in **Table 7-3**.

Table 7-3 – Parameters that control and/or describe the agricultural production potential of the site

	Parameter	Value
Climate	Köppen-Geiger climate description (Beck <i>et al</i> , 2018)	Arid, steppe, cold
	Mean Annual Rainfall (mm) (Schulze, 2009)	310mm to 330mm
	Reference Crop Evaporation Annual Total (mm) (Schulze, 2009)	1240mm to 1260mm
	Climate capability classification (out of 9) (DAFF, 2017)	5 (moderate)
Terrain	Terrain type	Flat coastal plain
	Terrain morphological unit	Midslope
	Slope gradients (%)	0 to 7
	Altitude (m)	8 to 68
	Terrain capability classification (out of 9) (DAFF, 2017)	4 (low-moderate) to 7 (high)
Soil	Geology (DAFF, 2002)	Mainly Quaternary quartz sand of the Springfontyn Formation and surficial cover formed in situ on Malmesbury rocks; occasional greywacke and phyllite of the Moorreesburg Formation, Malmesbury Group. Limestone and calcrete of the Langebaan Formations.
	Land type (DAFF, 2002)	Ha13
	Description of the soils	Deep, very light textured (sandy), light-grey, soils
	Dominant soil forms	Fernwood, Kroonstad, Estcourt
	Soil capability classification (out of 9) (DAFF, 2017)	4 (low-moderate) to 7 (high)

	Parameter	Value
	Soil limitations	Very low water and nutrient holding capacity
Land use	Agricultural land use in the surrounding area	Irrigated croplands and natural grazing
	Agricultural land use on the site	None
General	Long-term grazing capacity (ha/LSU) (DAFF, 2018)	30
	Land capability classification (out of 15) (DAFF, 2017)	7 (low-moderate) to 8 (moderate)
	Within Protected Agricultural Area (DALRRD, 2020)	Yes, category B. Type: Rainfed
	Within Renewable Energy Development Zone (REDZ)	No

The site falls within an area that is classified as a Protected Agricultural Area. A Protected Agricultural Area is a demarcated area in which the climate, terrain, and soil are generally conducive for agricultural production and which, historically, has made important contributions to the production of the various crops that are grown across South Africa. Within Protected Agricultural Areas, the protection, particularly of arable land, is considered a priority for the protection of food security in South Africa. However, there may be much variation within a Protected Agricultural Area and all land within it is not necessarily of sufficient agricultural potential to be suitable for crop production, due to site-specific terrain, soil, and other constraints. All land within a Protected Agricultural Area is therefore not necessarily worthy of prioritised protection as agricultural production land. The proposed facility footprint is not located on land that is viable for cropland (**Figure 7-5**).



Figure 7-5 - Typical site conditions on the natural veld that occurs across the site (SoilZA, 2025)

The cropping potential of the site is limited by the combination of climate and soil constraints, as identified in the table above. The dominant constraint is the very low water and nutrient holding capacity of the very sandy soils. In combination with the relatively low rainfall the soils retain too small a moisture reservoir for viable crop production. Because of these constraints, the site is completely unsuitable for viable rainfed crop production.

If land is suitable for viable crop production - that is if it has the capability to deliver an above break-even crop yield on a sustainable basis - then it is of high or very high agricultural sensitivity. If it has limitations that prevent it from being able to deliver an above break-even crop yield on a sustainable basis, then it is of medium or low agricultural sensitivity.

The screening tool classifies the assessed site as being entirely of very high agricultural sensitivity due to the PAA status of the site. The high sensitivity classification by the screening tool that underlies the PAA layer is due to the land being classified as high sensitivity because of a classified land capability rating of 8. However, the site is not suitable for viable crop production and its true sensitivity, as assessed on the ground, is therefore medium. This assessment therefore disputes the very high sensitivity classification of the site by the screening tool and verifies the entire site as being of medium agricultural sensitivity because of its assessed cropping potential.

7.5 CATCHMENT AND TOPOGRAPHY

The study area is located within quaternary catchment G10L, and forms part of the Berg River Water Management Area (WMA). The quaternary catchment is c. 1 754.5 km² in extent and has a General Authorisation (GA) of 150 m³/ha/a for groundwater use (for irrigation only). It is important to note that the property lies outside, but near the Subterranean Government Water Control Area, which is located between Hopefield and Langebaan.

The Sout River is located c. 875 m east of the Plant; and flows through the town of Hopefield.

The topography of the area, on which the property is located, is characterised by gently slopes that extend down towards the coast. The closest coastal body of water, the Langebaan Lagoon, is located c. 29 km southwest of the proposed development. The property's elevation is highest on the northwestern corner (50 mamsl) and lowest on the southeastern corner (30 mamsl), sloping down towards where the Sout Rivier (tributary of the Berg River) is situated.

7.6 HYDROLOGY

7.6.1 REGIONAL CLIMATE

In respect of the Köppen Geiger climate classification, the project site is located predominantly in a temperate, dry and hot summer region (Csa) (**Figure 7-6**).

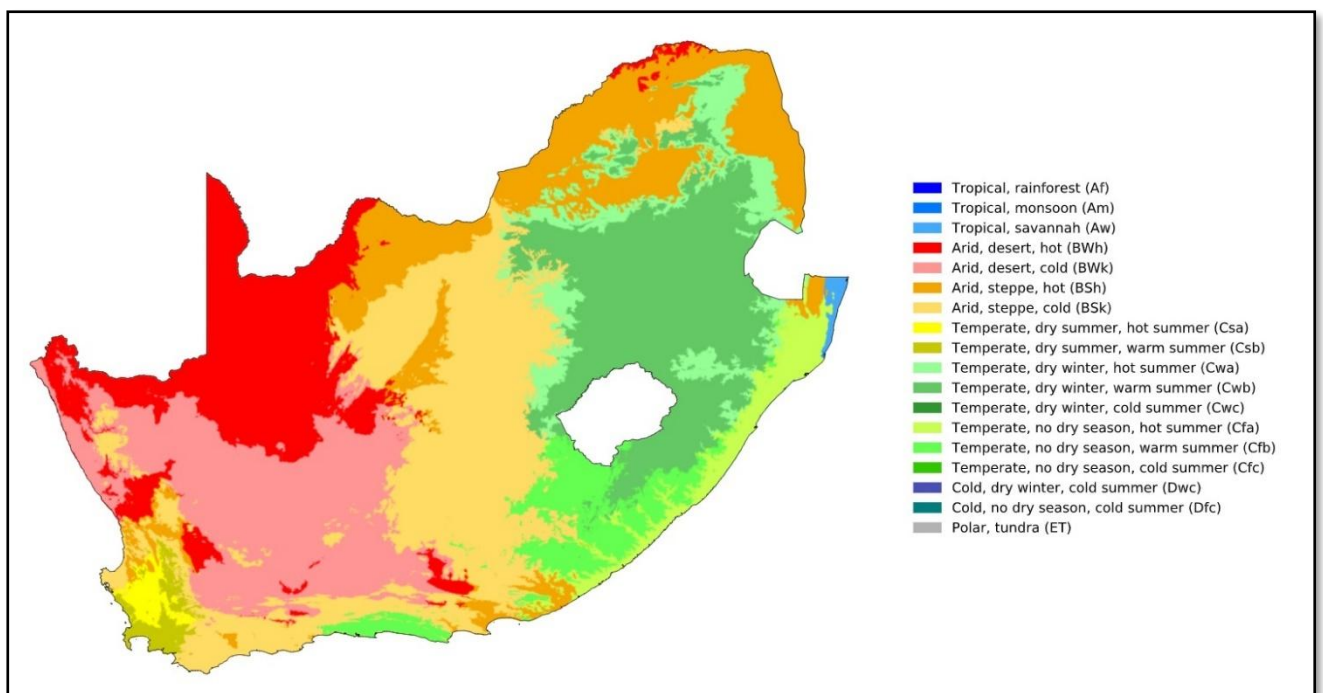


Figure 7-6 - Köppen Geiger climate classification for South Africa (WSP, 2026)

There is no active climate site in the area, and data was accessed from the Meteoblue climate² site data which is based on 30 years of hourly weather model simulations, giving a good indication of typical climate patterns and expected climate conditions.

7.6.1.1 Temperature

The average high temperatures range between 18°C and 29°C with the highest temperatures from October to March, and average low temperatures between 8°C and 17°C with the lowest temperatures from April to September.

Table 7-4 – Average minimum and maximum temperatures (°C) from Meteoblue²

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Mean daily maximum temperature	29	29	28	25	22	19	18	19	21	25	26	28
Mean daily minimum temperature	17	17	16	13	11	9	8	9	10	12	14	16

7.6.1.2 Rainfall

The area experiences winter rainfall with an average 306 to 390 mm reported in WR2012. The Meteoblue data has indicated the annual average at 258 mm. Data from Schulze (2009)³, has indicated rainfall data for the region for the period 1950 to 2000 as having very similar trends to the simulated data (**Table 7-5** and illustrated in **Figure 7-7**).

Table 7-5 – Average monthly rainfall

	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar
Average monthly Rainfall (mm) ¹	17	28	48	45	40	21	13	16	9	7	5	9
Average monthly rainfall data ²	19	40	48	51	44	27	16	7	3	3	2	5

² https://www.meteoblue.com/en/weather/historyclimate/climatemodelled/hopefield_south-africa_3366695

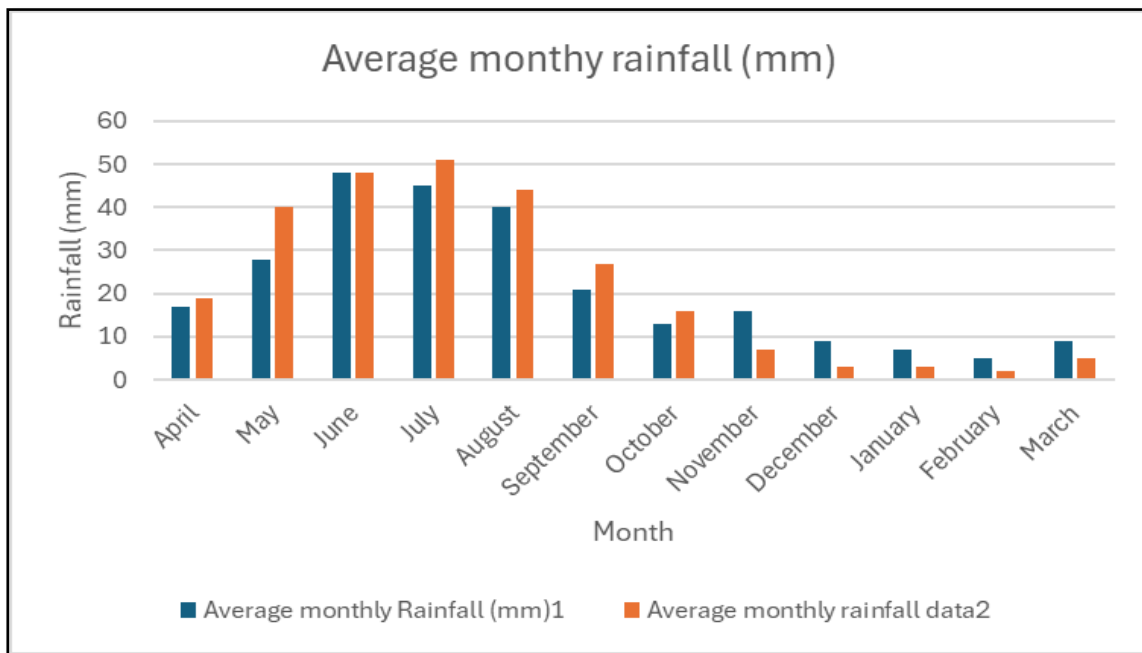


Figure 7-7 - Average monthly rainfall (Meteoblue¹ simulated data and Schulze, 2009³) (WSP, 2026)

7.6.1.3 Evaporation

Data from Schulze (2009)³, has indicated A-pan evaporation ranging between 69 and 324 mm per month, with the lowest evaporation during the wetter winter months and very high evaporation rates during the drier summer months, illustrated in Figure 7-8.

³Annual average of monthly median rainfall (1950-2000) **Source:** SA Atlas of Climatology and Agrohydrology (R.E. Schulze, 2009)

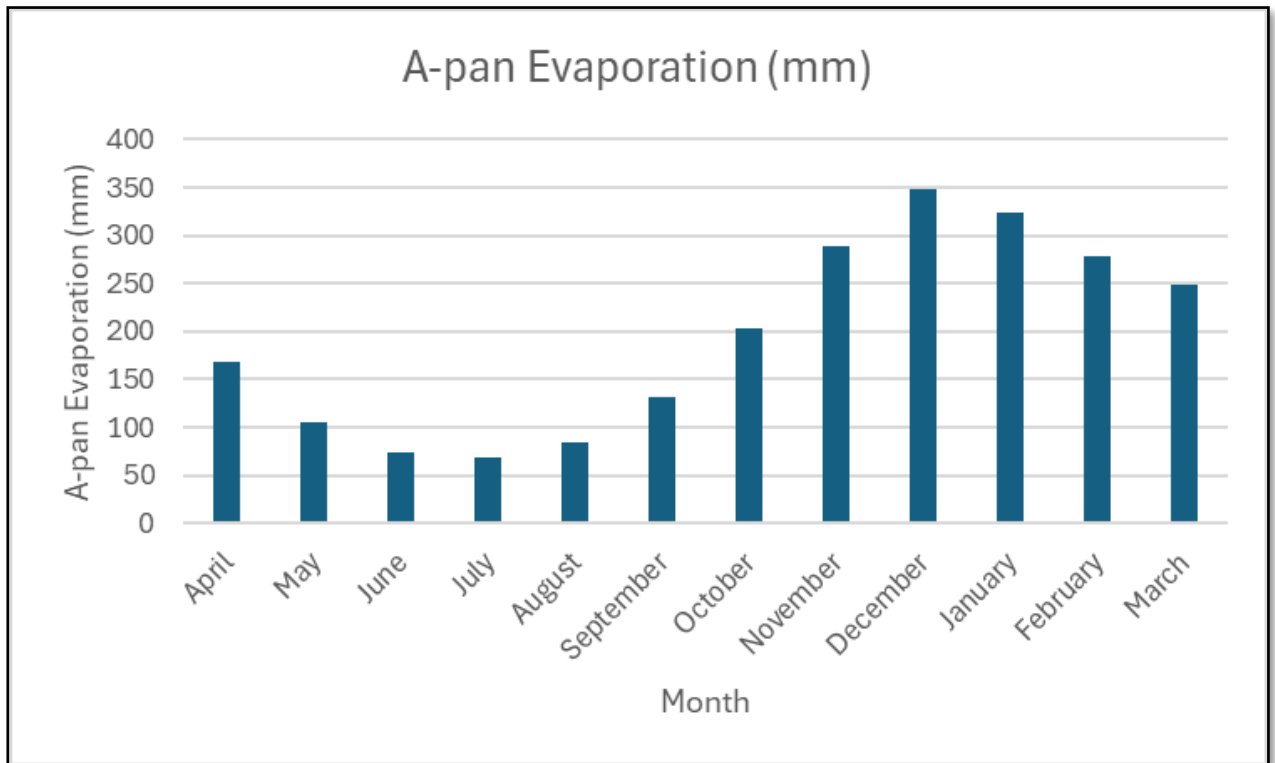


Figure 7-8 - Monthly average A-pan Evaporation⁴

7.6.1.4 Topography

The topography of the region is fairly flat with Karoo and Fynbos shrubland. The Sout River has gentle riverbanks and the drainage from the site will be east to the Sout River. The Sout River is essentially dominated by a floodplain wetland from upstream of Hopefield to just downstream of the site where the Estuarine Function Zone starts (**Figure 7-9**).

⁴ Long term means of reference crop evaporation (mm) A-Pan equivalent. **Source:** SA Atlas of Climatology and Agrohydrology (R.E. Schulze, 2009)

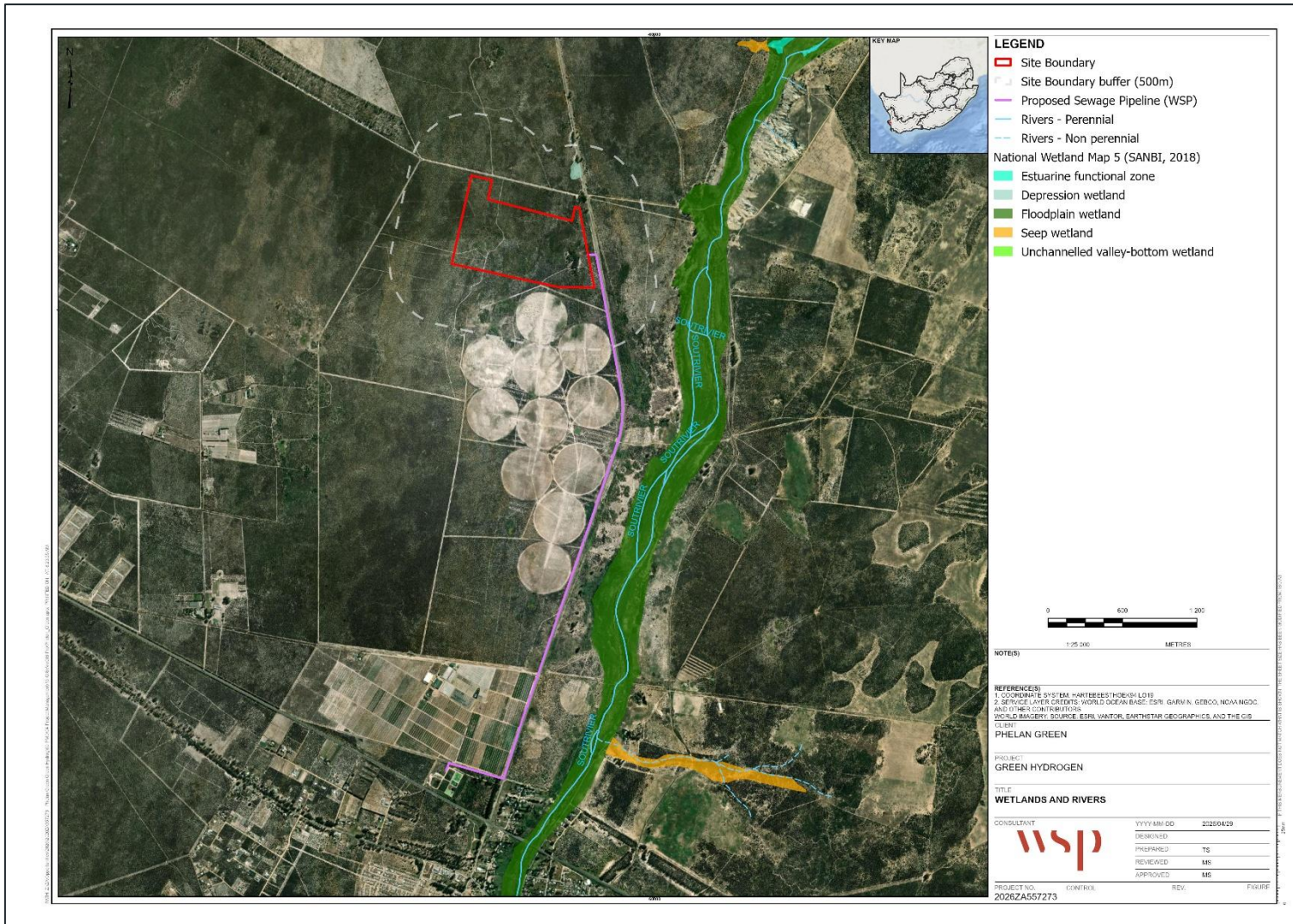


Figure 7-9 - Floodplain wetland and Sout River channels

7.6.2 CATCHMENT CHARACTERISTICS

7.6.2.1 Local Hydrological Description

The site is in quaternary catchment G10L, which covers an area of 1 755 km², of the Berg River sub-catchment within the Breede Olifants Water Management Area. The two key rivers in quaternary catchment G10L are the Groen River in the upper catchment which joins the Sout River upstream and south of Hopefield, draining north to the Berg River that then drains northwest to the Atlantic Ocean at the Berg River Mouth. It is noted that the lower portion of the Sout River, just downstream of the site into the Berg River are in fact part of the estuarine environment, as illustrated in **Figure 7-10**.

The Groen and Sout rivers are ephemeral passing through extensive agriculture before their confluence after which the Sout River drains north on the western side of the proposed site, to confluence with the Berg River approximately 7km downstream (**Figure 7-11**).

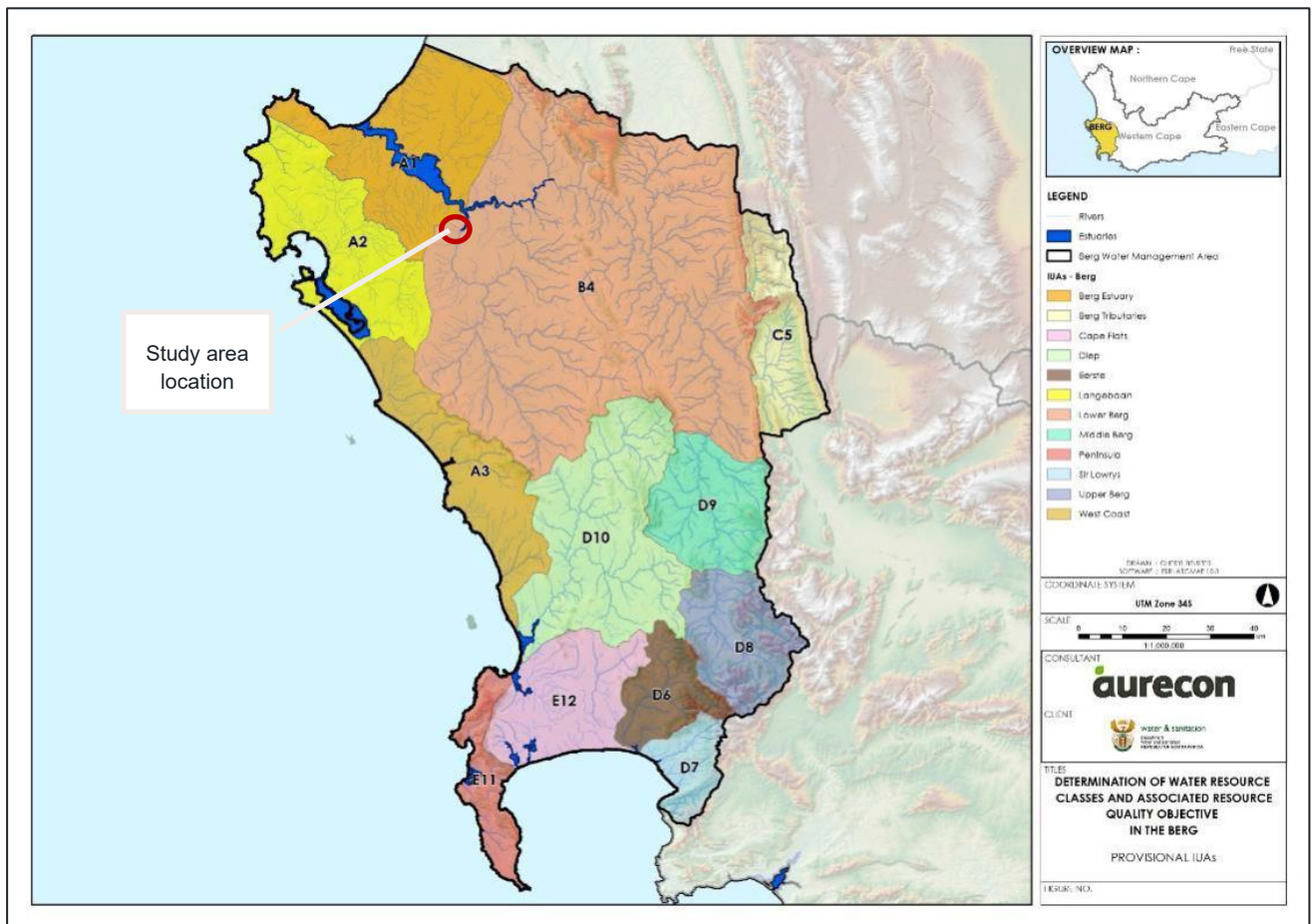


Figure 7-10 - Study area location in relation to the IUAs delineated for the Berg River (DWS, 2020) as cited in (WSP, 2026)

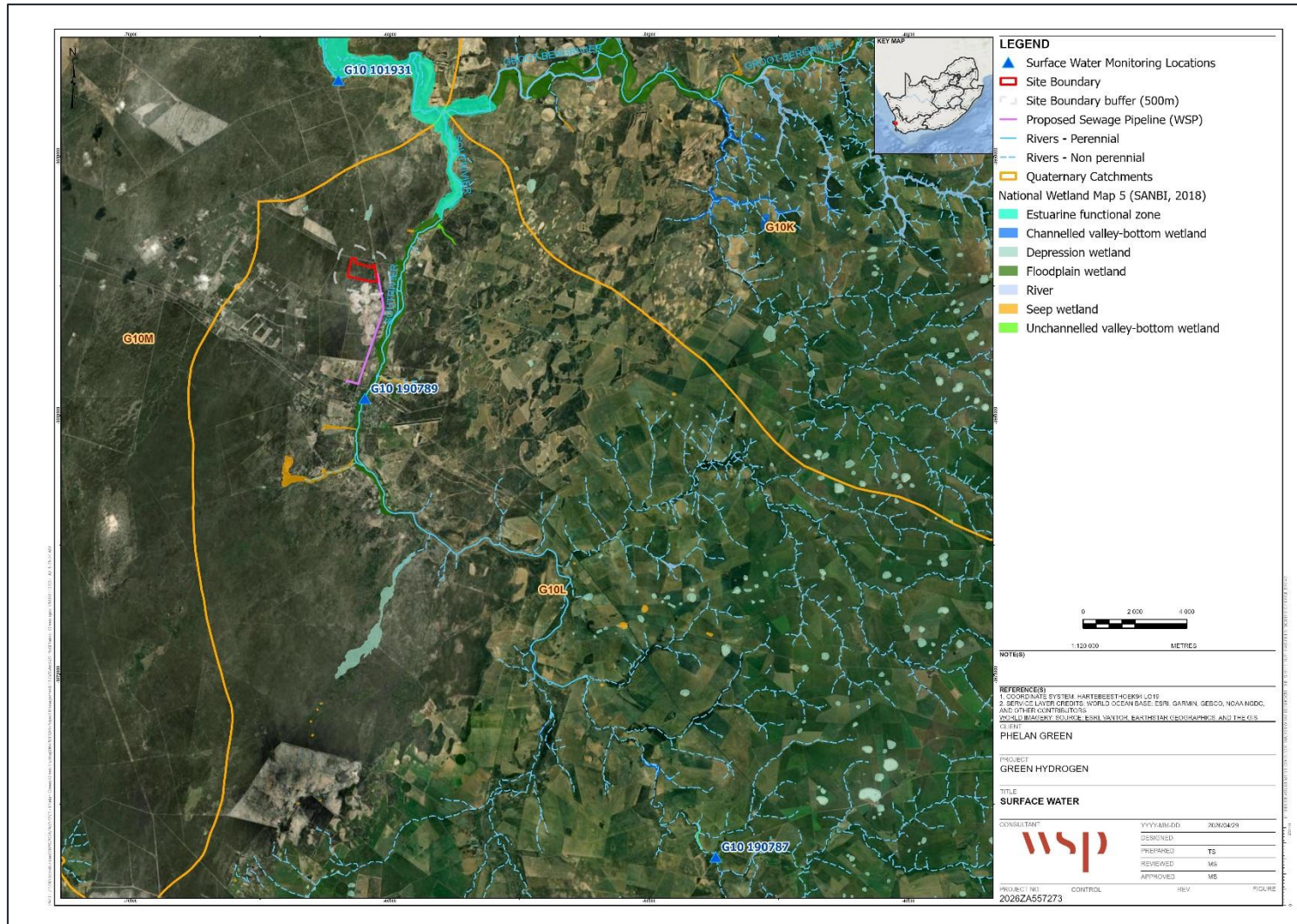


Figure 7-11 - Local hydrology showing the site in relation to the Sout and Berg rivers

7.6.2.2 Land Use

The key land use in the quaternary catchment are agricultural users, predominantly wheat, potatoes, rooibos, sheep and cattle, with the small town of Darling in the upper part of quaternary catchment G10L, and Hopefield in the lower catchment being the only domestic users.

There is very limited irrigation, with WR2012 noting an area of 45.96 km², 2.6% of the quaternary catchment area and these are likely to be groundwater driven. Alien vegetation is noted to be an estimated 10% of the quaternary catchment.

7.6.2.3 Hopefield Waste Water Treatment Works

This description of the Hopefield Wastewater Treatment Works (WWTW) and its' current status is included because of the proposal by the proposed project to discharge to sewer.

The WWTW falls under the Saldanha Bay Local Municipality, and the 2022 Green Drop Report (DWS, 2022) has indicated that the WWTW has Green Drop status. The effluent is currently irrigated and not discharged to the Sout River. The WWTW is however very small with a capacity of 0.9 ML/d, and while it is indicated that the design capacity is only 50% utilised, and there is capacity for additional discharge, the actual discharge volume from the site will need to be assessed. In addition, the WWTW process type will need to be assessed for the type of effluent that it can receive, should it be more than just domestic wastewater.

7.6.2.4 Water Quantity

Surface water is limited in the region, related to low rainfall, subdued topography and highly permeable sand-dominated geology. The Sandveld Group aquifers are a significant resource for the region, and no surface water abstractions are noted.

7.6.2.5 Water Quality

Water quality in the Berg estuary is affected by seawater intrusion and tidal effects, therefore total dissolved solids (TDS) and electrical conductivity (EC), sodium and chloride concentrations are high and the water unsuitable for irrigation agriculture. There is a salinity gradient with salt concentrations being highest near river mouth (near seawater quality) and declining in an upstream direction up to the inflow into the estuary where the salinity approaches that of the lower Berg River.

There is very limited data for the Sout River, because of the nature of the river, however there is limited historical data for a site at the R45 in Hopefield and at a site approximately 7km downstream from the Sout confluence with the Berg River.

Data for the site upstream of Hopefield and at the R45 in Hopefield indicate the ephemeral nature of the Sout River with highly concentrated concentrations of salts (indicated by the extremely elevated EC), and the elevated nutrients are also likely to run-off and concentration from the extensive upstream agricultural activities.

The Berg River site is indicative of the estuarine environment with elevated sodium, chloride and TDS and EC, but unlike the Sout River indicates flow in the river.

pH at all the sites ranges from neutral (lower limit) to slightly alkaline.

Table 7-6 – Water quality data in the catchment

Variable (units)	G10 190787 – Sout River upstream of Hopefield at the R307 road crossing			G10 190789 - Sout River at the R 45 road crossing (2007 – 2013)			G10 101931 - Berg River, downstream Sout confluence (1971 – 2017)		
	Latitude		Longitude	Latitude		Longitude	Latitude		Longitude
	-33.217710°		18.491220°	-33.057510°		18.347200°	-32.946583°		18.337107°
Percentile	5	50	95	5	50	95	5	50	95
Calcium (mg/L)	nd	nd	nd	nd	nd	nd	6.52	15.08	31.99
Chloride (mg/L)	nd	nd	nd	nd	nd	nd	75.65	205.6	629.22
Total Dissolved Solids(mg/L)	nd	nd	nd	nd	nd	nd	174.4	451	1 217.2
Electrical Conductivity (mS/m)	729.6	1 280	2 262.5	473	1 768.5	2 257.5	33.92	85.7	224.18
Fluoride (mg/L)	nd	nd	nd	nd	nd	nd	0.05	0.17	0.391
Potassium (mg/L)	nd	nd	nd	nd	nd	nd	2.23	4.12	9.42
Magnesium (mg/L)	nd	nd	nd	nd	nd	nd	7.47	18.6	47.3
Sodium (mg/L)	nd	nd	nd	nd	nd	nd	40.87	115.59	350.32
Ammonium as N (mg/L)	0.15	0.15	1.49	0.15	0.15	0.45	0.02	0.05	0.14
Nitrate/ nitrite as N (mg/L)	0.15	0.15	10.57	0.15	0.15	1.46	0.02	0.12	1.53
pH	6.96	8.15	8.85	7.49	8.1	9.32	6.5	7.49	8.1
Orthophosph ate as P (mg/L)	0.35	0.63	0.82	0.23	0.5	2.65	0.003	0.018	0.09
Silica (mg/L)	nd	nd	nd	nd	nd	nd	0.5	2.21	3.59
Sulphate (mg/L)	nd	nd	nd	nd	nd	nd	13.51	34.11	86.32
Total Alkalinity (mg/L)	nd	nd	nd	nd	nd	nd	17.73	41	68.28

Nd: no data available

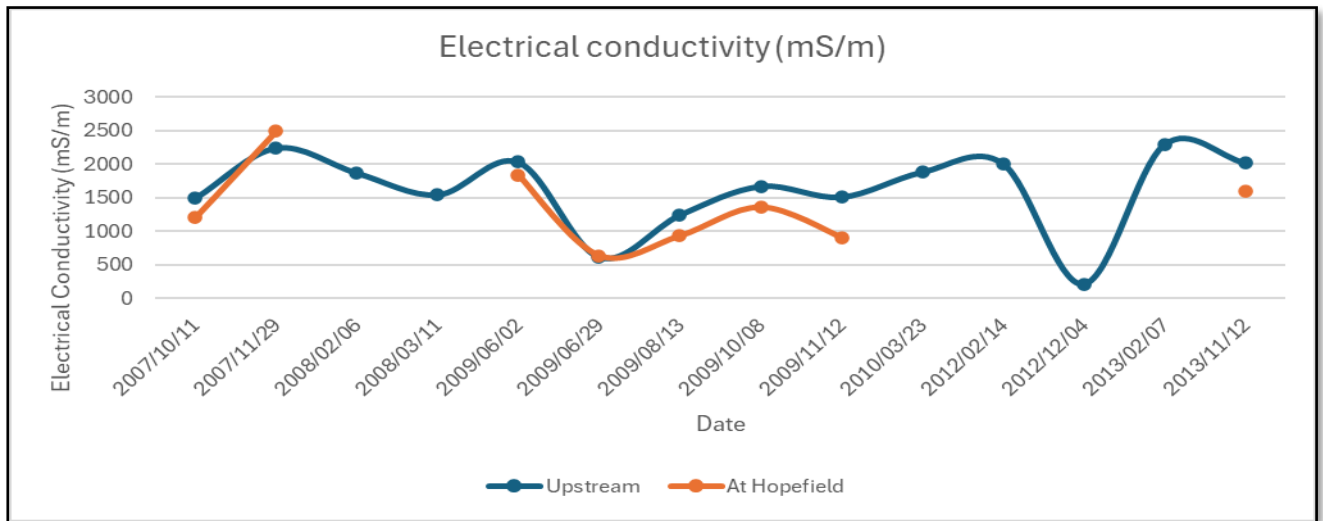


Figure 7-12 - Sout River upstream of Hopefield and on the R45 at Hopefield

7.7 GEOHYDROLOGY

7.7.1 REGIONAL HYDROGEOLOGY

The presence and characteristics of groundwater in the study area are mainly influenced by the rate and volume of groundwater recharge, as well as the geological formations that act as storage and flow pathways for groundwater (Viljoen, 2016). The thick accumulations of sandy and gravelly alluvium, scree, and sands of the Springfontyn Formation are vital groundwater recharge zones and aquifers (Viljoen, 2016).

Overall, the surficial deposits, especially the alluvium and sands of the Springfontyn Formation, play a crucial role in groundwater recharge and storage within the study area. Understanding these hydrogeological features is essential for assessing both the availability and quality of groundwater resources. The aquifer yield and aquifer quality classifications are based on regional datasets, and therefore, only provide an indication of conditions to be expected.

7.7.2 AQUIFER YIELD, TYPE AND QUALITY

According to the 1:500 000-scale Hydrogeological Map of South Africa (DWAf, 2000), the property is underlain by a combination of aquifer types:

- The eastern extent is characterised by a fractured aquifer with average borehole yields of c. 0.1 - 0.5 L/s.
- The western portion overlies an intergranular aquifer with low expected yields (0.0 - 0.1 L/s).
- The central area is again underlain by a fractured aquifer, with comparatively higher average yields in the range of 0.5 - 2.0 L/s (**Figure 7-13**).

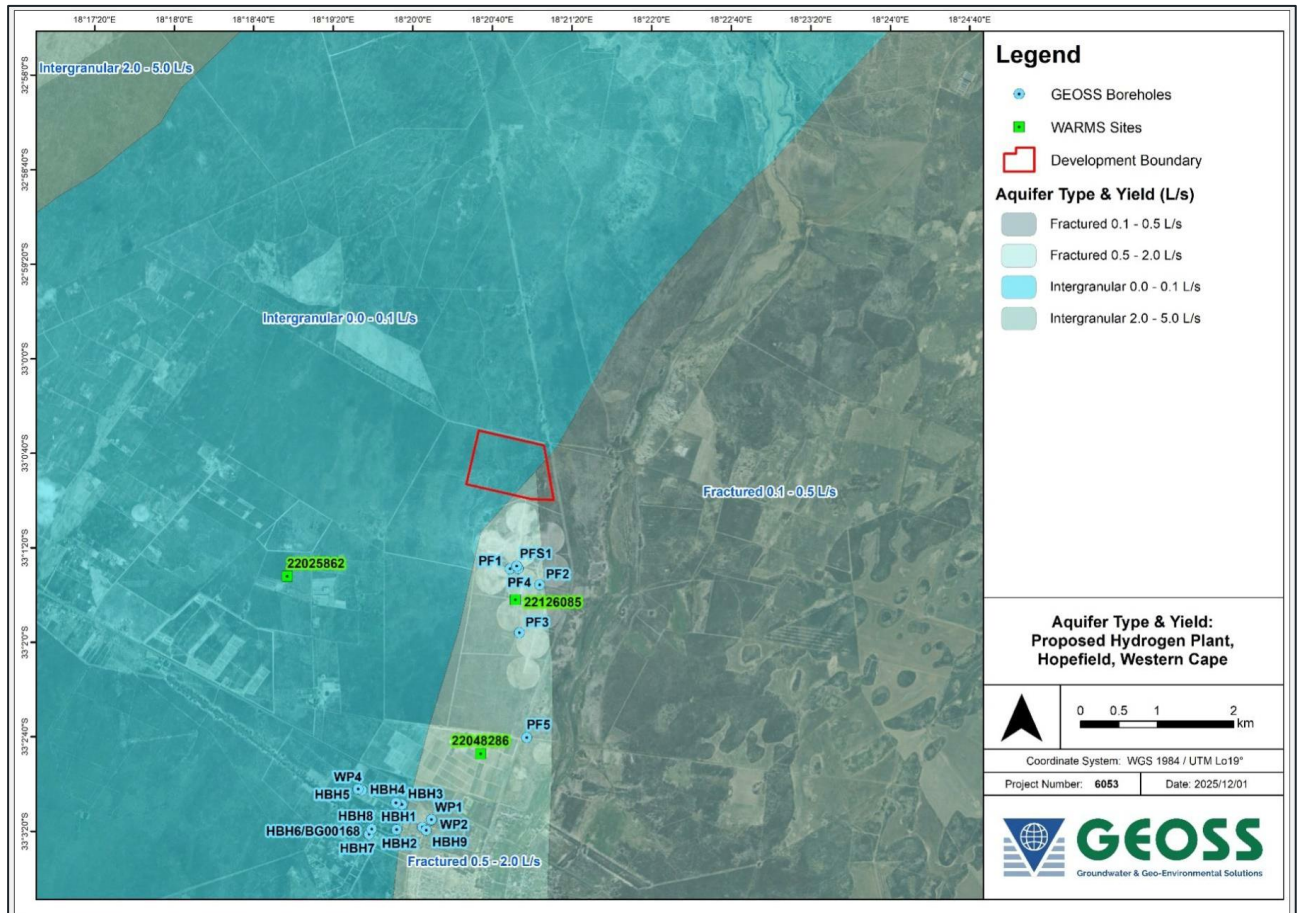


Figure 7-13 - Regional aquifer yield (L/s) (DWAF, 2002 as cited in (GEOSS,2025)).

Based on regional geological mapping and confirmed by local geological conditions, the study area is interpreted to host a two-tiered aquifer system. This comprises a shallow intergranular aquifer developed within the unconsolidated sands of the Springfontyn Formation, underlain by a deeper fractured aquifer associated with the Moorreesburg Formation. The shallow intergranular aquifer represents the primary unit from which any abstraction can occur, while the deeper fractured system governs regional groundwater movement through structurally controlled fissures and joints.

The deeper fractured aquifer, as defined in the regional mapping, comprises formations with sufficient fissures, joints and fractures to yield economic quantities of groundwater to boreholes and springs. Groundwater flow in this system is structurally controlled. The fractured aquifer indicated on the map likely corresponds to the underlying Moorreesburg Formation.

Regarding aquifer quality, Electrical conductivity (EC) is a measure of the ability of the groundwater to conduct electricity. EC is directly related to the concentration of dissolved ions in the water and this parameter is used as an indication of groundwater quality. The groundwater map indicates that the aquifer has EC values in the range of 70 – 300 mS/m (**Figure 7-14**) (DWAF, 2000, as cited in (GEOSS,2025)). This is classified as marginal water quality.

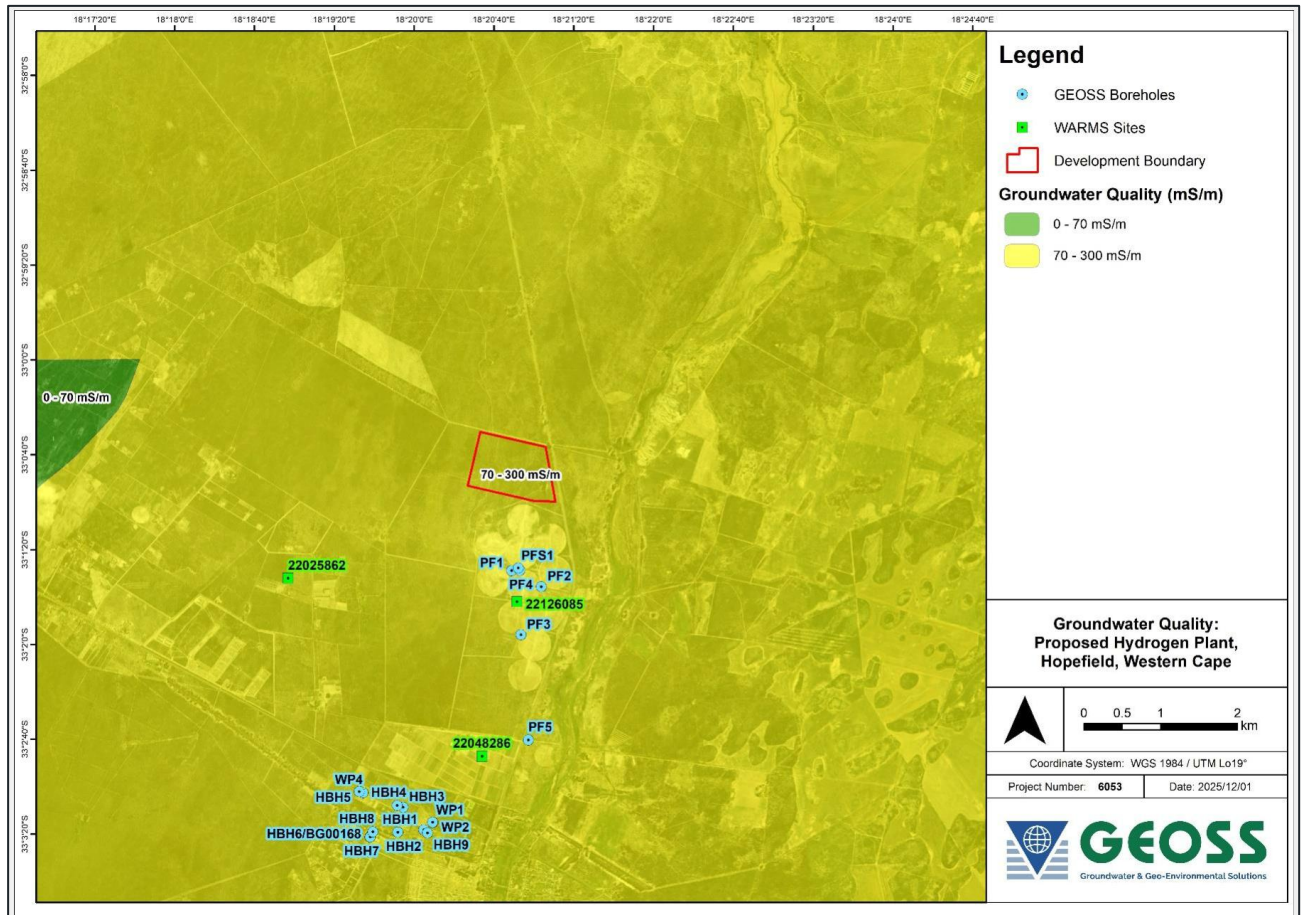


Figure 7-14 - Regional groundwater quality (EC in mS/m) (DWAF, 2002 as cited in (GEOSS,2025))

7.7.3 AQUIFER VULNERABILITY

Site specifically, the area is underlain by highly permeable unconsolidated sands of the Springfontyn Formation, making the primary aquifer highly vulnerable to surface-based contamination. Permeability decreases significantly with depth as the profile transitions into weathered shale and then competent fractured shale, where groundwater flow becomes fracture-controlled rather than intergranular.

The area towards the west has also been classified as a groundwater protected area and it has been noted that groundwater from the primary aquifer underlying the property would drain towards the Langebaan Lagoon and Geelbek area. The ecosystems in this area of the lagoon are dependent on groundwater flows into the saltwater system, and it is thus vital that the aquifer be protected against point and non-point sources of contamination.

7.7.4 GROUNDWATER USERS

A detailed desktop assessment was undertaken within the area to evaluate groundwater characteristics on site and in the surrounding area, and to identify any groundwater users who may be affected by the proposed activities. As no site visit was undertaken, the desktop review formed the primary basis for understanding local groundwater conditions and use (GEOSS,2025). Overall, review of the GEOSS Internal Database shows a relatively high density of groundwater users in the vicinity

of the study site and provides an important indication of the local hydrogeological setting in the absence of site-specific field observations.

7.7.5 GROUNDWATER QUALITY

Groundwater conditions in the local area were assessed using data from several monitoring sites contained in the GEOSS Internal Database (**Figure 7-15**). These sites are located downgradient of, and within the immediate surroundings of the project area. This information was used to establish a representative understanding of groundwater characteristics, particularly as no site visit was undertaken for the project site itself.

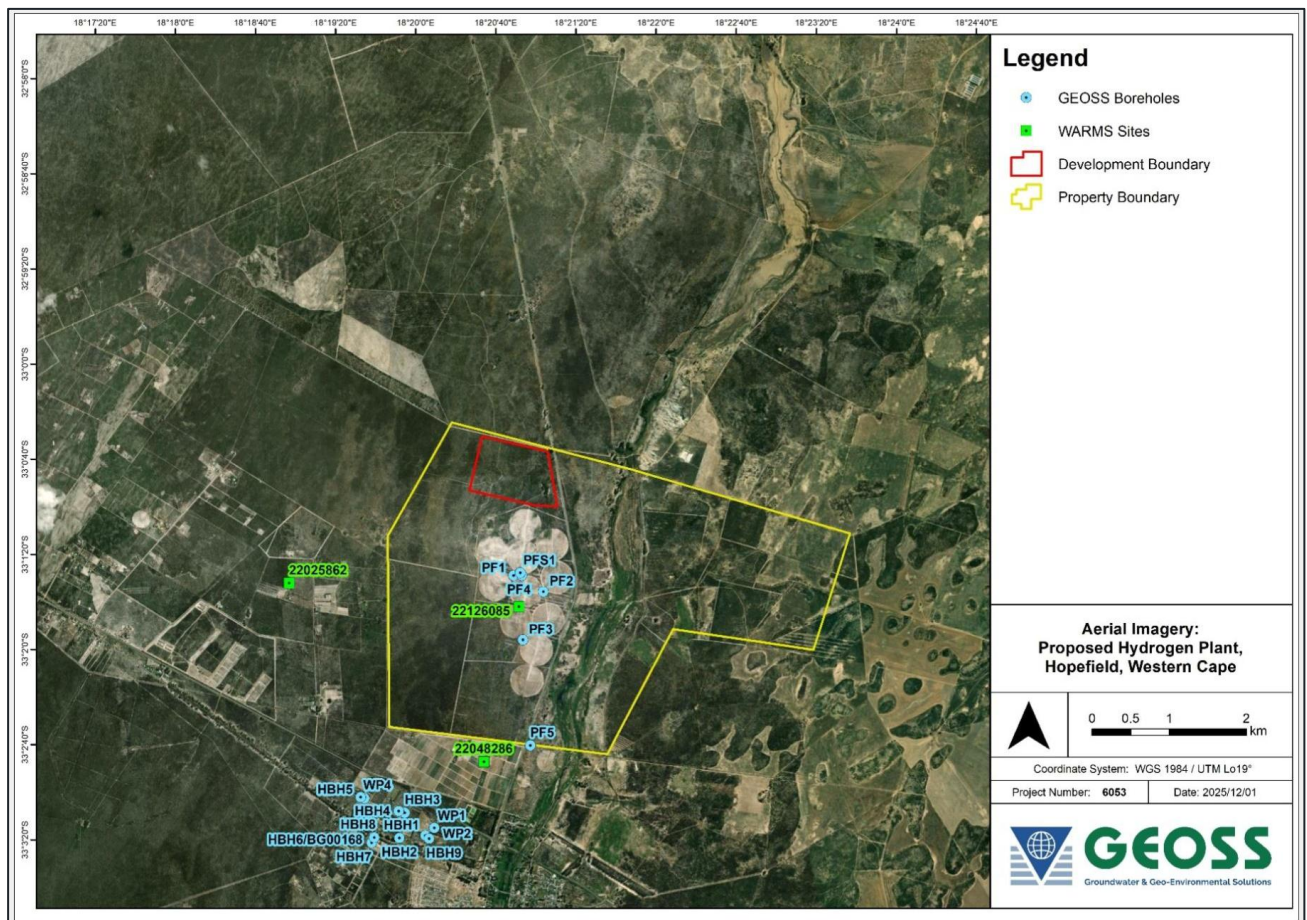


Figure 7-15 - Aerial imagery of the groundwater points across the various databases within a 2-km buffer of the property boundary (GEOSS,2025)

By evaluating water quality from on-site boreholes and downgradient boreholes, a conservative indication of local groundwater conditions could be obtained. The results provide insight into both the general groundwater quality and any localised areas of concern within the broader hydrogeological setting. It is important to note that, at this stage, groundwater associated with the proposed development is not intended for potable supply or irrigation. The comparison against drinking-water standards and irrigation reference is undertaken solely to establish a recognised baseline and to contextualise groundwater quality relative to accepted benchmarks.

Overall, groundwater is of acceptable chemical quality: pH and electrical conductivity (EC) remain within SANS 241-1:2015 limits across the long-term monitoring record, and nitrate (NO_3), concentrations are consistently low. A 2024 sample from a proximal site showed fully compliant water quality with no health-related exceedances. The majority boreholes contain fresh to slightly brackish groundwater and are suitable for irrigation.

Localised concerns do occur: within the property boundary, borehole PF5 exhibits persistently elevated salinity, with EC values exceeding both aesthetic (170 mS/m) and operational (300 mS/m) limits, reaching >400 mS/m in 2024. At the downgradient site monitored in 2025, several boreholes recorded turbidity and colour exceedances, isolated trace-metal exceedances (iron, aluminium, arsenic, cadmium and lead), and a nitrate-nitrite exceedance (above the SANS acute health limit) at GDB-S2.

Despite these isolated exceedances, groundwater quality in the area is chemically stable. Potable use limitations are restricted to specific boreholes and do not indicate widespread contamination or regional deterioration.

Groundwater quality on the property (RE/167) has been monitored by GEOSS on an intermittent basis since 2005, providing a multi-decadal dataset up to early 2024. The monitoring network includes boreholes PF1, F2, PF3, PF4, PF5 and PFS1. Routine analyses have included pH, EC and nitrate, with results interpreted against the SANS 241-1:2015 drinking-water quality specifications.

Key observations from the long-term record are summarised below:

- Measured pH values across the monitored boreholes remains within the SANS 241-1:2015 operational range across all boreholes and are consistently near-neutral to slightly alkaline, typically in the range of 6.5-8.5.
- Collectively, the EC dataset indicates that groundwater is generally fresh to slightly brackish. Most boreholes plot within or close to the SANS 241-1:2015 aesthetic limit of 170 mS/m, with only minor exceedances at PF2 and PFS1. In contrast, PF5 consistently exceeds both the 170 mS/m aesthetic limit and the 300 mS/m operational limit, with the most recent measurement exceeding 400 mS/m. This reflects a clearly defined, localised zone of elevated salinity at the southern border of the site.
- Nitrate (NO_3) concentrations across all monitored boreholes are very low, typically <1 mg/L, and consistently well below the SANS 241-1:2015 acute health limit of 11 mg/L (as N).

7.8 VEGETATION

7.8.1 BENCHMARK VEGETATION

The National South African Vegetation Map (Mucina & Rutherford, 2006), as cited in (Aim360, 2025)) describes the region as represented by the Fynbos Biome. According to Scott-Shaw & Escott (2011), at a broader spatial scale, the following vegetation types are modelled as overlying the study area:

- Hopefield Sandy Fynbos (FFd 3) (**Figure 7-16**) - The Hopefield Sandy Fynbos has been assigned a provincial threat status of Vulnerable and is considered as Hardly Protected in terms of its protection status.
- Swartland Shale Renosterveld (FRs 9) - In terms of its conservation status, the Swartland Shale Renosterveld is considered Critically Endangered. The vegetation type is Hardly Protected in terms of its protection status.

Contrary to the above desktop findings obtained from reviewed datasets, the infield assessment conducted in November 2023 did not confirm the presence of any vegetation communities bearing affinities to Swartland Shale Renosterveld at the study site.

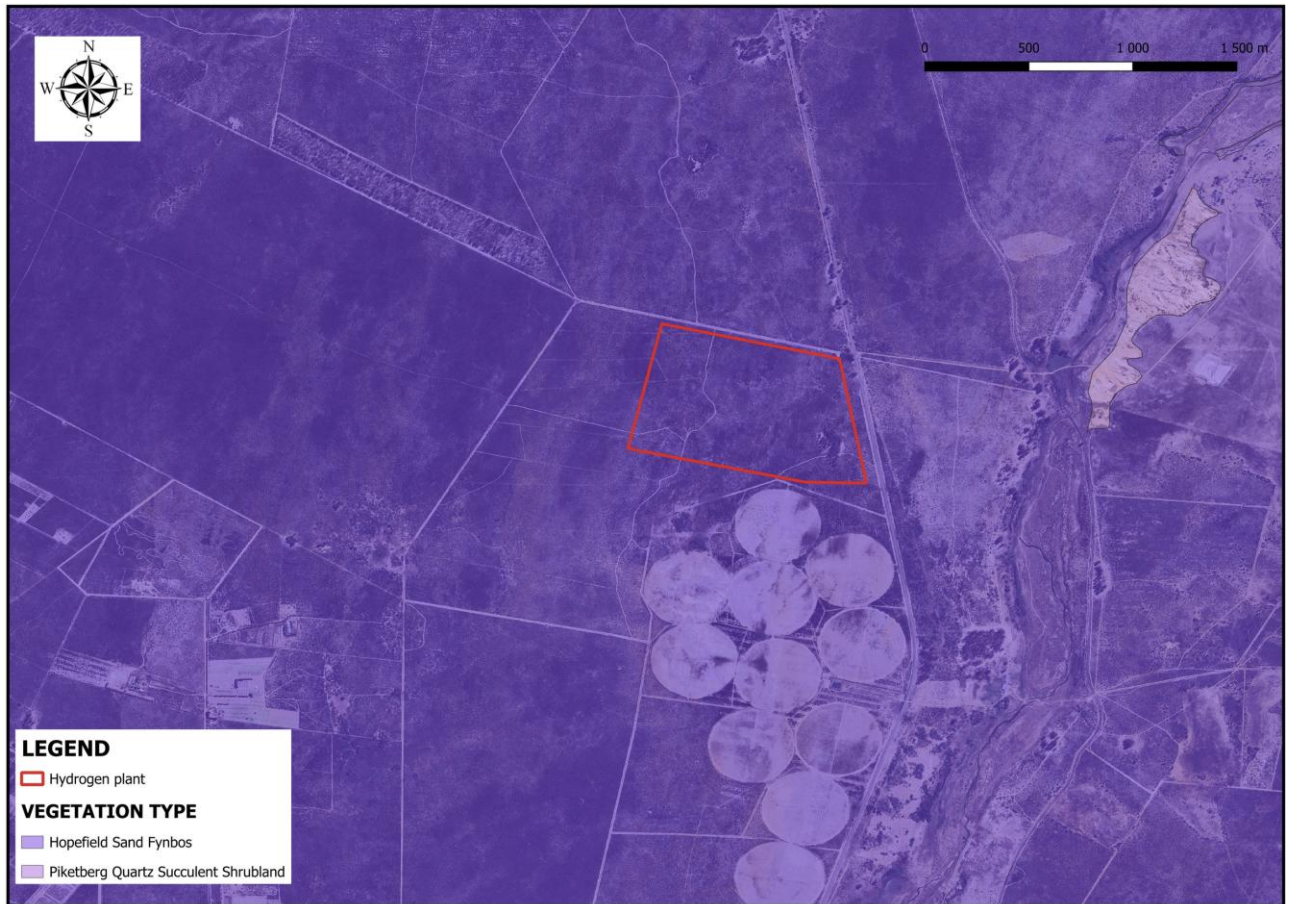


Figure 7-16 - Extent of the vegetation types overlaying the study site (Aim360, 2025).

7.9 BIODIVERSITY CONSERVATION PLANS

7.9.1 WESTERN CAPE BIODIVERSITY SPATIAL PLAN

The Western Cape Biodiversity Spatial Plan (WCBSP) is the product of a systematic biodiversity planning assessment that delineates, on a map (via a Geographic Information System (GIS)), Critical Biodiversity Areas (CBAs) and Ecological Support Areas (ESAs) which require safeguarding to ensure the continued existence and functioning of species and ecosystems, including the delivery of ecosystem services, across terrestrial and freshwater realms.

Upon examination of the WCBSP dataset in relation to the study site it was found that:

- The western portion of the study site (>30%) was determined as within three (3) CBA 1 Subcategories, namely: terrestrial, wetland and river. The implication that these area in a natural condition required to meet biodiversity targets, for species, ecosystems or ecological processes and infrastructure, consequently the management objective is to maintain in a natural or near-

natural state, with no further loss of natural habitat. Degraded areas should be rehabilitated. Only low-impact, biodiversity-sensitive land uses are appropriate (**Figure 7-17**).

- Two (2) ESA subcategories (aquatic and terrestrial) were modelled within the study area. The management objective of the area is identified as: Restore from other land use (**Figure 7-17**).
- The West Coast National Park is modelled as situated within a 5km and 10km radius of the study site (**Figure 7-18**).

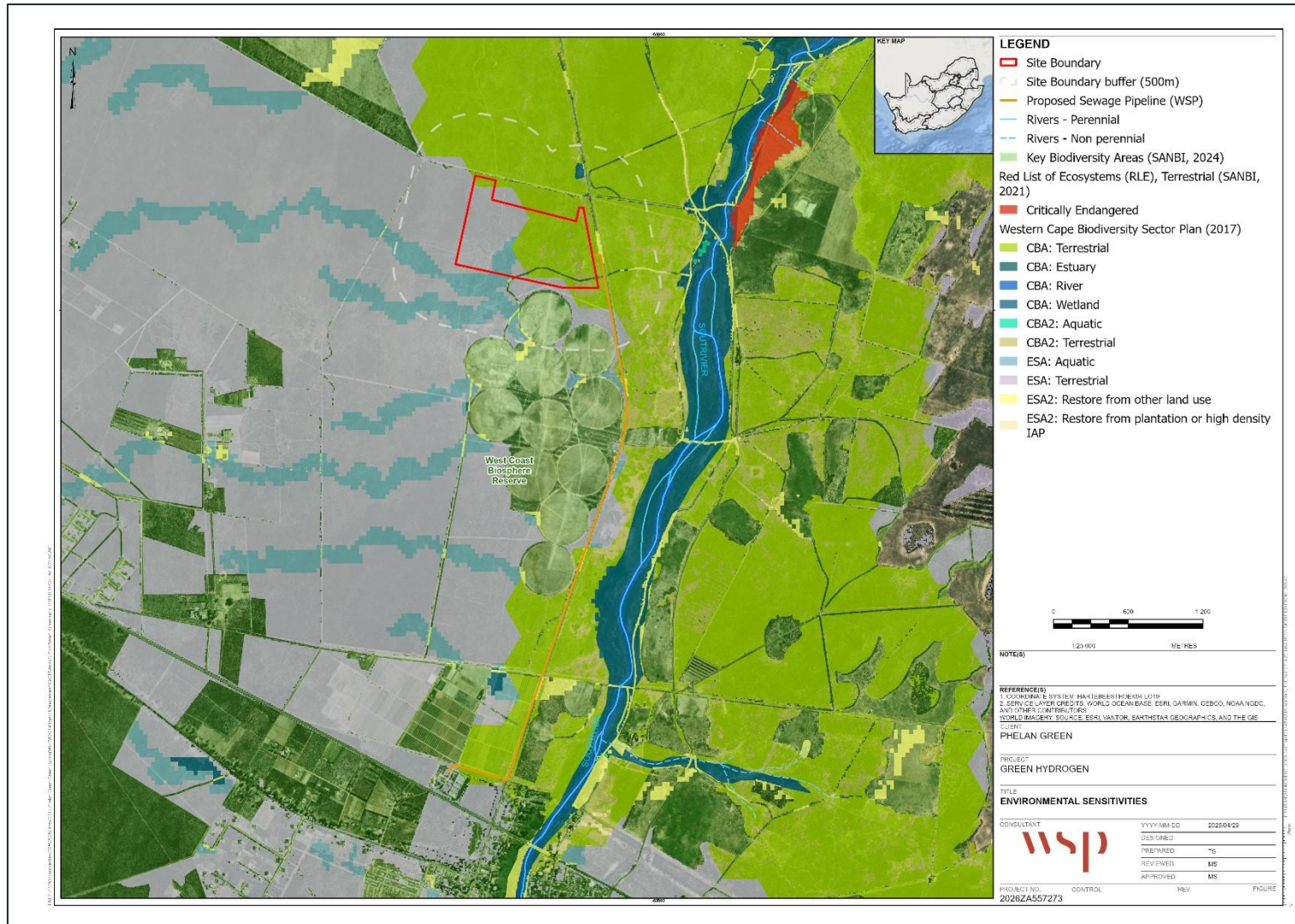


Figure 7-17 - Environmental Sensitivities

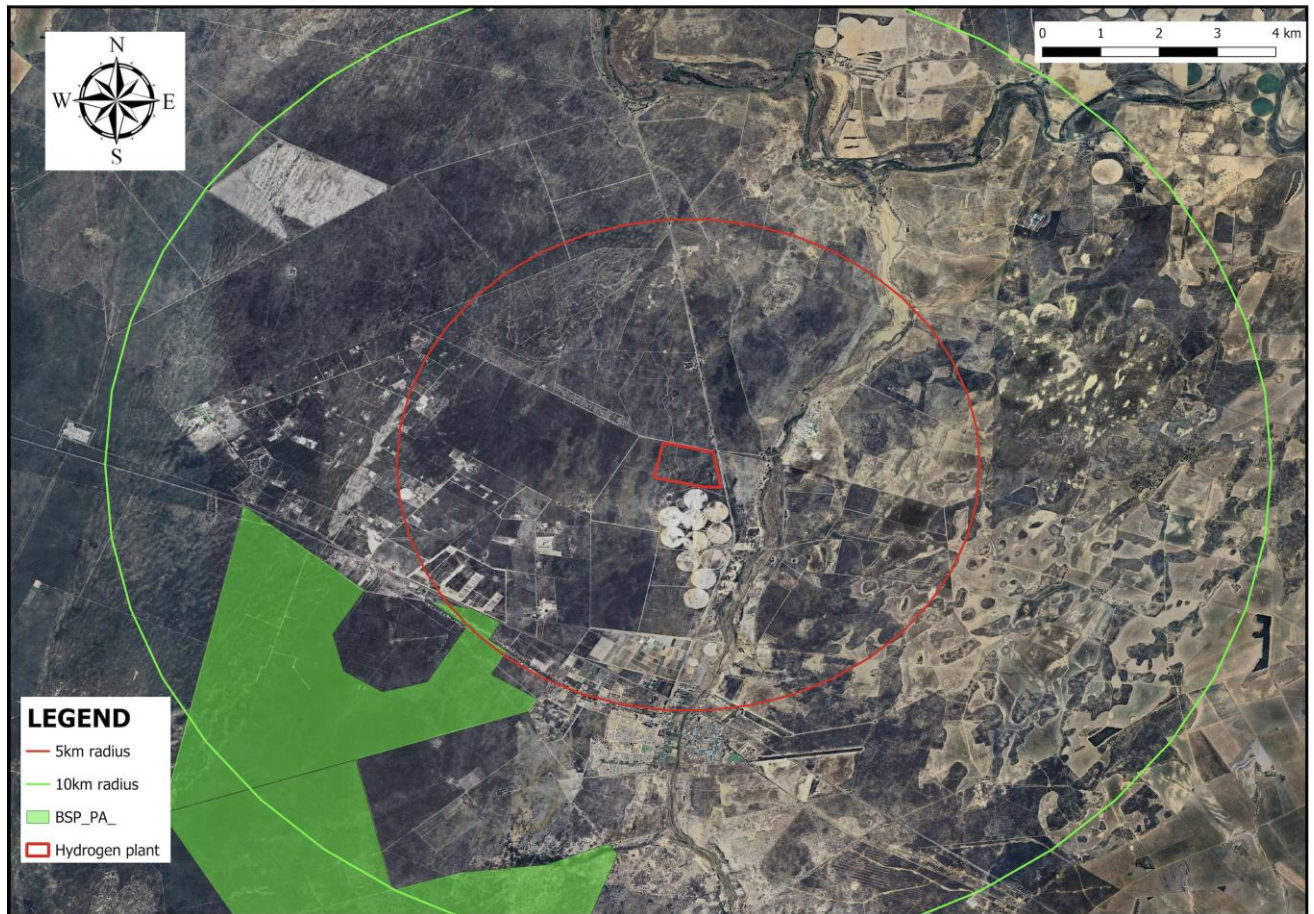


Figure 7-18 - Protected Areas within a 5km and 10km radius of the study site

7.10 PLANT SPECIES

7.10.1 DESKTOP FINDINGS

The proposed project is located within 3318AB Quarter Degree Grid Square (QDGS) in South Africa. Review of SANBI's POSA database indicated that a total of 185 plant species is modelled as present within 3318AB grid cell, results are presented as **Table 7-7** below:

Table 7-7 - Desktop results for plant species modelled as present within 3318AB grid cell

No.	Scientific Name	No.	Scientific Name
1.	<i>Lebeckia plukenetiana</i>	94.	<i>Thesium repandum</i>
2.	<i>Ballota africana</i>	95.	<i>Lebeckia plukenetiana</i>
3.	<i>Nemesia barbata</i>	96.	<i>Serruria decipiens</i>
4.	<i>Babiana odorata</i>	97.	<i>Moraea ciliata</i>
5.	<i>Serruria rosea</i>	98.	<i>Schotia brachypetala</i>
6.	<i>Nemesia versicolor</i>	99.	<i>Phylica thunbergiana</i>
7.	<i>Merxmuellera arundinacea</i>	100.	<i>Leucospermum tomentosum</i>

No.	Scientific Name	No.	Scientific Name
8.	<i>Sparaxis parviflora</i>	101.	<i>Protea scolymocephala</i>
9.	<i>Veltheimia capensis</i>	102.	<i>Ehrharta melicoides</i> Thunb.
10.	<i>Oxalis suavis</i>	103.	<i>Polycarena capensis</i>
11.	<i>Aspalathus pinguis</i> subsp. <i>occidentalis</i>	104.	<i>Imperata cylindrica</i>
12.	<i>Diascia capensis</i>	105.	<i>Podalyria sericea</i> .
13.	<i>Babiana tubiflora</i>	106.	<i>Gethyllis ciliaris</i>
14.	<i>Aspalathus lotoides</i> subsp. <i>lagopus</i>	107.	<i>Serruria fucifolia</i>
15.	<i>Metalasia adunca</i>	108.	<i>Euclea racemosa</i>
16.	<i>Lachnaea capitata</i>	109.	<i>Babiana hirsuta</i>
17.	<i>Protea scolymocephala</i>	110.	<i>Protea scolymocephala</i>
18.	<i>Aspalathus ternata</i>	111.	<i>Thesium virgatum</i>
19.	<i>Phylica harveyi</i>	112.	<i>Restio vimineus</i>
20.	<i>Phylica strigosa</i> var. <i>elongata</i>	113.	<i>Thamnochortus punctatus</i>
21.	<i>Leersia hexandra</i> .	114.	<i>Amphithalea ericifolia</i> subsp. <i>erecta</i>
22.	<i>Leucospermum rodolentum</i>	115.	<i>Pseudopentameris macrantha</i>
23.	<i>Oncosiphon africanus</i>	116.	<i>Phylica harveyi</i>
24.	<i>Pterygodium inversum</i> .	117.	<i>Phyllopodium mimetes</i>
25.	<i>Asparagus declinatus</i>	118.	<i>Aspalathus ternata</i>
26.	<i>Lachnaea grandiflora</i>	119.	<i>Polycarena capensis</i> .
27.	<i>Xiphotheca reflexa</i>	120.	<i>Leucospermum rodolentum</i>
28.	<i>Selago psammophila</i>	121.	<i>Phyllopodium capillare</i>
29.	<i>Serruria fucifolia</i>	122.	<i>Leucospermum ypo phyllocarpodendron</i>
30.	<i>Cyphia schlechteri</i>	123.	<i>Disperis cucullata</i> Sw.
31.	<i>Echiostachys spicatus</i>	124.	<i>Moraea bellendenii</i> .
32.	<i>Babiana nana</i> sbps.	125.	<i>Aspalathus ternata</i>
33.	<i>Babiana nana</i>	126.	<i>Hermannia procumbens</i>
34.	<i>Pelargonium longifolium</i> .	127.	<i>Oxalis suavis</i>
35.	<i>Codonorhiza fastigiata</i>	128.	<i>Leucospermum rodolentum</i>
36.	<i>Limeum africanum</i>	129.	<i>Serruria decipiens</i> R.Br.
37.	<i>Cannomois arenicola</i>	130.	<i>Leucospermum rodolentum</i>
38.	<i>Conicosia pugioniformis</i>	131.	<i>Pelargonium graveolens</i> .
39.	<i>Echiostachys spicatus</i>	132.	<i>Hymenogyne glabra</i> .
40.	<i>Babiana angustifolia</i> Sweet	133.	<i>Diosma aspalathoides</i> .
41.	<i>Oxalis suavis</i>	134.	<i>Echiostachys spicatus</i>
42.	<i>Leucospermum rodolentum</i>	135.	<i>Ruschia sarmentosa</i>
43.	<i>Leucadendron foedum</i>	136.	<i>Leucadendron cinereum</i>

No.	Scientific Name	No.	Scientific Name
44.	<i>Xiphotheca reflexa</i>	137.	<i>Lachenalia bachmannii</i>
45.	<i>Freesia viridis</i>	138.	<i>Babiana tubiflora.</i>
46.	<i>Aspalathus pinguis subsp. occidentalis</i>	139.	<i>Leucadendron stellare</i>
47.	<i>Antimima mucronata</i>	140.	<i>Xiphotheca reflexa</i>
48.	<i>Cotula duckittiae</i>	141.	<i>Leucospermum tomentosum</i>
49.	<i>Echiostachys spicatus</i>	142.	<i>Cysticapnos vesicaria</i>
50.	<i>Serruria kraussii.</i>	143.	<i>Heliophila linearis var. linearifolia</i>
51.	<i>Babiana odorata</i>	144.	<i>Leucadendron foedum</i>
52.	<i>Manulea corymbosa</i>	145.	<i>Leucospermum tomentosum</i>
53.	<i>Babiana tubiflora</i>	146.	<i>Leucospermum rodolentum</i>
54.	<i>Gladiolus caryophyllaceus</i>	147.	<i>Echiostachys spicatus</i>
55.	<i>Leucospermum rodolentum</i>	148.	<i>Drimia exuviata</i>
56.	<i>Serruria decipiens</i>	149.	<i>Lachenalia bachmannii</i>
57.	<i>Polycarena aemulans</i>	150.	<i>Pauridia canaliculata</i>
58.	<i>Nemesia bicornis</i>	151.	<i>Agathosma bisulca.</i>
59.	<i>Aspalathus ternata</i>	152.	<i>Ixia calendulacea</i>
60.	<i>Oxalis suavis</i>	153.	<i>Acacia saligna.</i>
61.	<i>Lobelia setacea</i>	154.	<i>Ehrharta ramosa subsp. aphylla</i>
62.	<i>Babiana angustifolia Sweet</i>	155.	<i>Lachnaea capitata</i>
63.	<i>Babiana angustifolia Sweet</i>	156.	<i>Pentaschistis curvifolia</i>
64.	<i>Pentaschistis curvifolia</i>	157.	<i>Xiphotheca reflexa</i>
65.	<i>Lachnaea capitata</i>	158.	<i>Spiloxene canaliculata</i>
66.	<i>Restio vimineus</i>	159.	<i>Phylica cephalantha</i>
67.	<i>Amphithalea ericifolia</i>	160.	<i>Acacia retinodes</i>
68.	<i>Leucospermum tomentosum</i>	161.	<i>Babiana tubiflora</i>
69.	<i>Diascia capensis</i>	162.	<i>Marasmodes oligocephala</i>
70.	<i>Lebeckia plukenetiana</i>	163.	<i>Aspalathus lotoides</i>
71.	<i>Echiostachys spicatus</i>	164.	<i>Serruria fucifolia</i>
72.	<i>Leucospermum rodolentum</i>	165.	<i>Serruria heterophylla</i>
74.	<i>Echiostachys spicatus</i>	166.	<i>Manulea cheiranthus</i>
75.	<i>Restio impolitus</i>	167.	<i>Echiostachys spicatus</i>
76.	<i>Lampranthus aureus.</i>	168.	<i>Diosma aspalathoides Lam.</i>
77.	<i>Romulea obscura</i>	169.	<i>Diosma aspalathoides Lam.</i>
78.	<i>Leysera gnaphalodes</i>	170.	<i>Tetragonia chenopodioides</i>
79.	<i>Phyllopodium capillare</i>	171.	<i>Phylica plumosa</i>
80.	<i>Hemimeris sabulosa</i>	172.	<i>Helichrysum cochleariforme.</i>

No.	Scientific Name	No.	Scientific Name
81.	<i>Oxalis suavis</i>	173.	<i>Selago psammophila</i>
82.	<i>Leucospermum rodolentum</i>	174.	<i>Hebenstretia repens</i>
83.	<i>Lachnaea capitata</i>	175.	<i>Serruria decipiens</i>
84.	<i>Crotalaria excisa subsp.</i>	176.	<i>Lebeckia ambigua</i>
85.	<i>Selago psammophila</i>	177.	<i>Helichrysum cochleariforme</i>
86.	<i>Lachnaea grandiflora</i>	178.	<i>Oxalis suavis</i>
87.	<i>Leucospermum rodolentum</i>	179.	<i>Phylica harveyi</i>
88.	<i>Babiana tubiflora</i>	180.	<i>Echiostachys spicatus</i>
89.	<i>Leucospermum rodolentum</i>	181.	<i>Helichrysum revolutum</i>
90.	<i>Serruria fucifolia</i>	182.	<i>Leucospermum hypophyllocarpodendron</i>
91.	<i>Babiana nana</i>	183.	<i>Ehrharta villosa</i>
92.	<i>Babiana tubiflora</i>	184.	<i>Phylica hirta</i>
93.	<i>Helichrysum cochleariforme</i>	185.	<i>Muraltia curvipetala</i>

7.10.2 RED DATA FLORA

Results from the South African National Biodiversity Institute (SANBI) dataset for 3318AB QDGS were further reviewed to determine the availability of potential Red Data plant species or Species of Conservation Concern (SCC). According to the South African Red data list categories done by SANBI, threatened species are species that are facing a high risk of extinction. Any species classified in the IUCN categories Critically Endangered, Endangered or Vulnerable is a threatened species whereas Species of conservation concern are species that have a high conservation importance in terms of preserving South Africa's high floristic diversity and include not only threatened species, but also those classified in the categories Extinct in the Wild (EW), Regionally Extinct (RE), Near Threatened (NT), Critically Rare, Rare, Declining and Data Deficient - Insufficient Information (DDD).

Table 7-8 below highlights all the Red Data plant species which were recorded on 3318AB grid cells and their probability of occurrence.

Table 7-8 - Threatened plants species potentially occurring within grid cells 3318AB

Species	Threat Status	Suitable Habitat	Potential of occurrence
<i>Leucospermum rodolentum</i> (Sandveld Pincushion)	VU	A prominent constituent of sandveld vegetation that grows on the sandy flats, between sea-level and 250 m or rarely 300 m altitude. It occurs only in loose, very often stabilised Tertiary or Quaternary drift sands.	High

Species	Threat Status	Suitable Habitat	Potential of occurrence
<i>L.hypophyllocarpodendron ssp. Canaliculatum</i> (Snakestem Pincushion)	EN	The plants lives in fynbos and strandveld on sandy flats below 150 m of elevation, but sometimes grows on weathered Table Mountain Sandstone up to 300 m of elevation.	Moderate
<i>Leucadendron foedum</i> (Hopefield Cornbush)	EN	Commonly found in in sandveld near Hopefield.	High
<i>Serruria decipiens</i> (Sandveld Spiderhead)	NT	The flower only occurs on the Sandveld, Hopefield, the Cape Flats, Piketberg, and Olifants River Mountains.	High
<i>Serruria fucifolia</i> (Northern Spiderhead)	NT	It grows in white sandy soils on the flats and on rocky sandstone higher up. Altitude varies between 150 and 920 m. Endemic to the Western Cape and occurs in a band along the western coastline. It occurs in Sand Fynbos at Blaauwberg in the south, the Piketberg, the eastern Cedarberg near Wuppertal, and the northernmost populations occur in the Nardou area.	Low
<i>Lachnaea capitata</i> (Lanky Stringbark)	VU	The species occurs on sandveld and lower slopes between Clanwilliam, the Cape Peninsula, Franschoek and the Breede River valley.	Low
<i>Phylica harveyi</i> Sandy Hardleaf	VU	Occurs on sandy flats, dunes and grassy slopes. Like most phylicas it prefers exposed comparatively dry, well-drained, acidic soils and a sunny position.	High
<i>Phylica thunbergiana</i> (Renoster Hardleaf)	EN	Fragmented subpopulations are found within Hills between Paarl and Pont, and near Bergriver; sandy places at the foot of Simonsberg,	Low
<i>Metalasia adunca</i> (Crooked Blombush)	NT	10-100msl sandy shrubland from Kreefte to Stellenbosch.	Moderate
<i>Nemesia strumosa</i> (Nemesia)	NT	The plant is found on sandy flats from Hopefield to Melkbos.	High

Species	Threat Status	Suitable Habitat	Potential of occurrence
<i>Lampranthus explanatus</i> (Sandveld Brightfig)	NT	This plant is naturally restricted to the coastal dune Strandveld vegetation	Low
<i>Relhania rotundifolia</i> (Roundleaf Felt Perdekaroo)	EN	Grows in seasonally moist or wet sand or clay associated with sparse Restio vegetation, at altitudes between 100-150 m. Also on brackish flats and depressions.	Low
<i>Oxalis suavis</i> (Oxalis)	VU	Hopefield and Vredenburg. Granite and sandy slopes and flats.	Moderate
<i>Metalasia capitate</i> (Ball Blombush)	VU	10-100msl sandy shrubland from Kreefte to Stellenbosch.	Low

7.10.3 FIELD INVESTIGATIONS

Infield investigation was conducted on 02 November 2023 to verify the presence of Red Data Listed plant species and plants of conservation significance in terms of national and provincial legislation. A walk-over survey was conducted along random longitudinal transects and points of interests were collected using a Dakota 20 handheld GPS. The infield assessment was limited to the footprint of the proposed study site and the immediate corridor of the proposed facility from the boundary of the site.

The investigation highlighted the presence of a terrain characterised by south-west facing slopes. However, the broader landscape is generally flat and characterised by farmlands. Whereas the study site is uncultivated, the majority of the surrounding project area is characterised by wheat land and sheep keeping. Sheep keeping is the predominant land use around the study site.

At a site-based level, the study site is primarily represented by two (2) terrestrial habitats/ vegetation communities that can be categorised in terms of structure, vegetation composition and condition. The following communities (including their extent) were identified and assessed:

- Disturbed Hopefield Sand Fynbos (HoSF) – (60-70%)
- Secondary Grassland (SG) – (30-40%)

In general, the study site and its immediate surrounding area was evaluated and determined as – widespread medium-tall sized Sand Fynbos (on flat terrain) mixed with secondary grassland. Infield findings of the delineated vegetation communities are presented as a spatial distribution map below.

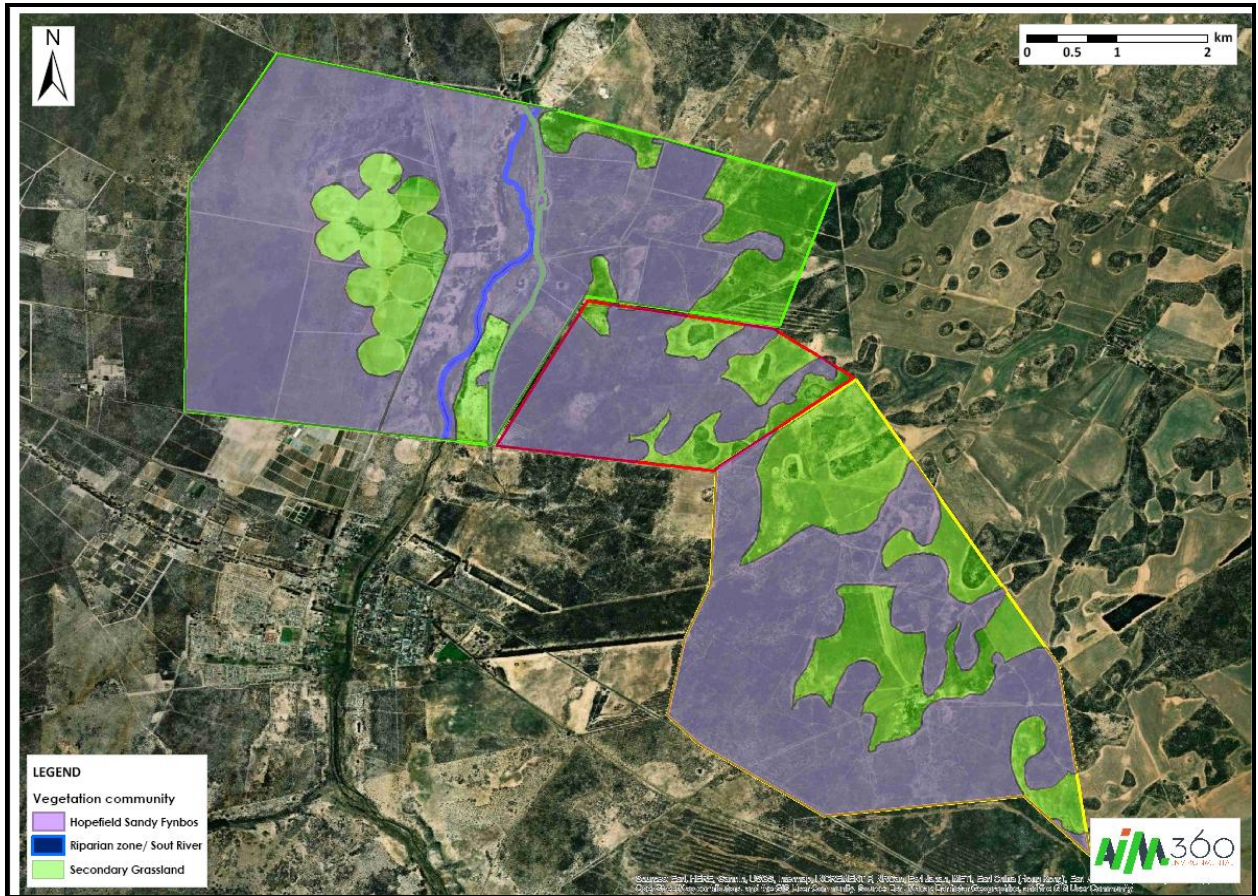


Figure 7-19 - Delineated vegetation communities in relation to the study site (Aim360, 2025)

7.10.3.1 Disturbed Hopefield Sand Fynbos (HoSF)

Disturbed Hopefield Sand Fynbos (HoSF) vegetation is generally widespread and accounts for the majority of the study site, approximately 60-70%. Tall trees are noticeably absent and limited to impenetrable shrub layers. The vegetation community is underlain by yellowish sandy acidic soils. *Leucadendron sps.* is the dominant indicator plant species (30%). **Figure 7-20** and **Figure 7-21** below shows representative photographs of the Hopefield Sand Fynbos.



Figure 7-20 - Representative view of the Disturbed Hopefield Sand Fynbos at the study site. (North facing view) (Aim360, 2025)



Figure 7-21 - Further representative view of the Disturbed Hopefield Sand Fynbos at the study site. (South-east facing view) (Aim360, 2025)

Dominant plant species associated with the HoSF vegetation community are highlighted below:

■ Grass:

Graminoids recorded within the study site included: *Cannomois parviflora*, *Cynodon dactylon*, *Ehrharta villosa*, *Elegia tectorum*, *Staberoha cernua*, *Thamnochortus erectus*, *T. punctatus*, *Willdenowia incurvata*, *Elegia verreauxii*, *Ehrharta calycina*.

■ Herbs:

Geissorhiza purpurascens, *Lachenalia reflexa*, *Romulea obscura* and *Zantedeschia aethiopica*

■ Shrubs

Leucadendron foedum, *Leucospermum rodolentum*, *Leucadendron pubescens*, *Putterlickia pyracanth*, *Diosma hirsuta*, *Phyllica cephalantha*, *Anaxeton asperum*, *Anthospermum spathulatum*, *Aspalathus lotoides*, *A. ternata*, *Erica mammosa*, *E. plumosa*, *Leucadendron cinereum*, *L. salignum*, *Leucospermum hypophyllocarpodendron*, *Metalasia capitata*, *Pharnaceum lanatum*, *Phyllica harveyi*, *Serruria decipiens*, *S. fucifolia*, *Trichocephalus stipularis*, *Euphorbia muirii*.

Noticeable disturbances that were recorded on the vegetation community included: (i) cultivated farm lands (ii) informal access roads (ii) proliferation of alien plants and (iv) poor vegetation management resulting in vegetation pressure.

7.10.3.2 Secondary Grassland

The Secondary Grassland vegetation community was mostly encountered west of the study site, predominantly within farm property RE/167 and along access roads. Widespread vegetation clearance within the study area has subsequently resulted in the emergence of a secondary grassland community. Nested within the grassland was a sub-community of shrubs which are remnants from the Sand Fynbos. **Figure 7-22** below shows the photographic evidence of the secondary grassland.



Figure 7-22 - Representative view of the secondary grassland vegetation community

Dominant plant species associated with the grassland vegetation community are highlighted below:

- Grass:

Graminoids recorded within the study site included: *Cynodon dactylon*, *Ehrharta calycina*, *Ehrharta villosa*, *Elegia tectorum*, *Staberoha cernua*, *Thamnochortus erectus*, *T. punctatus*, *Willdenowia incurvata*, *Elegia verreauxii*.

- Disturbances on the vegetation community

Noticeable disturbances that were recorded on the vegetation community included: (i) informal access roads (ii) proliferation of alien plants (iii) cultivated farmlands.

7.10.3.3 Species of Conservation Concern (SCC), Threatened Species and Medicinal Plants

The National Environmental Biodiversity Act (Act 10 of 2004) (as amended) and Western Cape Nature Conservation Ordinance 19 of 1974 place an emphasis on conserving biodiversity in each province and as such all indigenous resources must be sustainably utilised. Additionally, legislation exists at both national and provincial level for the conservation of plant species with medicinal properties.

Medicinal Plants

Plants recorded within the study site with medicinal value include inter alia: *Zantedeschia aethiopica*, *Aspalathus lotoides*, *A. ternate*.

Conservation Significant Plants and Threatened Species

Plants of conservation significance, as protected by the Western Cape Nature Conservation Ordinance 19 of 1974, that were encountered within the study site during previous investigations include the following: *Leucadendron foedum*, *Leucospermum rodolentum*, *A. ternata*, *Leucospermum hypophyllocarpodendron*, *Metalasia capitata*, *Phylica harveyi*, *Serruria decipiens*, *S. fucifolia*.

7.11 ANIMAL SPECIES

7.11.1 MAMMALS

According to distribution maps, six (6) terrestrial mammals may potentially occur within the proposed study area ((Skinner and Chimimba 2005), as cited in (Aim360, 2025)). However, given the disturbed nature of the study area due to agriculture activities, most of the species may not have resident populations within the study area. No mammal species of conservation significance were modelled as present within the study area. Mammal species potentially occurring within grid cells 3318AB include:

- *Otocyon megalotis* – Least Concern
- (Bat-eared Fox) – Least Concern
- *Bathergus suillus* – Least Concern
- (Cape Dune Mole-rat) – Least Concern
- *Ictonyx striatus* – Least Concern
- (Striped Polecat) – Least Concern
- *Raphicercus campestris* – Least Concern
- (Steenbok) – Least Concern
- *Vulpes chama* – Least Concern
- (Cape Fox) – Least Concern
- *Felis silvestris* – Least Concern

- (African Wild Cat) – Least Concern

7.11.1.1 Mammals SCC

No Red Data listed mammals were recorded within the study area associated with the project and the likelihood of any threatened mammal species being encountered within the area is considerably low. The majority of large mammals are likely to have been eradicated or displaced as a result of increased anthropogenic activity such as hunting, as well as habitat modification and degradation. Smaller mammals may have been exposed to predation by feral cats and dogs.

7.11.2 REPTILES

All reptilian species are sensitive to habitat modification and fragmentation. Due to the site having undergone modification and adjacent to a highway with high traffic flow, it is anticipated that mortalities of reptilian populations within the study area may have occurred to a certain degree. This was confirmed during the site investigation.

7.11.3 REPTILE SCC

According to the SARCA (South African Reptile Conservation Assessment) database, only fourteen (14) reptiles have been recorded within the 3318AB Quarter Degree Grid Cell (SARCA, IUCN, 2014, as cited in (Aim360, 2025)). No species of conservation significance were modelled as present within the study area.

7.11.4 FIELD ASSESSMENT OF REPTILES

The Field Guide for Snakes and Reptiles of Southern Africa (Brach, 2001) and South African Red Data Book for Reptiles ((Branch, 1988), as cited in (Aim360, 2025)) were used during the field survey. Agricultural activities and road networks within the study area have resulted in increased habitat fragmentation and transformation. The densification of residential areas and road traffic has further compounded the decline of suitable habitat for reptiles. As such, these impacts have resulted in the decline of reptile populations. Furthermore, it is anticipated that the indiscriminate killing of snakes, that is associated with human presence has resulted in the mortality of some species from the site.

Only *Pseudaspis cana* (mole snake) was recorded on the site during the site assessment.

7.12 AVIFAUNA

7.12.1 DESKTOP ASSESSMENT

According to results obtained from reviewing the Southern African Bird Atlas Project (SABAP) for 3300_1820 pentad, a total of 181 bird species has been recorded within the study site. Only six (6) bird species were classified as Red Data listed within the 3300_1820 pentad. Red Data species with a reporting rate of $\leq 1\%$ were not included in the study as the likelihood of being present within the study site is very low. Reporting rates are an indication of the relative density of a species on the ground in that it reflects the number of times that a species was recorded relative to the total amount of cards that were completed for the pentad.

7.12.2 FIELDWORK ASSESSMENT

During the site visit a total of 37 bird species were recorded within the study site. The most commonly recorded species were species often associated with anthropogenically modified landscapes (c. 36.11%). Thirteen (13) of the recorded bird species are common residents around settlements and

have a generalist diet. This coupled with their generalist habitat requirements facilitates their presence within this disturbed environment. Approximately twelve (12) bird species (c.33%) are associated with disturbed grasslands. Approximately 25% of the bird species showed an affinity for freshwater habitat.

Table 7-9 below lists the birds that were recorded at the study site during the assessment.

Table 7-9 - Bird species recorded along the study site

Scientific name	Common name
<i>Colius striatus</i>	Speckled Mousebird
<i>Columbia guinea</i>	Speckled Pigeon
<i>Anthus cinnamomeus</i>	African Pitpit
<i>Anthus nicholsoni</i>	Nicholson's Pipit
<i>Lamprotornis bicolor</i>	Pied Starling
<i>Phylloscopus trochilus</i>	Willow warbler
<i>Ploceus subaureus</i>	Yellow Weaver
<i>Bubulcus Ibis</i>	Cattle Egret
<i>Streptopelia capicola</i>	Cape Turtle-Dove
<i>Trochocercus cyanomelas</i>	Blue-mantled Crested-flycatcher
<i>Myrmecocichla formicivora</i>	Ant-eating Chat
<i>Streptopelia semitorquata</i>	Red-eyed Dove
<i>Apus apus</i>	Common Swift
<i>Apus affinis</i>	Little Swift
<i>Cisticola juncidis</i>	Zitting Cisticola
<i>Dicrurus adsimilis</i>	Fork-tailed Drongo
<i>Corvus albus</i>	Pied Crow
<i>Euplectes orix</i>	Southern Red Bishop
<i>Numida meleagris</i>	Helmeted Guineafowl
<i>Hirundo cucullata</i>	Greater Striped Swallow
<i>Cecropis abyssinica</i>	Lesser Striped Swallow
<i>Lagonosticta senegala</i>	Red-billed Firefinch
<i>Plectropterus gambensis</i>	Spur-winged Goose

Scientific name	Common name
<i>Apus apus</i>	Common Swift
<i>Streptopelia senegalensis</i>	Laughing Dove
<i>Passer domesticus</i>	House Sparrow
<i>Ploceus velatus</i>	Southern Masked Weaver
<i>Malaconotus blanchoti</i>	Grey-headed Bush-shrike
<i>Lybius torquatus</i>	Black-collared Barbet
<i>Vidua paradisaea</i>	Long-tailed Paradise-whydah
<i>Vidua macroura</i>	Pinned-tailed Whydah
<i>Ardea cinerea</i>	Grey Heron
<i>Passer Diffusus</i>	Southern Grey-headed Sparrow
<i>Pycnonotus tricolor</i>	Dark-capped Bulbul
<i>Bubulcus ibis</i>	Western Cattle Egret
<i>Quelea quelea</i>	Red Billed Quelea
<i>Scleroptila afra</i>	Grey winged Francolin

7.12.3 HABITATS AND AVIFAUNAL SCC

It must be emphasised that avifauna will, by virtue of their mobility, utilise almost any area in a landscape from time to time. However, certain habitats (such as the riparian area of a watercourse) may present foraging opportunities and therefore are likely to harbour a high avian species diversity.

The watercourses (such as the Sout River) proximal to the study site were observed to have the highest species richness and abundance of bird species within the study area; surrounding ecosystems and habitats closest to the study site such as the Hopefield residential areas and disturbed agricultural lands were noted to be least productive. Avian species recorded closest to the riparian zone included: Southern Red Bishop, Spur-winged Goose, Yellow Weaver, Laughing Dove, Helmeted Guineafowl, Cape Turtle-Dove, Grey-headed Bush-shrike, Long-tailed Paradise Whydah, Grey Heron and Dark-capped Bulbul.

No threatened species (Red Data species) were recorded within the study site during the survey. The increased levels of anthropogenic disturbance and associated habitat transformation and degradation have likely resulted in the displacement of specialist avian species as well as threatened species. In most cases these are species sensitive to habitat disturbances and display secretive behaviour characteristics. However, the occurrence of Lanner Falcon (*Falco biarmicus*) was projected as moderate the study area.

7.13 SOCIO-ECONOMICS

7.13.1 PROVINCIAL CONTEXT

The Western Cape, located on the southwestern tip of South Africa, is one of the country's most economically dynamic and diverse provinces. It is characterized by a mix of urban and rural areas, with Cape Town serving as both the provincial capital and the economic hub of the region. The province has a population of over 7,4 million, making it the third most populous province in the country. Afrikaans is spoken by 41,2% of the population, followed by isiXhosa (31,4%) and English (22%) (Statistics SA, 2022, as cited in (BGES, 2025)).

The Western Cape Province's economic activity is concentrated in the City of Cape Town metropolitan municipality (Cape Metro). The Western Cape has a well-developed and diversified economy, driven by key sectors such as agriculture, tourism, manufacturing, and services. The province is a major contributor to South Africa's Gross Domestic Product (GDP), with a strong focus on exports, particularly in agriculture (e.g., wine, fruit, and vegetables), fishing, and processed foods ((MERO: Cape Metro, 2024/25), as cited in (BGES, 2025)).

The Quarterly Labour Force Survey (QLFS), 2024 states that the Western Cape has outpaced other provinces in South Africa in terms of job creation. Between Q2 and Q3 2024, the province added 75,000 jobs, further cementing its position as a leader in employment growth. The official unemployment rate has decreased by 2.6% from the previous quarter, now standing at 19.6%. The expanded unemployment rate has dropped by 1.7%, reaching 25.6%.

The Western Cape is increasingly positioning itself as a key player in the development of green hydrogen as part of South Africa's broader transition to clean and sustainable energy. With a strong foundation in renewable energy production, infrastructure development, and a focus on sustainability, the region is making progress to support green energy initiatives. The Western Cape Department of Economic Development and Tourism (DEDAT) as cited by Murray (2023) in (BGES, 2025) has also emphasized that the development of a green energy hub in Saldanha will lead to the creation of both direct and indirect job opportunities (<https://wc.da.org.za/2023>).

The Western Cape is positioning itself as a hub for green energy innovation, with several academic and vocational institutions actively contributing to the development of a green energy skills pipeline. The University of the Western Cape (UWC), through its South African Institute for Advanced Materials Chemistry (SAIAMC), is leading pioneering proof-of-concept hydrogen projects in Vredendal and delivering training workshops on hydrogen and Power-to-X (PtX) technologies ((UWC, 2024), as cited in (BGES, 2025)).

Complementary to this, Stellenbosch University and local TVET colleges are engaging in curriculum development aligned with the national hydrogen strategy, which supports the creation of a skilled workforce capable of meeting industry demand ((Department of Science and Innovation [DSI], 2021; GIZ, 2023)) as cited in (BGES, 2025)). These efforts alongside capacity-building programmes supported by international partners such as GIZ reflect a growing institutional readiness and provide a strong foundation to ensure that local talent in Saldanha Bay and the broader West Coast District can participate meaningfully in the emerging green energy economy.

7.13.2 LOCAL STUDY AREA

The West Coast District Municipality (WCDM) is a district in the Western Cape that can be found on the western coastline of South Africa along the Atlantic Ocean. The district is bordered in the north by the Namakwa district municipality in the Northern Cape, by the Cape Winelands district municipality in the southeast; and by the City of Cape Town metropolitan municipality in the south ((Wesgro, 2024), as cited in (BGES, 2025)).

The WCDM is made up of five municipalities which are Matzikama, Cederberg, Bergrivier, Saldanha Bay and Swartland municipalities. The district covers an area 31 118 km² ((WCDM, IDP 2022-2027), as cited in (BGES, 2025)).

The WCDM is the fourth largest district in terms of population size in the Western Cape. The district accounted for 6.70% of the province's population in 2023 ((Wesgro, 2024), as cited in (BGES, 2025)).

The WCDM is linguistically diverse, with several languages spoken due to the multi-ethnic population. The most spoken languages in the region include Afrikaans, isiXhosa and English. A small proportion of the population speaks other languages such as Setswana, isiZulu, and Shona, with these languages reflecting the broader migration patterns and cultural diversity in the region.

The WCDM is an economically diverse region, with a significant portion of its population engaged in various sectors such as agriculture, fisheries, mining, tourism, and services. Despite the area's economic potential, there are challenges related to unemployment.

In 2020, the Saldanha Bay and Swartland municipal areas were the largest contributors to the GDP of the WCDM, with contributions of 32.2% and 26.5%, respectively. The Bergrivier and Matzikama municipal areas contributed 14.8% and 14.2% to the district's economy. The smallest contributor was the Cederberg municipal area, accounting for 12.3% of the GDP ((WCDM, Annual Report 2022-2023), as cited in (BGES, 2025)).

The WCDM IDP (2022-2027) reveals that in 2019, the primary sector accounted for 38.0% of total employment with 69,688 jobs. The agriculture sector was the largest employer, contributing 37.8% to total employment, but it only contributed 16.4% to the district's GDP, highlighting its reliance on labour-intensive and unskilled work. Between 2015 and 2019, the agriculture sector created an average of 1,257 jobs annually. In contrast, the mining sector was the only one to lose jobs, shedding an average of 12 jobs per year.

According to Wesgro (2024), in 2023, the unemployment rate in the district was estimated at 14.49%, significantly lower than the provincial rate of 21.77%. During the same year, there were 182,266 employed residents, 30,884 unemployed residents, and 139,899 residents who were not economically active.

7.13.2.1 Local Municipality Socio-economic Profile

The Saldanha Bay Municipality (SBM) is located on the West Coast of South Africa, about 140 kilometers north of Cape Town. It is part of the WCDM in the Western Cape Province and borders the Bergrivier Municipality to the north and the Swartland Municipality to the east and south ((SBM: Annual Report, 2020-2021), as cited in (BGES, 2025)).

SBM is classified as a Category B municipality, meaning it exercises plenary executive authority within its jurisdiction. The municipal administrative seat is located in Vredenburg. The SBM covers an area of 2 015 km² (approximately 166 565,48 hectares) and has a coastline of 238km. In total 6.5% of the

geographical land are urban land and 93.5% rural land. Overall SBM constitutes 6.4% of the entire West Coast geographical land making it the smallest municipal area in the district.

In terms of the geographical context of the project area, the application area is located in Hopefield, which falls under Ward 7 of the SBM.

Hopefield is situated at the intersection of roads leading to Vredenburg, Veldrif, and Malmesbury, where the R45 crosses the Sout River. Initially, it served as an agricultural service center on the western edge of the Swartland wheat-growing region, with nearby grain silos located at Koperfontein. Over time, the settlement has evolved into an agri-village, primarily serving as a home for farmworkers from the surrounding areas. Its agricultural significance has led to its designation as a hub for the West Coast District Municipality's Farmer Support Programme. Hopefield is located 37 km from Vredenburg, 33 km from Moorreesburg, 60 km from Malmesbury, and 110 km from Cape Town ((SBM, SDF, 2017), as cited in (BGES, 2025)).

7.13.2.2 Land Use

Land use within the SBM is diverse and influenced by its strategic coastal location, natural assets, and industrial infrastructure. The area hosts a major deep-water port and the Saldanha Bay Industrial Development Zone (SBIDZ), a designated Special Economic Zone (SEZ) that supports activities such as steel production, logistics, and maritime services. Residential and urban development is concentrated around key towns including Saldanha, Vredenburg, and Langebaan, where population growth has increased demand for housing, services, and infrastructure ((SBM, 2023), as cited in (BGES, 2025)).

The following section provides an overview of the socio-economic profile for SBM. Data specific to Ward 7 within Hopefield will be included in the report once interviews and consultations with the relevant stakeholders are concluded.

7.13.2.3 SBM Population Dynamics

The total population of SBM is 154,635, with 99,193 of these individuals residing in the more urbanized areas of the municipality. This reflects a growing population, with both urban and rural areas experiencing development and changes in socio-economic dynamics. The Western Cape Treasury: MERO, 2023 reveals that there is a significant 2.8% increase in the 65+ age group from 2022 to 2027. This growth could reflect improvements in life expectancy or a greater appeal of the Saldanha Bay area as a retirement destination. At the same time, a steady rise in the working-age population is expected, which will likely lead to a reduction in the overall dependency ratio by 2027.

The observed growth in the elderly population emphasizes the need for specialized services and infrastructure to support this group, especially in areas such as healthcare and retirement facilities.

According to Census (2022) the dependency ratio in SBM is 44.3. This ratio represents the number of dependents (young children and elderly) for every 100 working-age individuals. A dependency ratio of around 44.3 suggests that there is a moderate level of pressure on the working-age population to support the dependents. This emphasizes the need for policies that support family welfare, education, and elderly care while also promoting employment and economic opportunities to ensure the working population can effectively support these groups.

The SBM IDP (2022-2027) indicates that as of 2022, there are more females than males within SBM with a ratio of 50.6% (females) to 49.4% (males). This indicates a relatively balanced gender distribution, though there are slightly more females in the total population.

The racial composition of the SBM in 2022 reveals a diverse demographic landscape. The largest segment comprises the Coloured population, representing 51%. The Black African demographic follows at 30% and the White community constitutes 16.5% ((Western Cape Treasury: MERO, 2024), as cited in (BGES, 2025)).

The SBM IDP, (2022-2027) highlights that incomes in the SBM are 8% higher than the national average. Furthermore, the income levels in SBM are significantly higher than those in the district, being 20% above the district average. This wage disparity is likely a key factor in attracting job seekers to the area, drawn by the relatively higher earning potential.

According to the Western Cape Treasury: MERO, (2022), it was estimated that the total number of employed individuals in Saldanha Bay will reach 46,868 in 2021. Of these, 38,657 (82.5%) are employed in the formal sector, while 8,211 (17.5%) are employed in the informal sector.

7.14 AESTHETICS

The dominant significance of the environment surrounding the town of Hopefield can be summarized as follows:

- Environment south of Hopefield town: Predominantly nature conservation areas
- Environment north and east of Hopefield town: Rural Karoo landscape, which is being transformed by renewable energy infrastructure.

The project area in relation to the surrounding environment is illustrated below.

The project area itself as well as the surrounding area has a flat topography. Although the planned infrastructure has high elevated components of up to 30meters, the flat topography, as well as tall trees, might obscure some or most of the infrastructure.

An initial viewshed analysis was done for Phase 1 on a distance of 5km. It was expected that the potential visual exposure of the proposed project infrastructure should not be significantly noticeable beyond a distance of 5km due to the flat topography and high vegetation. The topography can be reviewed under the figure below.

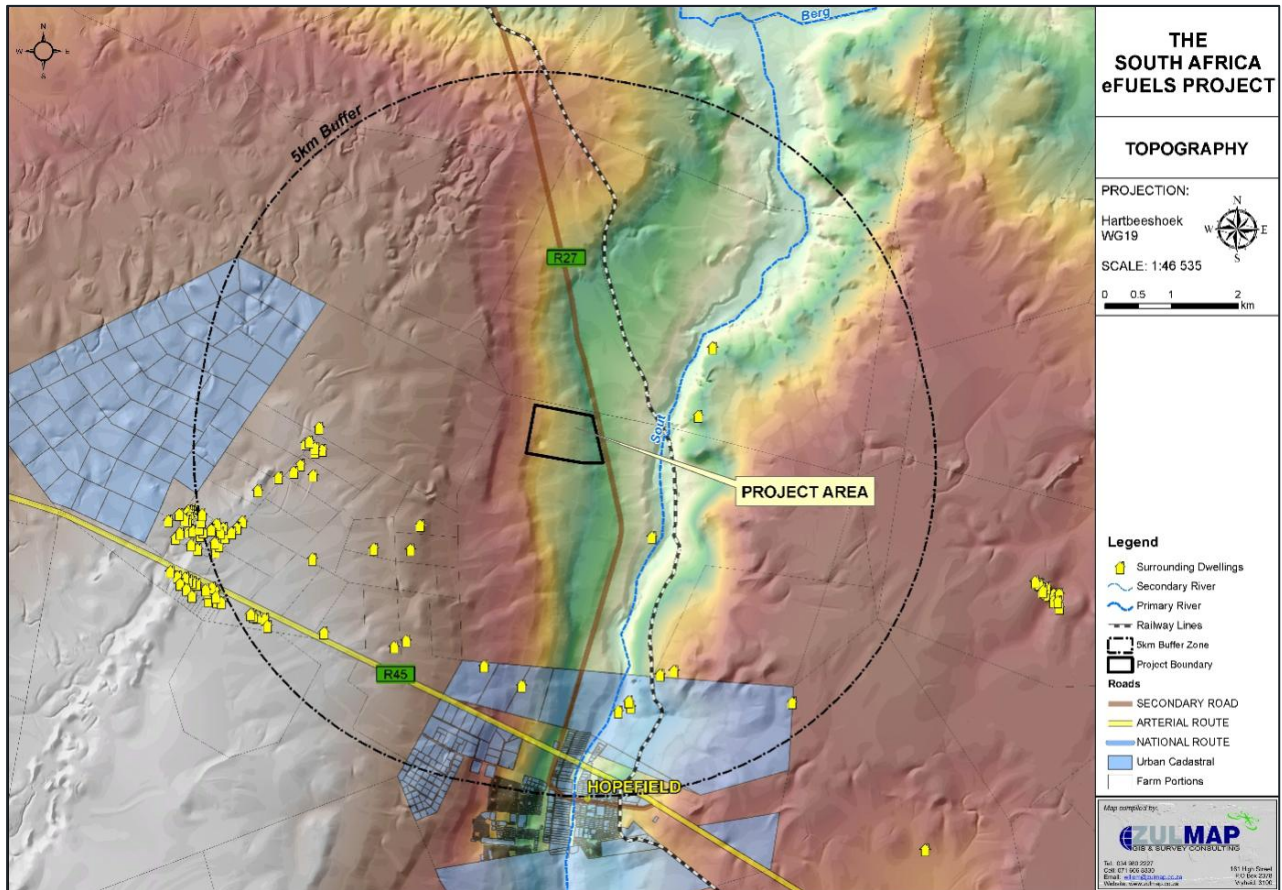


Figure 7-23 – Topography surrounding the project area (Ilungelo Lami , 2025)

Elevated views of the project area were generated in Google Earth and can be reviewed under **Figure 7-24** and **Figure 7-25**.



Figure 7-24 – Elevated View 1 (Ilungelo Lami , 2025)

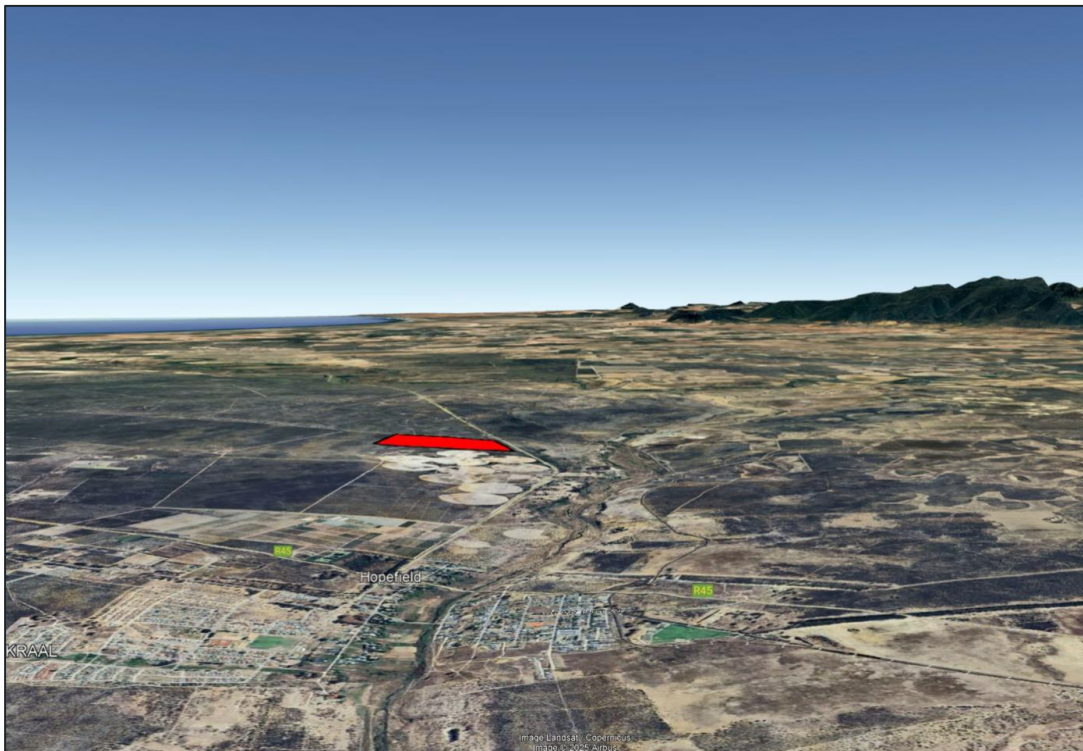


Figure 7-25 – Elevated View 2 (Ilungelo Lami , 2025)

An initial computerized viewshed analysis was done, which indicates anticipated visibility areas from potential observation points. The viewshed analysis can be reviewed in **Figure 7-26**.

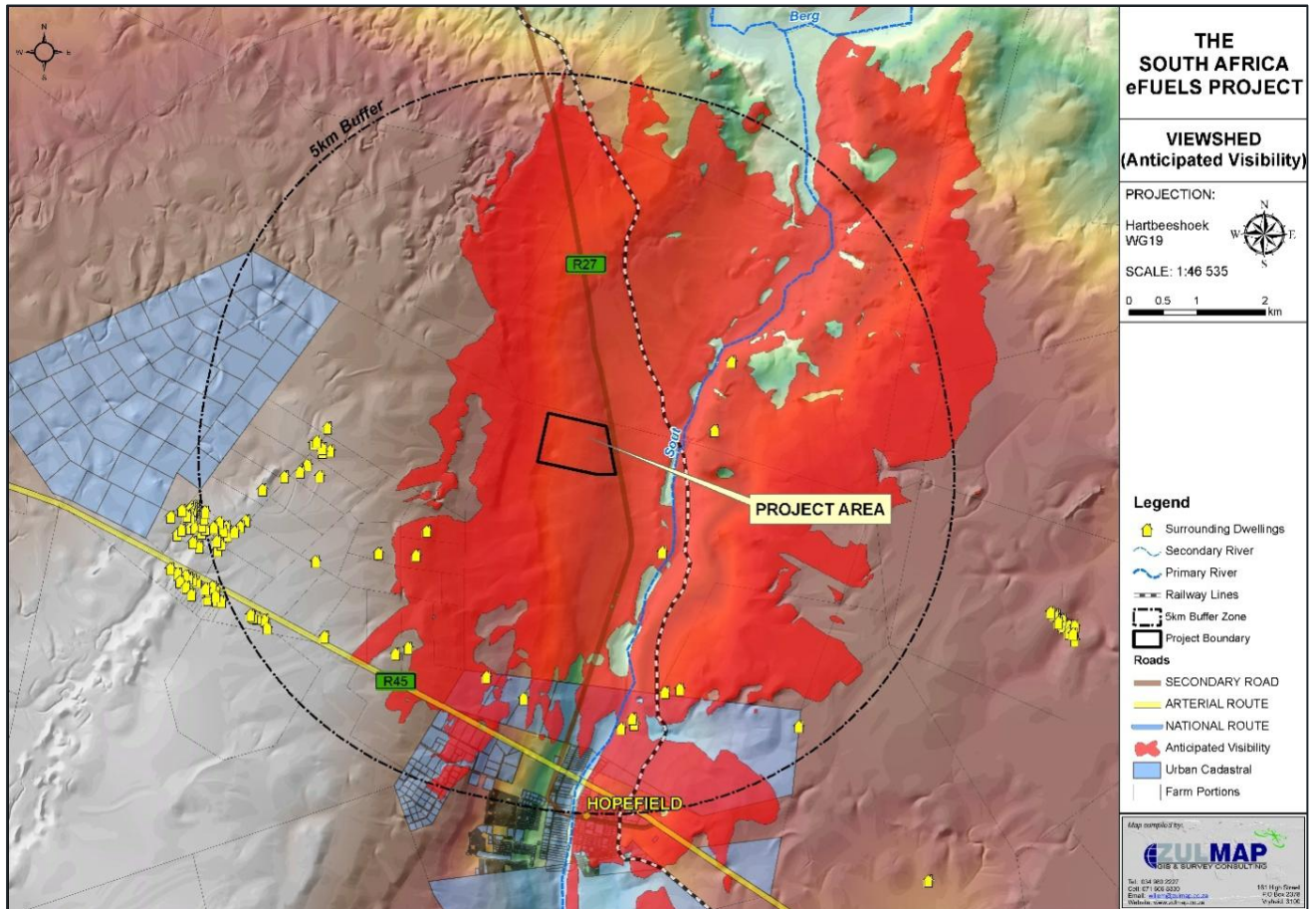


Figure 7-26 – Viewshed Analysis (Ilungelo Lami, 2025)

7.15 HERITAGE

7.15.1 BACKGROUND

One of the first areas of South Africa to be colonized by European farmers under the Dutch East India Company (VOC) in the 18th century is the Swartland District, where Portuguese Fontyn 167 is located. The history of the region is strongly linked to colonial expansion, the displacement of native Khoekhoe pastoralists, and the development of Cape frontier agriculture. The term "Fontyn," which translates as "fountain" or "spring" in Dutch and Afrikaans, describes the existence of a dependable natural water source, which was a major draw for early settlers and influenced the area's agricultural heritage.

Khoekhoe pastoral communities, such as the Cochoqua, Goringhaiqua, and Chainoqua peoples, lived and travelled through the Swartland plains and valleys before colonial settlement. These settlements used seasonal grazing routes between the Cape Peninsula, West Coast, and Berg River to herd sheep and cattle. They occupied the inland fynbos zone for a long time, as evidenced by pottery, stone artifacts, kraal ruins, and rock shelters. Early European explorers like Simon van der Stel (1680s) documented grazing herds and Khoekhoe communities over the Swartland.

In the early 1700s, the Dutch East India Company (VOC) formally allowed freehold farming in the Swartland.

Loan farms, or "leningsplase," were given to settlers so they could grow wheat and graze cattle, creating the central region that came to be known as the "breadbasket of the Cape." A number of early land grants connected to the Fontyn, Doornkloof, and Zandvliet farm clusters north of the Berg River included the territory that would eventually become Fontyn 167.

7.15.2 SITE INVESTIGATIONS

The study area was surveyed on 19 January 2025 using standard archaeological surveying methods. The Portugeese Fonty is located between a number of farms namely, the Hartebeesfontein, Hopefield Windfarm, Onder Waterpestraal, Driekuilen game farm and the town of Hopefield to the south. The Sout Rivier and railway line cuts through the farm from the West. The proposed development site is located along the Oaks Street on the left side from the town of Hopefield. The site is located on the Northwest end of the farm towards the signage that points to Celendonia.

Four old buildings exist within the broader Portugeesche Fontyn 167 farm. The single storey buildings embody a blend of architectural styles but are do not form or constitute part of the proposed Hopefield Green Hydrogen and eSAF processing facility and associated infrastructure or its immediate environment.

7.16 PALAEOLOGY

The project footprint is on the Moorsresberg Formation of the Malmesbury Group which is Neoproterozoic aged low grade metamorphosed volcanic sediments (Gresse et al., 2006), and on the sands and sandy loam of the Springfontein Formation of the Sandveld Group. The latter is composed of aeolian sands of Middle Pleistocene to Holocene age ((Roberts et al., 2006), as cited in (Bamford, 2024)). The Moorsresberg Formation is volcanic in origin and so has no chance of preserving fossils while the Springfontein Formation is composed of sands. Sands do not preserve fossils, especially aeolian sands.

The site is considered to be of low significance for palaeo-sensitivity. Along the stream the fluvial sands might have transported fossils, but the watercourses are exempt from any development.

7.17 ACCESS AND TRAFFIC

The proposed Hopefield Green Hydrogen and eSAF Processing Facility will be located to the north-west of Hopefield in the Western Cape. There are two options for the haulage of imported materials to the proposed Hopefield Green Hydrogen and eSAF Processing Facility as shown in the figures below. The preferred option will be the route from the Port of Saldanha as shown in **Figure 7-27** **Figure 7-26**. The route is approximately 50km and follows the R399 from the Port and then turns east onto the R45 to Hopefield. From Hopefield the subject property can be accessed by MR234.



Figure 7-27 – Preferred Route (Sturgeon Consulting, 2025)

The first alternative option will be the route from the Port of Cape Town as shown in **Figure 7-28** by the blue line. This route is approximately 126km and follows the N1 from the Cape Town Harbour towards Milnerton and turns north onto the N7 to Malmesbury and then turns west onto the R45 towards Hopefield. From Hopefield the subject property can be accessed by MR234.



Figure 7-28 – Proposed Route: Alternative 1 (Sturgeon Consulting, 2025)

It should be noted that the route alternatives identified may traverse various constraints, including intersections, bridges (over- and underpasses), railway crossings, and mountain passes. Ensuring

that abnormal load vehicles can move safely and without obstruction along these routes will therefore be critical. However, given the presence of existing solar facilities in the broader area—which demonstrates that similar abnormal load movements have been accommodated previously—it is anticipated that the proposed routes will be feasible, subject to detailed assessment.

The main roads in the vicinity of the Hopefield Green Hydrogen and eSAF Processing Facility is shown in **Table 7-10** and **Figure 7-29**. **Table 7-10** also provides details with regards to the controlling and maintaining road authority, width of the road and whether the road is a gravel or surfaced (tarred) road.

Table 7-10 - Main Roads in the Vicinity of the Site

Road Name	Road Authority	Road Width	Gravel / Surfaced
Trunk Road 21/1 (TR2101) (R45)	Western Cape Provincial Government	±11.7m blacktop and ±2.2m and more gravel shoulders along both sides of the road	Surfaced
Trunk Road 21/2 (TR2102) (R45)	Western Cape Provincial Government	±11.7m blacktop and ±2.2m and more gravel shoulders along both sides of the road	Surfaced
Main Road 234 (MR234)	Western Cape Provincial Government	Between ±8.6m and ±9.0m	Surfaced

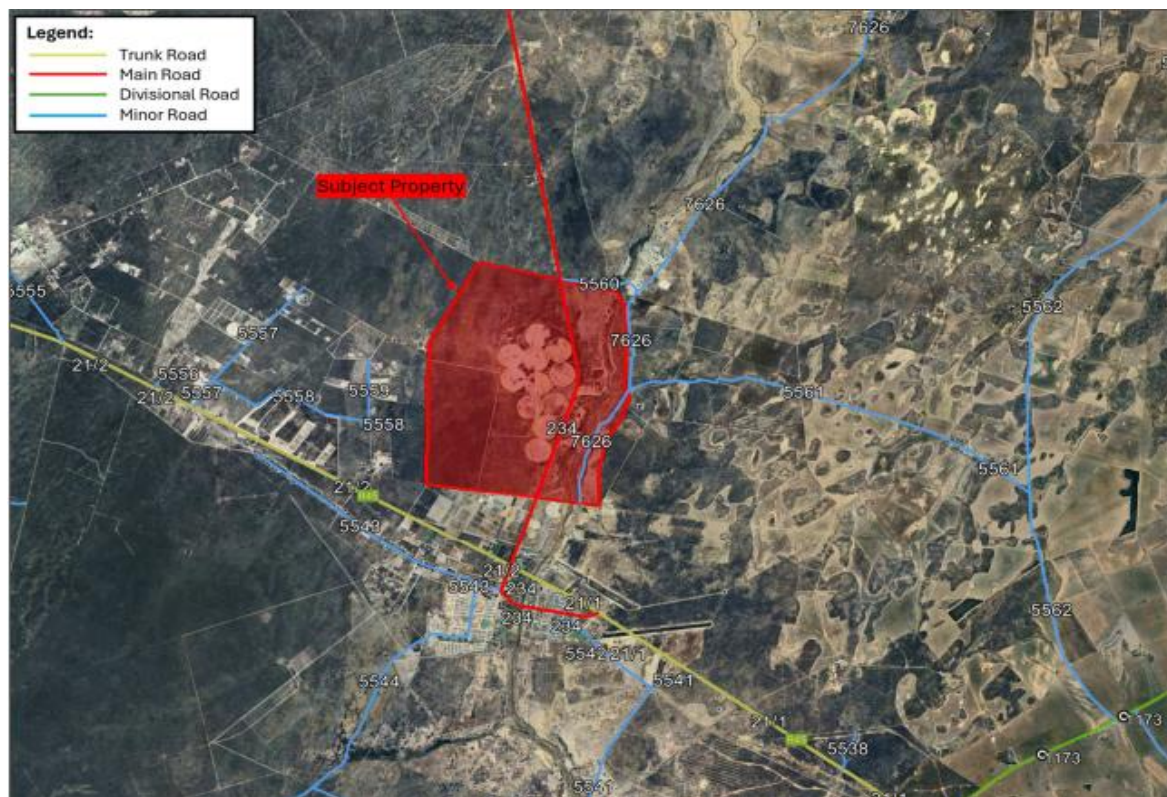


Figure 7-29 – Main Roads in the Vicinity of the Site (Sturgeon Consulting, 2025)

As indicated in the previous paragraph, from the R45 (Trunk Road 21/2) MR234 (Main Road 234) can provide access to the site. No other provincial roads can provide access to the site.

7.17.1 TRIP GENERATION RATES

The trip generation rates discussed below relates to the anticipated trip generation rates associated with a Green Hydrogen facility that generates up to 80 000 tons of green hydrogen a year.

7.17.1.1 Construction Phase

The construction phase for the proposed facility is expected to extend over a period of approximately 5 years, due to the scale and complexity of the required process infrastructure. This includes the installation of the electrolysis plant, demineralisation and water treatment systems, hydrogen and CO₂ storage areas and carbon capture units, Fischer–Tropsch synthesis and Unicracking facilities, as well as associated plant buildings, internal roads and utilities.

The following assumptions were made in relation to the number of truck trips (one-way) expected:

- Demineralisation and Water Treatment = 2 000 truck trips
- Electrolysers = 6 000 truck trips
- Hydrogen Storage = 1 500 truck trips
- CO₂ Compression and Storage Systems = 3 000 truck trips
- FT Synthesis Equipment = 8 000 truck trips
- FT Unicracking Units = 5 000 truck trips
- eSAF Storage and Truck Loading Facilities = 3 000 truck trips
- General Materials = 6 000 truck trips

This results in a total of approximately 44 500 one-way truck trips associated with the delivery of major components and construction materials over the 5-year construction period. Assuming a 7-day work week, the five-year construction period equates to approximately 1 820 workdays ($5 \times 52 \times 7 = 1\,820$ workdays). This results in an estimated 24 daily truck trips (one-way).

Furthermore, it is expected that approximately 400 workers will be transported to the site daily during the peak construction period. It is assumed that 50% of the workers will be transported to/from the site by 15-seater minibus taxis and 40% of the workers will be transported to/from the site by 64-seater buses from the surrounding areas resulting in approximately 13 daily staff minibus taxi trips (one-way) and 3 daily bus trips (one-way). Experience has shown that approximately 10% of workers, including supervisors and senior personnel, will use private vehicles. Resulting in approximately 27 daily private vehicle trips (one-way) are also expected. Therefore, a total of 43 daily staff trips (one-way) are expected.

Based on the above, a total of 67 one-way trips per day, i.e. 134 trips in total per day (two-way) are expected during the 5-year period construction phase. Only 20% of the daily trips are expected to occur during the peak hours. Therefore, a total of 13 one-way trips per day, i.e. 27 trips in total per day (two-way) are expected during peak hours.

7.17.1.2 Operational Phase

It is expected that the Operational Phase will take place during the life span of the project (approximately 25 years). During this period, vehicle movements will primarily be associated with the transportation of eSAF product, as well as staff commuting to and from the facility.

Production is expected to occur continuously over the life span of the facility, with operations taking place 365 days per year. The facility is anticipated to produce approximately 140 000 tonnes of eSAF per year. Assuming 34 tons to be transported per truck, a total of 4 118 truck trips per year will be required for the transportation of eSAF. This equates to an average of 11 daily truck trips (one-way).

Approximately 500 staff members will be employed during the operational phase, split evenly between day shift (50%) and night shift (50%). It is assumed that 50% of the workers will be transported to/from the site by 15-seater minibus taxis and 40% of the workers will be transported to/from the site by 64-seater buses from the surrounding areas resulting in approximately 8 daily staff minibus taxi trips (one-way) and 2 daily bus trips (one-way). Experience has shown that approximately 10% of workers, including supervisors and senior personnel, will use private vehicles. Resulting in approximately 17 daily private vehicle trips (one-way) also expected. Therefore, a total of 27 daily staff trips (one-way) are expected.

Based on the above, a total of 38 one-way trips per day, i.e. 76 trips in total per day (two-way) are expected during the operational phase. Only 20% of the daily trips are expected to occur during the peak hours. Therefore, a total of 8 one-way trips per day, i.e. 15 trips in total per day (two-way) are expected during peak hours.

7.17.1.3 Decommissioning Phase

The Decommissioning Phase will generate similar trips as the Construction Phase over a similar time period of 5 years. This includes 24 daily truck trips (one-way) for the transportation of construction materials and 43 daily staff trips (one-way).

Based on the above, a total of 67 one-way trips per day, i.e. 134 trips in total per day (two-way) are expected during the 5-year period decommissioning phase. Only 20% of the daily trips are expected to occur during the peak hours. Therefore, a total of 13 one-way trips per day, i.e. 27 trips in total per day (two-way) are expected during peak hours.

8 IDENTIFICATION OF POTENTIAL IMPACTS

The scoping phase of an S&EIR process is aimed to identify those potential impacts that are most likely to be significant and which need to be assessed as part of the S&EIR process. The determination of anticipated impacts associated with the proposed development is a key component to the S&EIR process. This Chapter identifies the perceived environmental and social effects associated with the proposed project. The assessment methodology is indicated in **Section 6**.

The issues identified stem from those aspects presented in **Section 7** of this document as well as project description provided. Each significant issue identified is to be investigated further during the S&EIR process. Non-significant issues will be scoped out of the study with reasonable consideration given within this DSR.

8.1 CLIMATE

8.1.1 GREEN HOUSE GAS EMISSIONS

During the construction phase, GHG emissions is expected from mobile and stationary combustion equipment. However, potential emissions from such equipment in the operational phase is unlikely to be a material source of GHG emissions. Similarly, GHG emissions from purchased energy (Scope 2) is also not potentially significant as the Project would be purchasing renewable energy.

Construction Impacts	Phase	Mobile and stationary combustion. Land use change
Operational Impacts	Phase	Mobile combustion
Mitigation Considerations		■ If diesel generators are used during construction, these must be sized appropriately so that they run at their optimal workload (e.g., 70% to 100% of total load rating). The sizing of diesel generators should be based on the typical load. ■ Diesel generators must be regularly maintained in accordance with the manufacturers service schedule. ■ Construction materials should be sourced as close to the work front as possible to reduce transport distances and GHG emissions. ■ For the transport of materials and equipment, the vehicle load should be maximised to increase fuel efficiency and reduce emissions. Truck drivers should receive training on good driving practices to improve fuel economy and reduce GHG emissions. ■ As part of the detailed design, a study should be undertaken to identify the best practicable environmental options for reducing hydrogen emissions from the hydrogen production process. This may include for example: • Monitoring programme to identify the materials sources of hydrogen emissions and more accurately quantify the hydrogen emissions from the production process. ■ Technologies (e.g., oxidation catalyst) for recombining the hydrogen purged during the purification phase and hydrogen vented during

		operation into water. Use of hydrogen from purging during the purification process for process heat.
Recommended Phase Studies	EIA	Climate Change Impact Assessment (CCIA)

8.1.2 OPPORTUNITIES ARISING FROM THE UPTAKE OF LOWER CARBON FUELS AND OPPORTUNITIES ARISING FROM NEW MARKETS

The purpose of the HSRM and Green Hydrogen Commercialisation Strategy (GHCS) is to develop South Africa's green hydrogen sector to leverage the country's significant natural renewable resources, build a viable green-hydrogen export market, and facilitate a just energy transition.

Construction Impacts	Phase	N/A
Operational Impacts	Phase	With the development of a new, sustainable green hydrogen industry for South Africa, opportunities arise for projects, such as the current Project, producing SAF to meet the uptake of low emission alternative energy sources. In addition, opportunities arise for new markets, both locally and internationally, for the production and deployment of green hydrogen.
Mitigation Considerations		■ N/A. This is a positive impact therefore no mitigation is required.
Recommended Phase Studies	EIA	N/A

8.2 GEOLOGY

The impact of the proposed project on the geological and geotechnical environment will primarily relate to the effects of construction activities on the underlying soils and rock units. These impacts will result from topsoil stripping, foundation excavations (where required), trenching, and the construction of access tracks and associated infrastructure. Bulk earthworks, particularly in areas of steeper topography, may have a significant influence on the soils and rocks within the construction footprint. In such areas, substantial quantities of rock may need to be removed for the creation of platforms and access routes.

A key concern regarding geotechnical-related environmental impacts is the displacement of geological materials, such as increased soil erosion caused by vegetation removal during the construction phase. Vegetation loss reduces infiltration and increases surface runoff, thereby enhancing erosion potential. In addition, soil compaction during earthworks further decreases infiltration, leading to greater runoff and erosion. The development of hard or paved surfaces can also concentrate stormwater discharge, resulting in localized erosion and loss of topsoil. Such disturbances may extend beyond the immediate footprint of the structures, especially if these conditions persist for extended periods (e.g., more than ten years).

Another potential risk is soil contamination from construction activities. Poorly maintained equipment or accidental fuel and oil spills during refuelling can lead to localized contamination of soils and subsurface materials during both construction and decommissioning phases.

During the operational phase, the main risks include continued erosion and potential contamination of geological materials. These impacts can be mitigated through appropriate drainage design and the implementation of effective management measures.

Construction Impacts	Phase	Displacement of Geologic Materials Contamination of the Subsurface and Loss of Topsoil
Operational Impacts	Phase	Increased Water Runoff and Erosion Contamination of the Subsurface and Loss of Topsoil
Mitigation Considerations		■ All road cuttings must be designed by an appropriately qualified professional to ensure slope stability and to minimise unnecessary disturbance of geological materials. ■ Drainage systems must be properly designed and managed to prevent erosion and undermining of road or structure foundations. ■ The geotechnical suitability of each structure must be confirmed prior to construction to ensure adequate bearing capacity beneath each footing. ■ Only vegetation necessary for the immediate next phase of construction should be cleared to limit exposure of bare soil. ■ Install temporary drainage systems where required to divert stormwater away from active construction areas. ■ Develop a detailed Stormwater Management Plan (SMP) during the preconstruction phase. ■ Implement suitable stormwater management systems along roads and other disturbed areas and monitor their effectiveness during the first few months of use. ■ Sloped areas must be stabilised using structures or vegetation as specified in the approved design. Contract design specifications must be strictly adhered to during implementation. ■ Appropriate measures must be implemented during construction and operation to prevent pollution or contamination of the surrounding environment, particularly riparian areas. This includes ensuring that all construction equipment and vehicles are well maintained to prevent fuel, oil, or hydraulic fluid leaks. ■ Refuelling activities must take place at designated refuelling or storage areas protected by an impermeable groundcover to prevent infiltration of hydrocarbons into the soil. ■ Prior to construction, topsoil (typically the upper 150–300 mm, depending on site conditions) must be stripped and stored separately from subsoil and spoil materials to preserve its fertility and structure. ■ A Stormwater Management Plan (SMP) must guide all drainage and erosion control measures during the operational phase.
Recommended Phase Studies	EIA	Geotechnical Investigation

8.3 AGRICULTURE

An agricultural impact is a change to the future agricultural production potential of land. In most developments, including the one being assessed here, this is primarily caused by the exclusion of agriculture from the footprint of the development. Soil erosion and degradation may also contribute to loss of agricultural production potential. The significance of an agricultural impact is a direct function of the following three factors:

- the size of the footprint of land from which agriculture will be excluded (or the footprint that will have its potential decreased)
- the baseline production potential (particularly cropping potential) of that land
- the length of time for which agriculture will be excluded (or for which potential will be decreased).

The most significant loss of agricultural land possible, for any development anywhere in the country, is of high yielding cropland, and the least significant possible, is of low carrying capacity grazing land.

Cropping potential is highlighted in factor 2, above, because the threshold, above which it is a priority to conserve land for agricultural production, is determined by the scarcity of arable crop production land in South Africa (approximately only 13% of the country's surface area) and the relative abundance of the rest of agricultural land across the country that is only good enough to be used for grazing. If land can support viable and sustainable crop production, then it is considered to be above the threshold and is a priority for being conserved as agricultural production land. If land is unable to support viable and sustainable crop production, then it is considered to be below the threshold and of much lower priority for being conserved.

In this case, the entire proposed footprint is considered to be below the threshold for needing to be conserved as agricultural production land because of the limitations that make it unsuitable as viable cropland. The use of this land for non-agricultural purposes will cause minimal loss of agricultural production potential in terms of national food security.

Due to the fact that the development will not occupy scarce, viable cropland, the overall negative agricultural impact of the development (loss of future agricultural production potential) is assessed here as being of low significance and as acceptable.

Construction Impacts	Phase	Change to the future agricultural production potential of land
Operational Impacts	Phase	Change to the future agricultural production potential of land
Mitigation Considerations		■ The most important and effective mitigation of agricultural impacts for any development is avoidance of viable croplands. This development has already applied this mitigation by deliberately locating the facility where it avoids all viable croplands in the area. ■ No other mitigation measures are required for the protection of agricultural production potential on the site although erosion risk should always be managed by standard erosion control measures where necessary.
Recommended Phase Studies	EIA	Agricultural Compliance Statement

8.4 SURFACE WATER

Based on the proposed location of the processing activity, the project may have negative impacts, albeit to a lesser extent, on the wetland associated with the Sout River, as well as other wetlands on and near the project site. These impacts include but not limited to alteration of surface and subsurface flows, increase in pollutants and potentially sedimentation. For example, waste from blasting or excavations activities and use of hazardous chemicals could result in these substances entering and polluting wetland habitat, either directly through surface runoff during rainfall events, or via subsurface water movement. An increase in pollutants will lead to changes in the water quality of the wetland and affecting its ability to harbour aquatic biota.

Construction Impacts	Phase	Clearance of vegetation, alteration of surface and subsurface flows, increase in pollutants and potentially sedimentation.
Operational Impacts	Phase	An increase in pollutants will lead to changes in the water quality of the wetland and affecting its ability to harbour aquatic biota.
Mitigation Considerations		■ Unauthorised access of vehicles through the any identified watercourses is strictly prohibited as it may result in adverse impacts on the hydrology and soil structure of these areas. ■ All activities must be conducted outside the recommended buffer width for the wetland. ■ The recommended buffer width, which aims to protect areas of ecological importance and high sensitivity, must be considered as no-go areas and accordingly incorporated into the final design layout of the project. ■ Emergence contingency plans must be readily available on site and training of contractors and employees must be carried out regularly on how to manage spills, leaks and other impacts to the aquatic systems. ■ All soil and stockpiles must be placed outside the wetland habitat. ■ Any soil contaminated by hydrocarbons (fuel and oils) must be removed and the affected area rehabilitated immediately.
Recommended Phase Studies	EIA	Wetland Assessment Surface Water Impact Assessment

8.5 HYDROGEOLOGY

The site is located on a highly permeable intergranular aquifer which has a “high” vulnerability classification, indicating that the aquifer has high susceptibility to contamination from anthropogenic activities. As a result, the following impact assessment pertains to the primary unconsolidated aquifer:

- The risk of groundwater depletion due to over-abstraction.
- The risk of groundwater quality deterioration from contaminated stormwater or chemical leakage infiltrating the permeable shallow aquifer.
- The risk of contaminated groundwater moving downgradient to nearby users and sensitive surface-water receptors.

Construction Impacts	Phase	Risk of groundwater depletion as a result of construction-phase abstraction and/or operational abstraction for process water (noting the plant's interest in using groundwater, potentially up to $\pm 175\,000\text{ m}^3/\text{a}$, consistent with the existing lawful use registered for Farm 167). Risk of groundwater quality deterioration resulting from contaminated stormwater, chemical spills, SAF leaks, fuels, catalysts, or other process-related chemicals infiltrating the highly permeable shallow aquifer. Risk of contaminated groundwater percolating from the shallow intergranular aquifer into the deeper fractured aquifer (Moorreesburg Formation) and migrating downgradient towards sensitive receptors (downstream groundwater users, the Sout River via baseflow, and ultimately the Langebaan Lagoon).
Operational Impacts	Phase	
Mitigation Considerations		■ Ensure compliance with the authorised allocation ($175\,000\text{ m}^3/\text{a ELU}$) unless an increased allocation is formally licensed by DWS. ■ Implement an operational abstraction monitoring programme (monthly meter readings, cumulative totals). ■ Where possible, incorporate water-use efficiency and recycling within plant operations to minimise groundwater demand. ■ Enclose process units and chemical-handling areas to prevent direct exposure to rainfall. ■ Construct all operational and storage areas on impermeable hardstanding. ■ Provide bunded containment for all hazardous chemical storage, sized to $\geq 110\%$ of the maximum storage volume. ■ Implement a dedicated stormwater management system that separates clean and potentially contaminated flows, directing the latter to treatment or reuse. ■ Install spill-response equipment and implement rapid containment procedures. ■ Ensure regular maintenance and inspection of bunds, slabs, drainage infrastructure and separators. ■ Prohibit discharge of contaminated stormwater to the natural environment. ■ Avoid deep infiltration structures (e.g. soakaways, injection points) within the plant footprint. ■ Maintain separation between contaminated stormwater systems and any subsurface drainage or recharge structures. ■ Implement conservative design for slab and bund construction to minimise cracking and leakage (quality control during construction).
Recommended Phase Studies	EIA	Desktop Geohydrological Assessment

8.6 TERRESTRIAL BIODIVERSITY AND AVIFAUNA

The development of the Proposed Hopefield Green Hydrogen and eSAF facility is anticipated to pose a number of potential negative impacts such as, land use changes, habitat degradation and/or fragmentation, loss of faunal and avifaunal habitats and mortality of fauna or avifauna within the study site. The construction and operation of electrolysis plants and associated energy systems may have localized environmental impacts, including habitat disruption and emissions from construction activities.

Impacts on faunal habitat particularly relate to the complete removal or partial destruction/disturbance of existing vegetation by machinery and workers, impacting directly on the ecological condition of natural vegetation and habitat availability. These activities will have an impact on foraging, breeding and roosting ecology of faunal species. Loss of vegetation generally affects nutrient cycles, removes the organic litter layer and results in habitat fragmentation and destruction of wildlife corridors.

It is not envisaged that any Red Data faunal species will be displaced by the habitat transformation that will take place as a result of proposed activity, considering that the corridor associated with the development is characterised by the presence of:

Existing renewables projects (i.e. wind turbines within the neighbouring property that is west of Farm Theewatervlei 315).

- Disturbance by agricultural activities.
- Spread of alien vegetation.
- Poor veld management and grazing pressure.
- Major road networks (R45)

The impact on smaller, non-Red Data species that are potentially breeding in the area, such as any Cape Dune Mole Rat and Pole Cat, will be local in extent, in that it will not have a significant effect on regional or national populations.

Construction Impacts	Phase	■ Loss of habitat and red data species ■ Spread of alien vegetation ■ Displacement of bird species due to habitat transformation ■ Mortality of priority bird species due to collision with facility infrastructure
Operational Impacts	Phase	
Mitigation Considerations		■ All construction activities must be carried out according to the generally accepted environmental best practice and the temporal and spatial footprint of the power plant must be kept to a minimum. In particular, care must be taken in the vicinity of the sandy fynbos vegetation community and existing roads must be used for access. ■ Create buffer zones around production facilities to protect sensitive habitats. ■ All 'High' ecological habitats (Hopefield Sandy Fynbos) and associated buffer zones are to be avoided as far as possible. Offset mitigation may be required for high impact activities within these areas. ■ The boundaries of the construction activity, including stockpiling areas, are to be clearly demarcated and it must be ensured that all activities remain within the demarcated footprint area. No activities are to infringe outside the designated construction footprint. ■ Compile and implement a rehabilitation plan from the onset of the project. ■ Rehabilitate areas as soon as they are no longer impacted by construction.

		■ The rehabilitated areas must be revegetated with indigenous vegetation. Progressive rehabilitation will enable topsoil to be returned more rapidly, thus ensuring more recruitment from the existing seedbank. Surplus rehabilitation material can be applied to other areas in need of stabilisation and vegetation cover. ■ In accordance with the requirements of the National Environmental Management: Biodiversity Act (10/2004): Alien and Invasive Species Regulations, the Applicant/Contractor must ensure Alien invasive species and noxious weeds are effectively controlled by implementing a site specific Alien Invasive Eradication Programme. ■ Any bird nests that are found during the construction period must be reported to the Environmental Control Officer (ECO). ■ A 200m facility free buffer zone must be implemented around dams, wetlands, and drainage lines. ■ All internal medium voltage lines must be marked with Eskom approved Bird Flight Diverters according to the latest official Eskom Engineering Instruction. ■ No trapping or hunting of fauna and avifauna is to take place. Access control must be implemented to ensure that no illegal trapping or poaching takes place. ■ Any fauna threatened by the construction activities should be removed safely by an appropriately qualified environmental officer or removal specialist. ■
Recommended Phase Studies	EIA	Biodiversity Assessment

8.7 SOCIO-ECONOMIC

The Social Impact Assessment is designed to ensure that the project's potential impacts on individuals and groups of people are understood, so that positive impacts can be enhanced by project design while negative ones are mitigated.

The proposed development in near Hopefield is expected to serve as a catalyst for creating employment opportunities, enhancing skills development, and promoting inclusive economic participation. This aligns with the objectives outlined in recent green hydrogen strategies, which emphasize the sector's potential to drive socio-economic transformation through targeted local benefits and capacity building.

Construction Impacts	Phase	■ Creation of employment opportunities ■ Development Skills and Capacity Building ■ Economic Growth and Infrastructure Development ■ Influx of Job Seekers and Construction Workers
Operational Impacts	Phase	■ Improved Local Water Management ■ Creation of employment opportunities ■ Development Skills and Capacity Building ■ Economic Growth and Infrastructure Development ■ Increased risk to Health and Public Safety ■ Nuisance Impacts
Mitigation/enhancement		■ Formulate a local labour procurement policy that prioritises the employment of workers from Hopefield and neighbouring communities.

Considerations	■ Establish partnerships with provincial training institutions such as Stellenbosch University's Hydrogen Engineering Research Platform and the University of the Western Cape's green hydrogen programme to develop pipelines of skilled professionals, supported by TVET colleges and regional training centres focusing on solar energy competencies. ■ Integrate on-the-job training by requiring EPC (Engineering, Procurement, and Construction) contractors to embed structured skills transfer initiatives and mentorship programmes throughout the implementation phase of the project. ■ Ensure the inclusion of local small- and medium-sized enterprises (SMEs) in procurement and service contracts during both construction and operation phases. ■ Implement enterprise development initiatives, including business incubation and targeted support programmes, to assist local enterprises in meeting procurement standards and capitalizing on economic opportunities arising from the renewable energy sector. ■ Align project development with the Saldanha Bay Industrial Development Zone (SBIDZ), Municipal Integrated Development Plan (IDP), and the Hydrogen Society Roadmap to ensure coordinated regional economic development. ■ Establish formal, long-term supply agreements with the local municipality to guarantee the sustainable and equitable utilization of treated wastewater. ■ Implement monitoring and management protocols to ensure water reuse does not pose environmental or public health risks. ■ Communicate to stakeholders the expected labour profile (local vs. external) to stakeholders. ■ Prioritize employment of local residents where feasible to reduce in-migration and promote community support. ■ Develop a formal Worker Accommodation Strategy in collaboration with the municipality, ensuring transparent communication with local stakeholders to address and alleviate concerns about an influx of job seekers.
Recommended Phase Studies	EIA Social Impact Assessment

8.8 HERITAGE

During the survey, no sites, features or objects of cultural significance were identified. Impact assessment and proposed mitigation measures impact analysis of cultural heritage resources under threat of the proposed development, is based on the present understanding of the development:

- For the current study, as no sites, features or objects of cultural significance were identified, impact of the proposed development is determined to be very low, and no mitigation measures are proposed.
- For this proposed project, the assessment has determined that no sites, features or objects of heritage significance occur in the project area. Therefore, no permits would be required from SAHRA or Heritage Western Cape .
- If heritage features are identified during construction, as stated in the management recommendation, these finds would have to be assessed by a specialist, after which a decision will be made regarding the application for relevant permits.

Construction Impacts	Phase	Destruction of archaeological remains
Operational Impacts	Phase	N/A
Mitigation Considerations		■ Use chance find procedure to cater for accidental finds
Recommended Phase Studies	EIA	Archaeological and Heritage Assessment

8.9 PALAEOLOGY

A desktop study confirmed the low significance of the palaeo-sensitivity of the site. Along the stream the fluvial sands might have transported fossils, but the watercourses are exempt from any development.

Construction Impacts	Phase	Damage to fossil remains
Operational Impacts	Phase	N/A
Mitigation Considerations		■ Use chance find procedure to cater for accidental finds
Recommended Phase Studies	EIA	Request for Exemption of a PIA

8.10 VISUAL

Driving south towards the R45, the terrain is mainly fynbos 1 – 1,5m in height with scattered casuarina's & eucalyptus trees 10 – 15m in height lining the farm and fence boundaries adjacent to the road. This may obscure the view of the proposed plant infrastructure to some degree. Visual observation is 95%. The plant infrastructure is anticipated to dominate the view from the R27.

Construction Impacts	Phase	■ Excessive clearing and stripping of topsoil within the project area, cut and fill areas resulting in exposed natural areas, uncontrolled exploitation of borrow pits, activities by large plant machinery, and new road access will all have a high visual impact during the construction phase. ■ For a construction project next to a road, cranes pose a significant visual impact by introducing large, industrial, and uncharacteristic elements into a naturally scenic or tranquil environment. ■ Motorists are particularly sensitive observers because their view is often unobstructed across rural landscapes.
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Operational Impacts	Phase	Visual disturbance of the proposed Project infrastructure
Mitigation Considerations		- Where possible, place construction equipment away from the most visible areas, particularly key viewpoints for motorists. Using appropriate construction hoarding or screening around the site can also block views of the equipment. - Construction entrances to be screened from most prominent views and scenic routes. - Locate site camps and temporary structures within an appropriate area that is not visible from the most prominent views and scenic routes. Building works on site must be screened with site hoarding. After construction, rehabilitation of the disturbed area, with native plants, can help restore the landscape's ability to absorb visual changes. - Construction site lighting can cause light pollution and glare, which is particularly noticeable in rural areas with low ambient light. Use downward-facing, shielded, and motion-activated lighting to minimize its impact on passing motorists. - Minimizing the duration that cranes and other large equipment are in place can also reduce the overall impact. This can involve careful scheduling or phased construction. - Ensure that plant components, such as reservoirs and tanks, are painted a natural colour instead of white or bright reflective metal.
Recommended Phase Studies	EIA	VIA

8.11 TRAFFIC

The potential transport and traffic related impacts identified are:

- Construction Phase
 - Potential congestion and delays on the surrounding road network.
 - Potential impact on traffic safety and increase in accidents with other vehicles or animals.
 - Potential change in the quality of the surface condition of the roads.
 - Potential noise and dust pollution.

- Operational Phase

The traffic generated during the operational phase are mainly related to the staff that will be transported to and from the sites and are not anticipated to have a significant traffic impact on the surrounding road network.

Construction Impacts	Phase	- Potential congestion and delays on the surrounding road network. - Potential impact on traffic safety and increase in accidents with other vehicles or animals. - Potential change in the quality of the surface condition of the roads. - Potential noise and dust pollution.
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Operational Impacts	Phase	Phase traffic generated by the Green Hydrogen and eSAF processing facility during the operational phase will not have a significant impact on the surrounding road network.
Mitigation Considerations		■ Stagger delivery trips and schedule trips, including staff trips outside of peak hours where possible. ■ Implement speed control by means of a stop and go system and speed limit road signage within the decommissioning site. ■ Ensure all vehicles are roadworthy, visible, adequately marked, and operated by an appropriately licenced operator. ■ Regular maintenance of internal farm access roads by the contractor. ■ Ensure private access roads that are impacted on by the proposed development are restored to original pre-construction road condition. ■ Implement dust control on gravel roads within the decommissioning site. ■ Implement speed control by means of a stop and go system and speed limit road signage within the decommissioning site.
Recommended Phase Studies	EIA	Traffic Assessment

8.12 AIR QUALITY

Potential air pollutants associated with the proposed construction activities for the Project include airborne particulates and gaseous emissions from site clearing and construction activities. Particulate impacts include soiling potential (dustfall rates) and potential health impacts.

For the operational phase, there will be routine emissions and flare emissions as a result of the operational activities as described in Section 3.

Construction Impacts	Phase	■ Exceedance of NAAQS
Operational Impacts	Phase	■ Routine emissions and flare emissions.
Mitigation Considerations		■ Apply dust control measures to minimize fugitive dust emissions. ■ Control efficiency should be at least 50%. ■ Haul road dust control: Initial design and construction to minimise wear and silt generation; such measures include proper selection and compaction of road material and careful attention to the design of the drainage system. ■ Traffic control measures aimed at reducing entrainment of material by restricting traffic volumes and reducing vehicle speeds. ■ Measures aimed at binding the surface material or enhancing moisture retention, such as wet suppression and chemical stabilization. ■ Since moisture content is critical in minimising emissions from materials handling the operating procedures must include regular watering of materials handling points. ■ Reduce the drop height of dry materials. ■ Regular clean-up of loading areas to minimise loose dust that could become entrained by gusts of wind or by vehicle activity.

8.13 NOISE

The proposed site is located on the Remainder of Farm Portugeesche Fontyn 167 near the town of Hopefield, in the Western Cape province. The site itself is predominantly surrounded by agricultural land with no receptors within the immediate vicinity of the site and the only built-up area (town of Hopefield) is located ~4 km south of the site. Scattered farmhouse receptors are evident at distances greater than 1.4 km from the site.

Acoustic impacts may arise from the construction phase of the Project. Sources of noise during this phase may include earth-moving equipment (trucks, cranes, scrapers and loaders), compressors and generators, pumps, rotary drills, concrete mixers and materials handling activities among others.

Based on current basic design, noise sources associated with the operational phase of the Project will include various pumps, compressors, motors, fans, high-pressure gas release related to the electrolyzers trucks transporting product offsite to the Port of Saldanha or Port of Cape Town, other ancillary trucks and light duty vehicles.

Construction Impacts	Phase	Due to the distance of all other receptors (> 3 km), no acoustic impacts from such construction activities are anticipated.
Operational Impacts	Phase	With limited nearby receptors (nearest receptor located ~1.4 km from the site), noise impacts from the operation of the Project are anticipated to be negligible.
Mitigation Considerations		- Planning construction activities in consultation with local communities so that activities with the greatest potential to generate noise are planned during periods of the day that will result in least disturbance. Information regarding construction activities should be provided to all local communities. Such information includes: - Proposed working times. - Anticipated duration of activities. - Explanations on activities to take place and reasons for activities. - Contact details of a responsible person on site should complaints arise. - Selecting equipment with the lowest possible sound power levels. - Ensuring equipment is well-maintained to avoid additional noise generation. - Avoiding unnecessary revving of engines and switching equipment off when not required. - Using rubber linings in, for example, chutes and dumpers to reduce impact noise. - Using noise control devices, such as temporary noise barriers and deflectors for high impact activities, and exhaust muffling devices for combustion engines. - Minimising drop height of materials or lowering materials whenever practical instead of dropping. - Starting up plant and vehicles sequentially rather than simultaneously. - Installing acoustic enclosures for equipment causing radiating noise, where practical. - Reducing any Project traffic through community areas where possible. - Developing a mechanism to record and respond to complaints.

		Ensuring all on-site personnel are equipped with the correct personal protective equipment (PPE) including noise control hearing devices.
Recommended Phase Studies	EIA	Noise Compliance Statement

8.14 INFRASTRUCTURE FAILURE

Potential risks include the consequences associated with fires and explosions, as well asphyxiant releases at the proposed e-SAF facility.

Potential incidents include electrolyzers failure, hydrogen storage failure, CO₂ liquefaction and storage failure, and bulk fuel storage.

Construction Impacts	Phase	N/A
Operational Impacts	Phase	Electrolysers failure, hydrogen storage failure, CO₂ liquefaction and storage failure, and bulk storage.
Mitigation Considerations		- Compliance with all statutory requirements, i.e., pressure vessel designs; - Compliance with applicable SANS codes, i.e., SANS 10087, SANS 10089, SANS 10108, etc; - Incorporation of applicable guidelines or equivalent international recognised codes of good design and practice into the designs; - Completion of a recognised process hazard analysis (such as a HAZOP study, FMEA, etc.) on the proposed facility prior to construction to ensure that the design and operational hazards have been identified and adequate mitigation are put in place;
Recommended Phase Studies	EIA	Major Hazard Installation

8.15 SUMMARY OF POTENTIAL IMPACTS

Aspect	Impact	Nature	Probability	Consequence	Significance (Before Mitigation)	Further Assessment Required
Climate	GHG emissions from mobile and stationary combustion	Negative	4	2	Medium	CCIA
	GHG emissions resulting from the clearance of the Project site and change in land use	Negative	4	2	Medium	
	Opportunities arising from the uptake of lower carbon fuels and opportunities arising from new markets	Positive	4	2	Medium	
	Displacement of Geologic Materials	Negative	2	3	Medium	
Geology	Contamination of the Subsurface and Loss of Topsoil	Negative	3	3	Medium	Geotechnical Assessment
	Increased Water Runoff and Erosion	Negative	2	3	Medium	

Aspect	Impact	Nature	Probability	Consequence	Significance (Before Mitigation)	Further Assessment Required
	Change to the future agricultural production potential of land	Negative	1	1	Very Low	
Agriculture	Impacts on water courses and habitat - Deterioration of watercourse health and loss of functionality	Negative	2	3	Medium	
Surface Water	Risk of groundwater depletion as a result of construction-phase abstraction and/or operational abstraction for process water	Negative	3	2	Medium	Freshwater Compliance Statement
Groundwater	Risk of groundwater quality deterioration resulting from contaminated stormwater, chemical spills, etc	Negative	3	4	High	Desktop Geohydrological Assessment
	Risk of contaminated groundwater percolating from the shallow intergranular	Negative	3	4	High	

Aspect	Impact	Nature	Probability	Consequence	Significance (Before Mitigation)	Further Assessment Required
	aquifer into the deeper fractured aquifer (Moorreesburg Formation) and migrating downgradient towards sensitive receptors (downstream groundwater users, the Sout River via baseflow, and ultimately the Langebaan Lagoon).					
	Loss of faunal habitat and red data species	Negative	4	4	High	
Biodiversity	Spread of alien vegetation	Negative	4	2	Medium	Biodiversity Assessment including plants, animals and avifauna
	Direct faunal and avifaunal impacts	Negative	4	4	High	
	Creation of employment	Positive	4	3	High	

Aspect	Impact	Nature	Probability	Consequence	Significance (Before Mitigation)	Further Assessment Required
Socio-economic	Skills Development and Capacity Building	Positive	4	3	High	Social Impact Assessment
	Economic Growth and Infrastructure Development	Positive	4	4	High	
	Improved Local Water Management	Positive	4	2	Medium	
	Influx of Job Seekers and Construction Workers	Negative	4	2	Medium	
	Altered Sense of Place due to Industrial Development	Negative	4	4	High	
	Destruction of archaeological remains	Negative	1	1	Very Low	
Heritage	Damage to fossil remains	Negative	1	1	Very Low	HIA
Palaeontology	Visual impact of construction related activities	Negative	4	2	Medium	Exemption from a PIA

Aspect	Impact	Nature	Probability	Consequence	Significance (Before Mitigation)	Further Assessment Required
Aesthetics	Visual disturbance of the proposed Project infrastructure	Negative	4	2	Medium	VIA
	Potential congestion and delays on the surrounding road network.	Negative	2	2	Low	
Access and Traffic	Potential impact on traffic safety and increase in accidents with other vehicles and animals	Negative	3	2	Medium	Traffic Assessment
	Degradation of road surface	Negative	3	1	Low	
	Dust Pollution	Negative	3	2	Medium	
	Noise Pollution	Negative	3	2	Medium	
	Exceeds NAAQS beyond facility boundary where there is public access, but not at nearest receptors	Negative	4	2	Medium	

Aspect	Impact	Nature	Probability	Consequence	Significance (Before Mitigation)	Further Assessment Required
Air Quality	Infrastructure failure resulting in potential incidents	Negative	2	4	Medium	Atmospheric Emissions Assessment
Infrastructure						Major Hazard Installation

9 PLAN OF STUDY FOR THE EIA REPORTING PHASE

9.1 TERMS OF REFERENCE

Table 9-1 outlines the structure of the plan of study as required in terms of Appendix 2 of the EIA Regulations.

Table 9-1 - Plan of Study Structure

PLAN OF STUDY CHAPTER	INFORMATION REQUIREMENT AS PER THE EIA REGULATIONS
Description of EIA Tasks	A description of the tasks that will be undertaken as part of the environmental impact assessment process.
Description of Alternatives	A description of the alternatives to be considered and assessed within the preferred site, including the option of not proceeding with the activity.
Aspects to be Assessed in the EIA Process	A description of the aspects to be assessed as part of the environmental impact assessment report process.
Specialist Studies	Aspects to be assessed by specialists.
Impact Assessment Methodology	A description of the proposed method of assessing the environmental aspects, including a description of the proposed method of assessing the environmental aspects including aspects to be assessed by specialists. A description of the proposed method of assessing duration and significance.
Environmental Impact Report	Contents of the EIR as specified in the EIA Regulations
Stakeholder and Authority Engagement	An indication of the stages at which the competent authority will be consulted. Details of the public participation process that will be conducted during the EIA process.

9.2 OVERVIEW OF THE EIA TASKS

The EIA phase will consist of the following tasks; each of these tasks is detailed separately in the following sub-sections:

- Specialist studies;
- Continuation of authority and stakeholder engagement;
- Assessment of the significance of potential impacts; and
- Preparation of the EIR.

9.3 DESCRIPTION OF THE ALTERNATIVES

The EIA process identifies two types of project alternatives:

- Concept Level Alternatives which relate to the site, technology and process alternatives; and
- Detailed Level Alternatives which relate to working methods and mitigation measures.

Alternatives will be assessed as described in **Section 3** of this DSR.

9.4 TERMS OF REFERENCE FOR SPECIALISTS STUDIES

Following the review of the DFFE Screening Tool Report and the Scoping Assessment, the specialist studies as indicated in the table below, will be commissioned in support of the EIA process.

Table 9-2 - Specialist Study Requirements

Theme	Protocol for Specialist Study	Specialist Terms of Reference
Agriculture Theme	The site is considered very high sensitivity due to the site being located within the Swartland Protected Agricultural Area therefore the Screening Tool prescribes that an Agricultural Assessment be undertaken. An Agricultural Assessment was undertaken by SoilZa, 2025. The assessment disputed the very high sensitivity because the Project leads to no loss of potential cropland and therefore minimal loss of future agricultural production potential. The cropping potential of the site is limited by the combination of climate and soil constraints. The dominant constraint is the very low water and nutrient holding capacity of the very sandy soils. In combination with the relatively low rainfall the soils retain too small a moisture reservoir for viable crop production. Because of these constraints, the site is completely unsuitable for viable rainfed crop production. This assessment disputes the very high sensitivity classification of the assessed area by the screening tool and rates the entire assessed area as being of medium agricultural sensitivity because of the site's assessed cropping potential.	The terms of reference for this study are to fulfil the requirements of the Protocol for the specialist assessment and minimum report content requirements of environmental impacts on agricultural resources, gazetted on 20 March 2020 in GN 320 (in terms of Sections 24(5)(A) and (H) and 44 of NEMA, 1998). The assessment is based on an on-site investigation of the soils and agricultural condition. It is also informed by existing climate, soil, and agricultural potential data for the site. The aim of the on-site assessment is to assess and determine the cropping potential across the site. Soils were assessed from existing soil exposures and indications of the surface conditions and topography. Soils are classified according to the South African soil classification system (Soil Classification Working Group, 2018). The report assesses the reduction of agricultural potential and the loss of arable land.
Animal Species Theme	The DFFE Screening Tool prescribed an animal species assessment be conducted based on the likely presence of sensitive avifaunal species (<i>Aves-Circus maurus</i> <i>Aves-Afrodis afra</i>). Therefore, a Biodiversity Assessment including the animal species theme was conducted by Aim360 Environmental Solutions, September 2025. No threatened species (Red Data species) were recorded within the study site during the survey.	The overarching objective is to compile a Biodiversity Impact Assessment Report that contextualises the proposed project in relation to the biodiversity (flora, faunal, avifauna and reptiles) that characterises the study site. The report provides for the identification of impacts that are anticipated from project-related activities on the biodiversity and recommend appropriate mitigation measures as applicable. Specific intended outcomes of the study are outlined below: Terrestrial Ecological Assessment:

Theme	Protocol for Specialist Study	Specialist Terms of Reference
		Determine the terrestrial ecological diversity of the study site in terms of plants, animals, birds and reptiles. Identify and assess all sensitive terrestrial ecological habitats or features. Determine the present ecological condition and sensitivity of identified terrestrial ecological habitats. Assess conservation status of plant, birds, reptiles and animal species. Compile a species inventory for species on site and to recommend necessary actions in case of occurrence of Red Data species (endangered, vulnerable or rare) or any Species of Conservation Concern (SCC). Impact Assessment and Mitigation: Identify and undertake a risk assessment of anticipated project-related impacts on the taxa and/or habitats. Recommend feasible mitigation measures for implementation, including but not limited to the recommendation of minimum buffers.
Aquatic Biodiversity Theme	The DFFE Screening Tool prescribed that an Aquatic Biodiversity Assessment be undertaken based on the very high sensitivity of a portion of the site which is located within an Aquatic ESA1 area. In terms of watercourses within the study area, the proposed development occurs within sub-quaternary catchment No. 8287 identified as a non-prioritised catchment which means it is not critical for the conservation of aquatic resource. One (1) prioritised FEPA wetland (Unit ID 227888) was identified approximately downstream from the site. The wetland is classified a floodplain wetland along the Sout River. The Sout River is a system with ephemeral flows, located within Reach Code G10L. A specialist will be commissioned to undertake the Aquatic and Freshwater Compliance Statement; a full assessment is deemed not necessary due to the distance of the wetland from the site	The Biodiversity Report includes a desktop assessment of the freshwater resources surrounding the site however a Freshwater Compliance Statement will be undertaken. This study will identify and assess the wetland located within 150 m from the proposed site. The ecological status and sensitivity of the wetland will be determined and the associated impacts identified and quantified. The study will include measures for mitigation.

Theme	Protocol for Specialist Study	Specialist Terms of Reference
Archaeological and Cultural Heritage Theme	The DFFE Screening Tool prescribed that a site verification be undertaken for the archaeological and cultural heritage theme. However, the NHRA requires that a HIA be undertaken due to the extent of the Project site. A Phase 1 Archaeological and Heritage Impact Assessment was undertaken by Tsimba Archaeological Footprints, October 2025. During the survey, no sites, features or objects of cultural significance were identified, and the low sensitivity was confirmed. The report concluded that there are no fatal flaws expected for this project. The impacts of the proposed Green Hydrogen and eSAF processing facility development on the cultural landscape will not be significant as no cultural heritage resources were recorded during the field survey. The potential for stratified archaeological deposits was assessed as negligible given the local geology and predictive site patterning.	The HIA will: ■ Fulfil the statutory requirements of the National Heritage Resources Act, Act 25 of 1999, section 38. ■ Identify and describe, (in terms of their conservation and/or preservation importance) sites of cultural and archaeological importance that may be affected by the proposed development project. ■ Identify and describe impacts to archaeological and cultural resources, including intangible heritage resources. ■ Make recommendations on mitigation measures. ■ Identify and describe management measures.
Civil Aviation Theme	The DFFE Protocol requires that a site verification be undertaken by the EAP or a specialist as the site is located within 8km from a civil aviation aerodrome therefore a compliance statement will be compiled. The South African Civil Aviation Authority has been added to the stakeholder database and will be provided with the opportunity to provide comment on the documents released as part of the S&EIR process.	N/A
Defence Theme	The DFFE protocol requires that a site verification be undertaken by an EAP for the defence theme. A defence theme compliance statement will be included in the Draft EIR.	N/A
Palaeontology Theme	The DFFE Screening Tool prescribed that a PIA be undertaken irrespective of the paleo-sensitivity of the site.	Marion Bamford, a palaeontologist, conducted a desktop assessment and provided a letter of exemption including a motivation for the exemption of a PIA.

Theme	Protocol for Specialist Study	Specialist Terms of Reference
Plant Species Theme	The DFFE Protocol requires that a Terrestrial Biodiversity compliance statement be completed for the Project. A plant species assessment has been undertaken as part of the Biodiversity Assessment which revealed no SCC at the site.	The overarching objective is to compile a Biodiversity Impact Assessment Report that contextualises the proposed project in relation to the biodiversity (flora, faunal, avifauna and reptiles) that characterises the study site. The report provides for the identification of impacts that are anticipated from project-related activities on the biodiversity and recommend appropriate mitigation measures as applicable. Specific intended outcomes of the study are outlined below: Terrestrial Ecological Assessment: ■ Determine the terrestrial ecological diversity of the study site in terms of plants, animals, birds and reptiles. ■ Identify and assess all sensitive terrestrial ecological habitats or features. ■ Determine the present ecological condition and sensitivity of identified terrestrial ecological habitats. ■ Assess conservation status of plant, birds, reptiles and animal species. ■ Compile a species inventory for species on site and to recommend necessary actions in case of occurrence of Red Data species (endangered, vulnerable or rare) or any Species of Conservation Concern (SCC). Impact Assessment and Mitigation: ■ Identify and undertake a risk assessment of anticipated project-related impacts on the taxa and/or habitats. ■ Recommend feasible mitigation measures for implementation, including but not limited to the recommendation of minimum buffers.
Terrestrial Biodiversity Theme	The DFFE Screen Tool prescribed that a Terrestrial Biodiversity Assessment be undertaken based on the site being located partially within a CBA2 and ESA (aquatic and terrestrial).	The overarching objective is to compile a Biodiversity Impact Assessment Report that contextualises the proposed project in relation to the biodiversity (flora, faunal,

Theme	Protocol for Specialist Study	Specialist Terms of Reference
		avifauna and reptiles) that characterises the study site. The report provides for the identification of impacts that are anticipated from project-related activities on the biodiversity and recommend appropriate mitigation measures as applicable. Specific intended outcomes of the study are outlined below: Terrestrial Ecological Assessment: ■ Determine the terrestrial ecological diversity of the study site in terms of plants, animals, birds and reptiles. ■ Identify and assess all sensitive terrestrial ecological habitats or features. ■ Determine the present ecological condition and sensitivity of identified terrestrial ecological habitats. ■ Assess conservation status of plant, birds, reptiles and animal species. ■ Compile a species inventory for species on site and to recommend necessary actions in case of occurrence of Red Data species (endangered, vulnerable or rare) or any Species of Conservation Concern (SCC). Impact Assessment and Mitigation: ■ Identify and undertake a risk assessment of anticipated project-related impacts on the taxa and/or habitats. ■ Recommend feasible mitigation measures for implementation, including but not limited to the recommendation of minimum buffers.
Visual Impact Assessment	The DFFE Screening Tool did not prescribe a protocol for a Visual Impact Assessment (VIA). However, as best practice a VIA was undertaken to assess the anticipated visual impacts that the proposed project will have on the surrounding area, local residents as well as from roads in the surrounding area.	The terms of reference for this report is to assess the anticipated visual impacts that the proposed project will have on the surrounding area, local residents as well as from roads in the surrounding area. Key tasks are listed below: ■ Determine type and level of VIA required ■ Baseline survey of visual / scenic resources

Theme	Protocol for Specialist Study	Specialist Terms of Reference
		■ Mapping of landscape with viewshed analysis ■ Digital terrain modelling and visual simulations ■ Assessments of visual impacts and their relative significance, including recommended mitigation and management measurements. ■ Conclusion and recommendations.
Social Impact Assessment	The DFFE Screening Tool prescribes that a site verification be undertaken. However as best practise, a Social Impact Assessment was undertaken. The assessment has been conducted to evaluate the potential social impacts both positive and negative arising from the proposed project, and to provide recommendations for enhancing benefits and mitigating adverse impacts.	The Terms of Reference (ToR) associated with the SIA for the proposed project are as follows: ■ To describe the baseline social environment in the vicinity of the study area, including the conditions on and immediately surrounding the proposed site. ■ To identify, describe and rate the significance of social impacts associated with the proposed project. ■ To develop feasible mitigation measures to avoid/reduce negative impacts and enhance positive impacts.
Climate Change Risk Assessment	The DFFE Screening Tool did not prescribe a protocol for a Climate Change Risk Assessment (CCRA). However, as best practice a CCRA was undertaken to assess the climate-related risks and opportunities for the Project, and (ii) assess the impact of the Project's GHG emissions. The assessment also broadly considers the potential impact of the Project on communities, priority ecosystem services, and sites of demonstrated importance for climate change mitigation or adaptation, that has or is likely to be adversely affected a changing climate.	The purpose of the CCRA is to: 1. Assess the climate-related risks and opportunities for the Project. 2. Assess the impact of the Project's greenhouse ("GHG") emissions. The assessment also broadly considers the potential impact of the Project on communities, priority ecosystem services, and biodiversity that has or is likely to be adversely affected a changing climate. In accordance with the recommendations of the Equator Principles, the CCRA has been scoped to be proportional to the nature, scale, and potential risks of the Project.
Desktop Geohydrological Assessment	The DFFE Screening Tool does not prescribe a protocol for a Geohydrological Assessment, however an ~~desktop~~ assessment will be undertaken and will include the following:	The ToR and principal objectives of this study are the following: ■ Using a suitable risk assessment matrix dimension each of the hazardous events in terms of potential consequences and likelihood. From

Theme	Protocol for Specialist Study	Specialist Terms of Reference
	- Assessment of the impact on geohydrological resources as a result of the proposed development. - Provide recommendations to minimize or mitigate impacts. - Assessment for groundwater to be used for construction, operational and decommissioning purposes for the proposed project.	this determine the raw risk and determine which items may need further attention. Suggest risk reduction measures that should typically be applied, e.g. National Standards, best practices, monitoring requirements. - Preventative measures will be to reduce the likelihood and mitigative measures to reduce the consequences. Calculate and document the residual risks. Determine if any of the risks require additional risk reduction measures, e.g. separation distances from vulnerable receptors. - Compile a qualitative Risk Assessment in adherence to any additional relevant legislation and guidelines that may be deemed necessary. - It must cover the construction, and operation phases, and must be based on a qualitative analysis. The analysis must identify hazards and hazardous events and be structured and presented according to a recognised risk assessment methodology. The analysis must identify vulnerable receptors (e.g. who is exposed to the risks), and identify applicable national and international standards that should be applied (where relevant) in order to mitigate risks. - Provide sensitive features spatial data in a useable GIS format (kmz / shp), where applicable. - Describe the risk-related context of the study area. - Identify and assess the potential direct and indirect impacts of the proposed development on the receiving environment from a risk perspective associated with battery storage. - Identify any protocols, legal and permit requirements that are relevant to this project and the implications thereof.

Theme	Protocol for Specialist Study	Specialist Terms of Reference
		■ Provide recommendations with regards to potential monitoring programmes. ■ Determine mitigation and/or management measures which could be implemented to as far as possible reduce the effect of negative impacts and enhance the effect of positive impacts.
Desktop Geotechnical Assessment	The DFFE Screening Tool did not prescribe a protocol for a ~~Desktop~~ Geotechnical Assessment, however an ~~desktop~~ assessment will be undertaken and will include the following: ■ determining the potential impacts that the proposed e-SAF Plant may have on the environment from a geotechnical and geological perspective.	The ToR and principal objectives of this study are the following: ■ Comply with the Assessment Protocols that were published on 20 March 2020, in Government Gazette 43110, GN 320. As of July 2022, there are no sensitivity layers on the Screening Tool for geohydrological features, and as such, the site verification process must document this and provide any additional feedback as necessary. ■ Gather all relevant geotechnical information, e.g. locations, surroundings, topography, types of activities surrounding the sites, vulnerable receptors (based on Google Earth) and ■ information provided from other specialist reports), design drawings (possible layouts) and maps. ■ Obtain all data relevant to the project (i.e., previous geotechnical reports), and conduct a search of the internal GEOSS database (including relevant information pertinent to the site). ■ Review/acquire geological, geotechnical, and hydrogeological maps for the area. Review any reports that have been compiled for the study area. Compile a project GIS. ■ <u>Conduct a reconnaissance geotechnical investigation of the project area.</u> ■ Determine whether problem soils and/or geohazards are present across the site.

Theme	Protocol for Specialist Study	Specialist Terms of Reference
		■ Evaluate the geological and geotechnical conditions and their influence on the founding conditions. ■ Assess potential uses for materials present on-site and possible incorporation of such materials in construction activities. ■ Delineate geological features of interest, e.g. steep slopes, outcrops, faults, lineaments, and/or steep slopes, that may have an impact on the development.
Quantitative Risk Assessment	The DFFE Screening Tool did not prescribe a protocol for a Risk Assessment, however a Risk Assessment was undertaken based on the following: Since off-site incidents may result due to hazards of some of the chemical components to be stored on, produced at or delivered to site, a quantitative risk assessment (QRA) to determine the impacts onto surrounding properties and communities as part of the EIA. The purpose of the Risk Assessment is to convey the essential details, which include a short description of hazards, the receiving environment and the current relevant designs, as well as risks and consequences of a major incident.	The main aim of the investigation is to quantify the risks to employees, neighbours and the public with regard to the proposed Phelan Green Group South African eFuels Project (eSAF) near Hopefield in the Western Cape province. This risk assessment was conducted in accordance with the MHI Regulations and can be used as notification for the facility. The scope of the risk assessment included: ■ Development of accidental spill and fire scenarios for the facility; ■ Using generic failure rate data (for tanks, pumps, valves, flanges, pipework, gantry, couplings and so forth), the determination of the probability of each accident scenario; ■ For each incident developed in Step 2, the determination of consequences (such as thermal radiation, domino effects, toxic-cloud formation and so forth); and, ■ For scenarios with off-site consequences (greater than 1% fatality off-site), calculation of maximum individual risk (MIR), taking into account all generic failure rates, initiating events (such as ignition), meteorological conditions and lethality.
Traffic Assessment	The DFFE Screening Tool did not prescribe a protocol for a Traffic Assessment, however a Traffic	The Terms of Reference for the TIA include:

Theme	Protocol for Specialist Study	Specialist Terms of Reference
	Assessment was undertaken based on the following: The scope of the Traffic Assessment is to investigate the transportation implications associated with the abnormal load vehicles transporting components to the site and the transportation of construction materials, equipment and workers to the site during the construction and operational phases.	■ Extent of the traffic study and study area, including a description of the traffic and transportation context of the study area, focusing on aspects that are potentially affected by the proposed project. ■ Site Observations to gather relevant information in terms of access, road conditions etc. and to confirm if there are any aspects that need to be considered in the layout planning. ■ Proposed development description in relation to traffic related impacts; ■ Describe the baseline transport and traffic condition of the study area, as well as identified traffic features and potential traffic disturbances of the local area. ■ Existing traffic volumes on external road network. ■ Access Assessment. ■ Acceptability from a traffic safety point of view of the location of the access route(s) to the proposed facility. ■ Trip generation of the proposed development during Construction, Operation and Decommissioning. ■ A description of assumptions and limitations. ■ Consideration of the project layout; ■ Determine the national and local haulage routes between port of entry/manufacturer and site. ■ Assessment of freight requirements and permitting needed for abnormal loads. ■ Risk posed by construction and operational vehicles. ■ Consider traffic issues such as impact on the road network, congestion etc. ■ Impact assessment of the potential direct, indirect and cumulative impacts of the proposed development on the receiving environment from a traffic perspective, ■ Based on existing volumes of traffic, recommendations for mitigations

Theme	Protocol for Specialist Study	Specialist Terms of Reference
		measures for traffic impacts where relevant. ■ Determine mitigation and/or management measures, which could be implemented to as far as possible, reduce the effect of negative impacts and enhance the effect of positive impacts. ■ Identify best practice management actions, monitoring requirements, and rehabilitation guidelines for all identified impacts for inclusion in the Environmental Management Programme (EMPr). ■ Identification of any additional protocols, licensing and/or permitting requirements that are relevant to the project and the implications thereof. ■ A reasoned opinion indicating the acceptability of the proposed development and a recommendation if the development should go ahead or not.
Atmospheric Emissions Report	The DFFE Screening Tool does not prescribe a protocol for an Atmospheric Emissions Report.	Based on the nature of the Project, an AEL will be required which must be informed by an Atmospheric Emissions Report. The report will include the following: ■ Quantification of all sources of atmospheric emissions associated with the proposed project. ■ Formatting of meteorological data for input to the dispersion model. ■ Obtain and process topographical data for input into the dispersion model (if needed). ■ Dispersion simulations of ground level pollutant concentrations, due to routine emissions from the project, reflecting highest hourly, highest daily and annual average concentrations. The AERMOD modelling suite was considered to be suitable for the area. ■ Analysis of dispersion modelling results. ■ Evaluation of potential for human health and environmental impacts.

Theme	Protocol for Specialist Study	Specialist Terms of Reference
		Recommended mitigation measures and monitoring program for the site.
Wetland and Aquatic Biodiversity	The DFFE Screening Tool indicates a very high sensitivity for the aquatic theme therefore an aquatic assessment is deemed necessary. In addition, it prescribes that site verification must be conducted for the hydrological theme.	The hydrological characterisation will include the following: A review of relevant literature and existing reports for the Project area, as well as an assessment of aerial imagery and survey data (if available) to verify hydrological catchment characteristics. Description of the hydrological setting of the site in terms of the surface water features (rivers and dams) and other characteristics such as topography, drainage patterns, surrounding surface water uses, catchment characteristics, and climatic conditions (rainfall, runoff, and evaporation). A legislative assessment related to the classification of water resources in the catchment, and the RQOs gazetted for the area, will be included. Surface water quality results will be reviewed as part of the assessment. Historical water quality data will be analysed for the Berg River site to get an understanding of the current state, and to ensure that water quality remains within the Resource Quality Objectives (RQOs) established for the catchment in which the proposed activity is situated. An Excel-based static water balance model will be developed to conceptualise the Project water reticulation system and quantify the Project water requirements, usages, potential sources, and all losses. The water balance will also determine the water demand and supply, as well as the associated impacts of using this water for the Project. The surface water impact assessment will include: Identification and evaluation of potential surface water impacts resulting from the existing mining activities. Recommendation of appropriate mitigation measures to prevent and minimise these potential impacts during ongoing operations.

Theme	Protocol for Specialist Study	Specialist Terms of Reference
		Development of a monitoring plan based on the assessment findings to ensure continued protection of surface water resources.
<u>Hydrology Assessment</u>	<u>The DFFE Screening Tool does not prescribe a protocol for a Hydrology Assessment.</u>	<u>The surface water impact assessment will include:</u> ■ <u>Identification and evaluation of potential surface water impacts resulting from the proposed project activities.</u> ■ <u>Recommendation of appropriate mitigation measures to prevent and minimise these potential impacts during ongoing operations.</u> ■ <u>Development of a monitoring plan based on the assessment findings to ensure continued protection of surface water resources.</u>
Noise Compliance Statement	The DFFE Screening Tool does not identify noise as having any significant impacts for this Project and does not list a site sensitivity rating for noise. The tool does, however, have some inherent deficiencies in terms of noise impacts as it only identifies noise as a significant theme for select industries / sectors. As such, the environmental acoustic assessment of the site cannot be fully reliant upon the opinion expressed via the screening tool.	Based on the low sensitivity of the Project site from an environmental noise perspective, since receptors are located at some distance from the proposed Project, a full Environmental Acoustic Impact Assessment is not considered necessary, and a Noise Compliance Statement has consequently been produced which includes the following: The identification of sensitive receptors based on a desktop assessment using the most recent satellite imagery available on Google Earth Pro™. Additionally, this was cross correlated with receptors identified in the Atmospheric Impact Report (Airshed Planning Professionals, 2025) conducted for the Project. All reasonably identifiable key receptors have been considered. The scope of this report does not include the acoustic impacts on avifauna or any other animals.
<u>Health Impact Assessment</u>	<u>The DFFE Screening Tool does not prescribe a protocol for a Human Health Risk Assessment.</u>	<u>The terms of reference for the assessment is to perform a Human Health Risk Assessment of communities that may be exposed to emissions from the proposed production facility.</u>

9.5 IMPACT ASSESSMENT METHODOLOGY

The EIR uses a methodological framework developed by WSP to meet the combined requirements of international best practice and the NEMA EIA Regulations.

As required by the EIA Regulations, the determination and assessment of impacts will be based on the following criteria:

- Nature of the Impact;
- Significance of the Impact;
- Consequence of the Impact;
- Extent of the impact;
- Duration of the Impact;
- Probability if the impact;
- Degree to which the impact:
 - can be reversed;
 - may cause irreplaceable loss of resources; and
 - can be avoided, managed or mitigated.

Following international best practice, additional criteria have been included to determine the significant effects. These include the consideration of the following:

- Magnitude: to what extent environmental resources are going to be affected;
- Sensitivity of the resource or receptor (rated as high, medium and low) by considering the importance of the receiving environment (international, national, regional, district and local), rarity of the receiving environment, benefits or services provided by the environmental resources and perception of the resource or receptor); and
- Severity of the impact, measured by the importance of the consequences of change (high, medium, low, negligible) by considering inter alia magnitude, duration, intensity, likelihood, frequency and reversibility of the change.

It should be noted that the definitions given are for guidance only, and not all the definitions will apply to all of the environmental receptors and resources being assessed. Impact significance was assessed with and without mitigation measures in place.

9.5.1 METHODOLOGY

The assessment of impacts and mitigation evaluates the likely extent and significance of the potential impacts on identified receptors and resources against defined assessment criteria, to develop and describe measures that will be taken to avoid, minimise or compensate for any adverse environmental impacts, to enhance positive impacts, and to report the significance of residual impacts that occur following mitigation.

The key objectives of the risk assessment methodology are to identify any additional potential environmental issues and associated impacts likely to arise from the proposed project, and to propose a significance ranking. Issues / aspects will be reviewed and ranked against a series of significance criteria to identify and record interactions between activities and aspects, and resources and receptors

to provide a detailed discussion of impacts. The assessment considers direct⁵, indirect⁶, secondary⁷ as well as cumulative⁸ impacts.

A standard risk assessment methodology is used for the ranking of the identified environmental impacts pre-and post-mitigation (i.e., residual impact). The significance of environmental aspects is determined and ranked by considering the criteria⁹ presented in **Table 9-3**.

Table 9-3 – Impact Assessment Criterion and Scoring System

Criteria	Score 1	Score 2	Score 3	Score 4	Score 5
Impact Magnitude (M) The degree of alteration of the affected environmental receptor	Very low: No impact on processes	Low: Slight impact on processes	Medium: Processes continue but in a modified way	High: Processes temporarily cease	Very High: Permanent cessation of processes
Impact Extent (E) The geographical extent of the impact on a given environmental receptor	Site: Site only	Local: Inside activity area	Regional: Outside activity area	National: National scope or level	International: Across borders or boundaries
Impact Reversibility (R) The ability of the environmental receptor to rehabilitate or restore after the activity has caused environmental change	Reversible: Recovery without intervention		Recoverable: Recovery with intervention		Irreversible: Not possible despite action
Impact Duration (D) The length of permanence of the impact on the environmental receptor	Immediate: On impact	Short term: 0-5 years	Medium term: 5-15 years	Long term: Project life	Permanent: Indefinite
Probability of Occurrence (P) The likelihood of an impact occurring in the absence of pertinent environmental management measures or mitigation	Improbable	Low Probability	Probable	Highly Probability	Definite

⁵ Impacts that arise directly from activities that form an integral part of the Project.

⁶ Impacts that arise indirectly from activities not explicitly forming part of the Project.

⁷ Secondary or induced impacts caused by a change in the Project environment.

⁸ Impacts are those impacts arising from the combination of multiple impacts from existing projects, the Project and/or future projects.

⁹ The definitions given are for guidance only, and not all the definitions will apply to all the environmental receptors and resources being assessed. Impact significance was assessed with and without mitigation measures in place.

Criteria	Score 1	Score 2	Score 3	Score 4	Score 5
Significance (S) is determined by combining the above criteria in the following formula:	$[S = (E + D + R + M) \times P]$ <i>Significance = (Extent + Duration + Reversibility + Magnitude) × Probability</i>				
Impact Significance Rating					
Total Score	4 to 15	16 to 30	31 to 60	61 to 80	81 to 100
Environmental Significance Rating (Negative (-))	Very low	Low	Moderate	High	Very High
Environmental Significance Rating (Positive (+))	Very low	Low	Moderate	High	Very High

9.5.2 IMPACT MITIGATION

The impact significance without mitigation measures will be assessed with the design controls in place. Impacts without mitigation measures in place are not representative of the proposed development's actual extent of impact and are included to facilitate understanding of how and why mitigation measures were identified. The residual impact is what remains following the application of mitigation and management measures and is thus the final level of impact associated with the development. Residual impacts also serve as the focus of management and monitoring activities during project implementation to verify that actual impacts are the same as those predicted in this report.

The mitigation measures chosen are based on the mitigation sequence/hierarchy which allows for consideration of five (5) different levels of mitigation, which include avoid/prevent, minimise, rehabilitate/restore, offset and no-go, in that order. During the consideration of impacts, the first option should be to avoid or prevent the impacts from occurring initially if possible, however, this is not always feasible. If this is not attainable, the impacts can be allowed, however these must be minimised as far as possible by reducing the footprint of the development so that minimal impact is experienced. If impacts are unavoidable, the next goal is to rehabilitate or restore the areas impacted back to their original form after project completion. Offsets are then considered if all the other measures described above fail to remedy high/significant residual negative impacts. If no offsets can be achieved on a potential impact, which results in full destruction of any ecosystem for example, the no-go option is considered so that another activity or location is considered in place of the original plan.

The mitigation sequence/hierarchy is shown in **Figure 9-1** below.

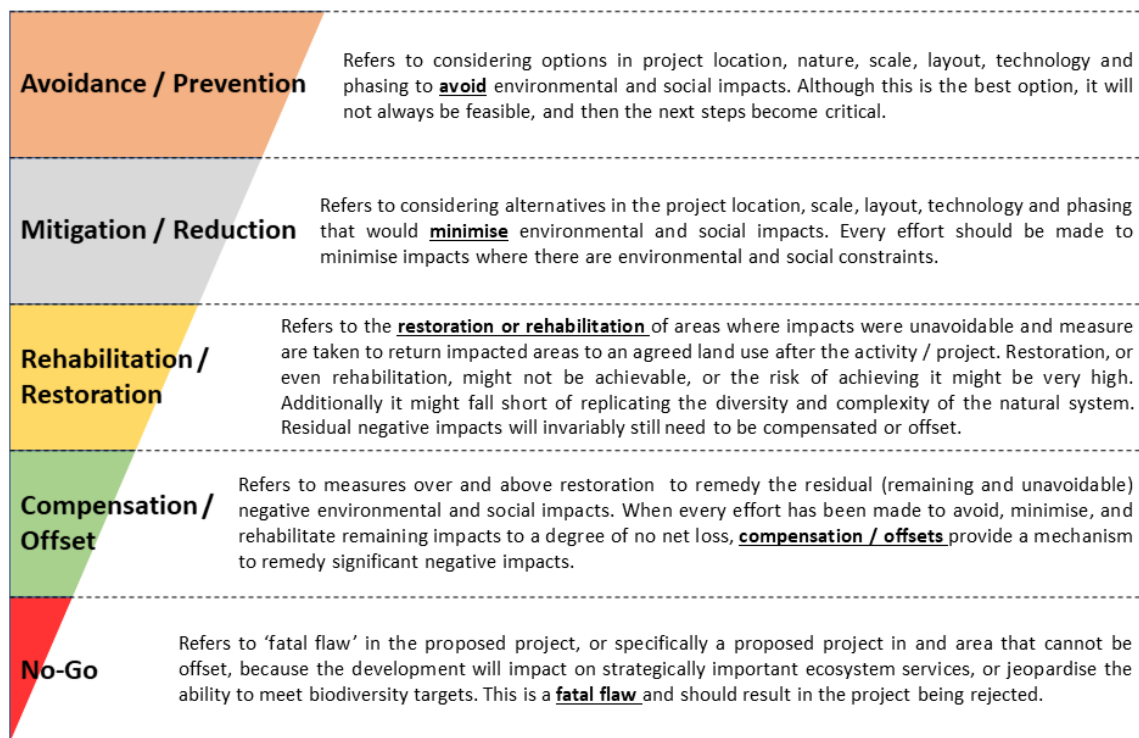


Figure 9-1 - Mitigation Sequence/Hierarchy

9.6 ENVIRONMENTAL IMPACT REPORT (EIR)

Once the FSR has been submitted the proposed project will proceed into detailed EIA phase, which involves the detailed specialist investigations. WSP will produce a Draft EIR after the completion of the required specialist studies. The Draft EIR will provide an assessment of all the identified key issues and associated impacts from the Scoping phase. All requirements as contemplated in the EIA Regulations will be included in the Draft EIR. The Draft EIR will contain, inter alia, the following:

- Details of the EAP who prepared the report and the expertise of the EAP to carry out the S&EIR process, including a curriculum vitae.
- The location of the activity, including the 21-digit Surveyor General code of each cadastral land parcel, where available, the physical address and farm name; and the coordinates of the boundary of the property or properties.
- A plan which locates the proposed activity or activities applied for as well as the associated structures and infrastructure at an appropriate scale.
- A description of the scope of the proposed activity, including all listed and specified activities triggered and being applied for; and a description of the associated structures and infrastructure related to the proposed project.
- A description of the policy and legislative context within which the development is located, and an explanation of how the proposed development complies with and responds to the legislation and policy context.
- A motivation for the need and desirability for the proposed development, including the need and desirability of the activity in the context of the preferred location.
- A motivation for the preferred development footprint within the approved site.

- A full description of the process followed to reach the proposed development footprint within the approved site.
- Details of the public participation process undertaken.
- A summary of the issues raised by interested and affected parties, and an indication of the manner in which the issues were incorporated, or the reasons for not including them.
- The environmental attributes associated with the development footprint alternatives focusing on the geographical, physical, biological, social, economic, heritage and cultural aspects.
- The impacts and risks identified including the nature, significance, consequence, extent, duration and probability of the impacts.
- The methodology used in determining and ranking of potential environmental impacts and risks.
- Positive and negative impacts.
- An assessment of each identified potentially significant impact and risk.
- The possible mitigation measures that could be applied.
- An environmental impact statement.
- A description of any assumptions, uncertainties and gaps in knowledge.
- A reasoned opinion as to whether the proposed activity should or should not be authorised.
- An undertaking under oath or affirmation by the EAP.
- An EMPr.

9.7 STAKEHOLDER AND AUTHORITY ENGAGEMENT

9.7.1 PPP

The approach to the PPP during the impact assessment phase will be similar to the process during the scoping phase. The PPP is being reviewed and refined to accommodate the learnings from the scoping phase, as well as consider recommendations received from registered I&APs.

The PPP during impact assessment will include the following steps:

- Announcement of the availability of the Draft EIA Report and EMPr, the opportunities for comment and invitation to public meetings.
- Distribution of a Background Information Letter via email, bulk SMS and via identified local community structures, which may include the use of social media.
- Posting all impact assessment documents to WSP's website and the data-free website.
- Enabling communication through the WSP Public Participation Office email address.
- Ongoing registration of stakeholders as I&APs.
- Opportunities for stakeholders to submit comments in writing.

The public participation process during the Impact Assessment Phase will be enhanced to ensure meaningful and inclusive engagement through a combination of targeted engagement with key stakeholders and organs of state, additional consultations sessions in the form open days and the use of electronic media, as appropriate.

All issues raised during the impact assessment phase will be captured in the CRR. Issues related to the findings of the environmental specialist studies of the proposed project that were raised during the scoping phase, will be responded to during the impact assessment phase.

The PPP during the EIA phase will be focused on the findings of the EIA which will be presented in the Draft EIR. All stakeholders will be notified of the progress to date and availability of the Draft EIR,

via mail, email and/or SMS. A legislated period of 30 consecutive days will be allowed for public comment. Reports will be made available in the following way:

- Distribution for comment at central public places, which were used during the Scoping Phase;
- The document will be made available to download from the WSP website and the data-free website; and
- Soft copies of the report will be made available on request.

The EIA phase will provide the following information to I&APs:

- Initial Site Plan;
- Alternatives;
- A description of activities and operations to be undertaken;
- Baseline information;
- Specialist studies;
- Impact assessment;
- Management measures; and
- Monitoring and measuring plans.

The information outlined above will be presented in one or more of the following:

- Notifications;
- Scoping Report;
- EIR; and
- EMPr.

All comments received during the EIA phase will be recorded in the CRR, which will be included in the draft and Final EIR. The Final EIR will incorporate public comment received on the Draft EIR and will be made available for public review with hard copies distributed mainly to the authorities and key stakeholders.

9.8 NOTIFICATION OF ENVIRONMENTAL AUTHORISATION

All stakeholders will receive a letter at the end of the process notifying them of the authority's decision, thanking them for their contributions, and explaining the appeals procedure.

9.9 CONSULTATION WITH THE CA

It is envisaged that consultation with the DEA&DP will coincide with the compilation of the following key documents:

- DSR;
- FSR;
- Draft EIR/EMPr; and
- Final EIR/EMPr (including specialist studies).

10 WAY FORWARD

This FSR contains:

- A description of the existing and proposed activities;
- A description of the alternatives considered to date;
- An outline of the proposed process to be followed;
- Information on the proponent, EAP and stakeholders who have chosen to participate in the project;
- An outline of the environment in which the project falls;
- Information on the potential environmental impacts to be studied in more detail during the EIR phase of the project; and
- Information on the proposed specialist studies to be undertaken.

A number of environmental impacts have been identified as requiring some more in-depth investigation and the identification of detailed mitigation measures. Therefore, a detailed EIA is required to be undertaken in order to provide an assessment of these potential impacts and recommend appropriate mitigation measures.

The DSR was available for review from **07 May 2026** to **08 June 2026**. All issues and comments have been submitted to WSP and have been incorporated into the CRR of this FSR.

The FSR will be submitted to the DEA&DP responsible for authorising this project.

If you have any further enquiries, please feel free to contact:

Public Participation Office

WSP Group Africa (Pty) Ltd

Tel: 011 361 1300

E-mail: pp@wsp.com

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Appendix A

EAP CV



Appendix B

EAP DECLARATION



Appendix C

MAPS AND LAYOUT PLANS



Appendix C.1

LOCALITY MAP



Appendix C.2

LAYOUT MAP



Appendix C.3

CRITICAL BIODIVERSITY AREAS



Appendix C.4

WATERCOURSES



Appendix C.5

VEGETATION MAP



Appendix C.6

OVERALL SENSITIVITY MAP



Appendix D

DFFE SCREENING TOOL



Appendix E

STAKEHOLDER ENGAGEMENT REPORT





The Pavilion, 1st Floor
Cnr Portwood and Beach Road, Waterfront
Cape Town, 8001
South Africa

wsp.com