



Appendix G: Site Sensitivity Verification Report



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**PROPOSED CARPE DIEM NORTH SOLAR PHOTOVOLTAIC FACILITY ON
PORTION 5 OF THE FARM VARKENSLAAGTE NO. 119, NEAR
CARLETONVILLE, MERAFAONG CITY LOCAL MUNICIPALITY, GAUTENG**

SITE SENSITIVITY VERIFICATION REPORT

NOVEMBER 2024 (UPDATED APRIL 2025)

ORIGINAL PRE-APPLICATION REF NO: 2024-02-0047

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PROJECT DETAILS

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ACRONYMS

DFFE	Department of Forestry, Fisheries and the Environment
EMC	Environmental Management Consulting
EMF	Environmental Management Framework
ESA	Ecological Support Area
IA	Impact Assessment
N/A	Not Applicable
NEMA	National Environmental Management Act, Act No.107 of 1998
NHRA	National Heritage Resources Act, Act No. 25 of 1999
SACAA	South African Civil Aviation Authority
SSV	Site Sensitivity Verification
STR	Screening Tool Report
SWSA	Strategic Water Source Area

1. Disclaimer

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The Author/Environmental Assessment Practitioner (EAP) herewith confirms the correctness of the information provided in this report, including supporting documents and reports, to the best of his/her knowledge.

Neither Legacy EMC nor any of the authors of this report have any present or contingent material interest in the outcome of this project, nor do they have any pecuniary or other interest that could be reasonably regarded as capable of affecting their independence, or that of Legacy EMC.

Legacy EMC has no beneficial interest in the outcome of the assessment which is capable of affecting its independence.

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Site Sensitivity Verification Report

Carpe Diem North SPP



Legacy Environmental Management Consulting (Pty) Ltd

Name of the Company

30 April 2025

Date

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4. Legislative and Project Background

South Africa's Integrated Resource Plan 2010-2030 (IRP 2010) was promulgated in March 2011 as part of the country's National Development Plan. The IRP 2010 provides a 20-year forecast and strategy to meet electricity demand and reliability of supply needs, whilst aligning with the country's environmental (particularly climate change) commitments, social responsibilities, and economic policies.

To this end, the then Department of Energy (DoE) launched the Renewable Energy Independent Power Producer Procurement Programme (REIPPPP), to give effect to the IRP 2010 objectives and increase electricity generation capacity through private sector investment in renewable energies. This is implemented through the now Department of Mineral Resources and Energy's (DMRE's) procurement of electricity provided by Independent Power Producers (IPPs) through regulated competitive bidding processes known as bid windows.

The most recent promulgated revision of the IRP was undertaken in 2019 (IRP 2019) and contains energy demand forecasts for the period 2019 to 2030 with reference to electricity generation and expansion programmes through the REIPPPP.

Towards the end of 2023, the DMRE initiated a seventh Bid Window (BW 7) under the REIPPPP, with BW 8 being announced early in 2024. BW 7 is currently active, and the Proponent plans to submit a bid proposal for the Carpe Diem North Solar Photovoltaic Plant (SPP) either in BW 7, or BW 8.

The legislative process for development in South Africa is regulated by the National Environmental Management Act, 1998 (Act No. 107 of 1998) as amended (NEMA). The NEMA makes provision for the identification and assessment of listed activities that are potentially detrimental to the environment, and which require authorisation from the competent authority based on the findings of an environmental impact assessment (EIA). The EIA process can either be a Basic Assessment, or a more comprehensive Scoping and Environmental Impact Assessment.

Schedules of listed activities, promulgated in the 2014 EIA regulations (as amended) under Section 24(5) of the NEMA, were evaluated to determine which actual and potential listed activities apply to the proposed Carpe Diem North SPP facility. The proposed SPP development triggered listed activities requiring a Scoping and EIA to accompany the application for environmental authorisation (EA).

The Proponent, JUWI Renewable Energies (Pty) Ltd (JUWI), initially secured the proposed development property i.e., Portion 5 of the Farm Varkenslaagte No. 119, in 2022, with the intention of developing the entire site, bar verified environmental and Eskom related no-go areas, as a SPP with associated infrastructure. Part of the associated infrastructure for the originally proposed SPP, includes an overhead power line (OPL) to connect the facility to the national grid, as well as an on-site substation and an on-site photovoltaic (PV) battery energy storage system (BESS), to service the SPP.

The development of an SPP triggers a Scoping and EIA process under the NEMA and 2014 EIA Regulations, as amended. To this end, JUWI has initiated an EIA process for the entire Portion 5 of the Farm Varkenslaagte No. 119 with scoping phase assessments. Environmental Assessment Practitioner (EAP) and Specialist site visits were undertaken towards the end of 2022 and early in 2023, with more detailed site verification studies conducted from July 2023 to the mid-April 2024. The Specialist assessments and compliance statements undertaken were guided, as a baseline, by the specialist assessment recommendation and protocols of the DFFE's National web-based Screening Tool Report (STR).

5. Purpose of Report

The site sensitivity verification documented in this report was undertaken in terms of the *Protocols for the Assessment and Minimum Criteria for Reporting on identified Environmental Themes* (referred to as "the Protocols") as per Government Notice No. 320, promulgated in Government Gazette No. 43110 on 20 March 2020.

In terms of Sections 24(5)(a), 24(5)(h) and 44 of the NEMA, the Protocols require that the EAP must verify the current use of the proposed site for development as well as the site's environmental sensitivity, in accordance with the DFFE's National Web-based Environmental STR, to determine the applicability of the NEMA and EIA Regulations, 2014 (as amended), to the development proposal.

The Protocols came into effect on 09 May 2020 and must be complied with when interrogating the sensitivity ratings presented in the STR for every new application for environmental authorisation made to the competent authority, or submission of a STR verification related request.

This report was compiled based on site visits undertaken by the EAP team and various specialists during the latter part of 2022, January/February 2023, as well as during July 2023 to December 2023 and then again from February 2024 to August 2024. Site sensitivities were determined using these site visits together with desktop studies incorporating various databases and information sources such as, the Vegetation Map of SA (Mucina & Rutherford, 2006); the South African National Biodiversity Institute's (SANBI's) 2011 Gauteng Conservation-Plan, National Freshwater Ecosystem Priority Areas (NFEPA), landcover, and threatened terrestrial ecosystems maps; Google Earth imagery; and property specific sensitivity maps provided by the respective specialists.

This Site Sensitivity Verification Report (SSVR) also serves to confirm the specialist studies that have/ will be undertaken and/ or a motivation for not undertaking any of the specialist studies identified in the STR.

It should be noted that the original DFFE's National Web-based Environmental Screening Tool was completed for the originally planned SPP facility including the preferred 'Loop-in, Loop-out' (LiLo) OPL connection, which lies within the actual development property (using the 'Infrastructure | Electricity | Generation | Renewable | Solar |' STR Application Category).

Table 1 below indicates sensitivity ratings from the STR for the original/ preferred development footprint.

This report is submitted to the DFFE, as the competent authority, for comment and/ or decision-making purposes.

6. Development Proposal

The proposed Carpe Diem North SPP is a large-scale electricity generating facility with associated infrastructure, within a Strategic Transmission Corridor since it is located in the area immediately north of, and adjacent to, Eskom's Carmel Main Transmission Substation (MTS), on Portion 5 of the Farm Varkenslaagte No. 119, near Carletonville, West Rand District Municipality, Gauteng. The development site property extends over approximately 290 hectares (ha) and the proposed development will have an electricity generation capacity of up to 150 MW.

The Carpe Diem North SPP and associated infrastructure is located approximately 2 km south of the residential area of Welverdiend and 8.5 km south-west of the town of Carletonville in the Merafong City Municipality, Gauteng. The proposed development footprint is in a rural area i.e., it falls outside of the nearest town's urban edge. The property is zoned Agriculture I and does not require rezoning to Industrial to accommodate the proposed development since the Merafong City Local Municipality's Merafong Land Use Management Document, 2020 states that, "Renewable Energy Infrastructure is a primary land use right under the zoning of "Agriculture". Therefore, no re-zoning is required as the rights are already allocated, in terms of the scheme.

Originally, the Carpe Diem site was viewed as one project made up of two sections viz. Carpe Diem North, on Portion 5 of the Farm Varkenslaagte No. 119, which lies immediately to the north of Eskom's Carmel Main Transmission Substation (MTS), and Carpe Diem South, on Portion 27 of the Farm Doornfontein No. 118, which lies immediately to the south of Eskom's Carmel MTS. All specialists, were therefore, appointed to assess the total, then known as, 'Carpe Diem', project area.

Some specialist reports which were appended to the Scoping Phase Reports, have been updated. These reports are appended to the Draft Environmental Impact Assessment Report (DEIAR) and include assessments of both Portion 5 of the Farm Varkenslaagte No. 119, as well as Portion 27 of the Farm Doornfontein No. 118, as one combined assessment. Nonetheless, the Specialists' sensitivity mapping/s contained in their respective reports, clearly indicate the site applicability of the respective assessment/s.

However, the Applicant, JUWI Renewable Energies (Pty) Ltd, now intends to develop the approximately 290 ha Carpe Diem North property as an independent SPP with an electricity generation capacity of up to 150 MW, as well as an on-site SPP substation. This SSVR has used information from the various Specialist Assessment attached in Appendix D of the DEIAR, as is relevant to the Carpe Diem North site.

The on-site Carpe Diem North SPP substation and power line grid connection will most likely be a less than 150 m in length, Loop-in, Loop-out (LiLo) tie-in to an existing 132 kV Eskom High Voltage (HV) overhead power line (OPL), which runs through the development property. This is the Applicant's most preferred layout alternative (Alternative 1) for the project and is located entirely on the development site, Portion 5 of the Farm Varkenslaagte No. 119.

Alternative 2 and Alternative 3 do not involve LiLos within the development site but consist of the same SPP layout with power line corridors (comprising underground power line (UPL) and overhead power line (OPL) routes to connect to Eskom's Carmel MTS. These layout alternatives have power line corridor footprints, which fall partly on the proposed development site and partly on the neighbouring Eskom Carmel Main Transmission Substation property i.e., Portion 23 of the Farm Doornfontein No. 118. The Carpe Diem North SPP grid connection route will be confirmed after grid connections negotiations with Eskom are finalised.

The generating component of the SPP contains ground-based photovoltaic (PV) panel arrays mounted on either a single or dual tracking axis system.

The proposed Carpe Diem North SPP development entails permanent and temporary/construction infrastructure development:

- Permanent infrastructure consists of the solar panel array, fencing, 4 m to 8 m wide internal (dirt) access roads, SPP inverters and transformers, an on-site substation including control rooms, operation and maintenance buildings including offices, ablutions, storage buildings, a conservancy tank, water storage facilities, stormwater management and UPL cables and/or OPL pylons leading from the on-site substation to a point of connection with the National electricity grid. The on-site substation will comprise a collector station portion and a switching station portion.
- Temporary/construction infrastructure includes lay down area/s, construction site offices, storage buildings, as well as a batching plant and stockpile area. Construction ablutions would be provided by means of regularly serviced portable toilets and tanker trucks would supply water.

Water supply will be sourced from either neighbouring farms or third-party water suppliers and trucked onto site. Sewage will be treated via an on-site sewage package plant and conservancy tank. Waste will be temporarily stored on site and removed to the nearest appropriately registered waste disposal site via contracted service providers. Electricity will be sourced from the SPP itself.

The proposed Carpe Diem North SPP EA application consists of three main portions:

- i. The 150 MW Carpe Diem North SPP panel array with inverter-transformer stations;
- ii. the on-site Carpe Diem North SPP substation which is, in essence, is divided into two functional portions viz.
 - a. the IPP 'collector substation' portion where evacuated electricity from the SPP facility will be collected, and
 - b. the 'switching station' substation portion where the evacuated electricity will be stepped-up/transformed from 33 kV, to 132 kV before it is fed into the national grid;
- iii. the short 132 kV overhead 132 kV power lines strung on steel lattice pylons which will conduct electricity towards the point of connection with the national grid at Eskom's adjacent Carmel Substation.

As is common for these types of projects, the bulk of the permanent grid connection infrastructure that connects the project to the national grid via Eskom's Carmel Substation, will be handed over to Eskom once built. Future Eskom infrastructure are the portions ii(b) and iii, as listed above.

The Proponent plans to submit this project in the next Bid Window of the Renewable Energy Independent Power Producer Procurement Programme (REIPPPP). In the event of an unsuccessful bid, the Proponent intends to bid the project in subsequent REIPPPP bidding windows.

7. Wind or Solar developments within 30km of the proposed area

The Screening Tool Report indicates a total of seventeen solar PV developments within a 30 km radius of the Carpe Diem North SPP site. The proximity of these developments range from immediately adjacent to the proposed Carpe Diem North SPP development site (0 km) to the furthest located 17 km away.

However, it should be noted that, JUWI Renewable Energies (Pty) Ltd (the Proponent) is also proposing the development of a 150 MW solar PV facility, immediately adjacent to, and to the south of, the Carpe Diem North SPP and Carmel MTS property (Portion 23 of the Farm Doornfontein No. 118). The facility will be known as the Carpe Diem South SPP.

8. Environmental Management Frameworks (EMFs)

The area in which the proposed development site is located, falls into the Gauteng Provincial Environmental Management Framework, which demarcates the province into several categories of Critical Biodiversity Areas (CBAs) or Ecological Support Areas (ESAs) with varying degrees of restriction (see Sensitivity Maps attached as Figure 48 of the DEIAR). The proposed development footprint, bar the less likely OPL alternative corridor, has been deliberately positioned in an area, which does not encroach on any CBAs or ESAs.

9. Relevant development incentives, restrictions, exclusions, or prohibitions

The Screening Tool identified the following development incentives, restrictions, exclusions, or prohibitions:

- 🌱 Strategic Transmission Corridor – Central Corridor: Provision and requirement for use of Generic EMPs for substations and overhead electricity transmission and distribution infrastructure.
Generic EMPs for substations and overhead electricity transmission and distribution infrastructure which require EA, have been compiled and appended to the DEIAR under Appendix I.
- 🌱 Strategic Gas Pipeline Corridors - Phase 3: Richards Bay to Gauteng: No Gas Pipeline involved in proposed development.
Not applicable due to the nature of the proposed development.
- 🌱 Main Electricity Transmission Substation: Applicable to application for an EA under NEMA 2014 EIA Regulations Listing Notice (LN) 1, Activities 1 and 36, as well as LN 2, Activity 1 (i.e., renewable energy generating facilities). A letter of consent in terms of substation accessibility, is required from Eskom.
Applicable due to the nature of the proposed development – Eskom consent requested.
- 🌱 Main Electricity Distribution Substation: Applicable to application for an EA under NEMA 2014 EIA Regulations Listing Notice (LN) 1, Activities 1 and 36, as well as LN 2, Activity 1 (i.e., renewable energy generating facilities). A letter of consent in terms of substation accessibility, is required from Eskom.
Carmel Substation is a Main Transmission Substation – Eskom consent has been requested.

10. Need and Desirability of Proposed Development

As described in Section 4 above, the REIPPPP forms part of South Africa's IRP which provides a 20-year forecast and strategy to meet electricity demand and reliability of supply needs. The IRP further aligns the country with its international and domestic environmental (particularly climate change) commitments, social responsibilities, and economic policies.

The fluctuating nature of the country's power generation capacity due to planned and unplanned coal-fired power station outages/ down-time, results in an electricity supply that is almost constantly under strain. Adding renewable energy electricity generation to the country's energy supply capacity enables less reliance on coal-fired electricity generation.

The Carpe Diem North SPP Facility will be beneficial to the national economy and reliability of electricity supply for several reasons:

- 🌱 It produces no particulate matter air pollution during operation when compared to coal-fired power stations.
- 🌱 It produces far less solid waste for disposal (such as coarse ash disposed on ash dumps or in ash dams), on a daily/ operational level than the currently dominant coal fuelled electricity generation.
- 🌱 It contributes towards climate change resilience and adaptation by diversifying electricity supply and doing so with no significant gaseous (green-house gas) pollution during operation.
- 🌱 The Carpe Diem North SPP Facility's proximity to Eskom's Carmel MTS allows for minimal loss of power to the conductor (power line) during transmission of power to and from Carmel MTS. This benefit is further enhanced should the preferred LiLo option of tie-in to Eskom's existing 132 kV be implemented.
- 🌱 The proposed LiLo grid connection option carries the least negative environmental impact in that it does not require a new servitude or OPL corridor to be established but would involve one or maybe two pylons, within the existing Eskom servitude, to facilitate direct tie-in of the electrical connection from the SPP on-site substation to Eskom's existing 132 kV OPL.
- 🌱 The LiLo option is also the most effective means of ensuring that the maximum amount of electricity is fed back into the National grid when required since the very short (less than 100 m) OPL will minimise any power/ energy losses to the conductor.

11. Proposed Development Area Environmental Sensitivity

The STR generated for the proposed development is for the SPP and preferred OPL development footprint (Alternative 1), which proposed a Loop-in, Loop-out tie in to an existing 132 kV OPL that runs immediately to the east of the on-site SPP substation. This preferred development footprint lies completely on Portion 5 of the Farm Varkenslaagte No. 119 and does not encroach on any 'High' or 'Very High' environmentally sensitive areas.

The STR provides the indicative environmental sensitivities for the proposed development footprint; that must be verified with ground-truthing site visits before the specialist assessments identified in the STR can be confirmed.

Table 1 presents the outcomes of the Site Sensitivity Verification (SSV) undertaken as required by the DFFE Protocol and confirms which specialist assessments have been undertaken, providing a reasoned motivation where certain specialist assessments as identified in the STR have not been undertaken as part of the application for environmental authorisation.

Specialist assessments/ statements are included in Appendix D of the DEIAR. Table 1 below indicates where the SSV revealed that a full Specialist study/ assessment is not required, or that a Compliance Statement instead of a Full Impact Assessment Report was sufficient.

Table 1: Requirements of GN No 320: Procedures for the Assessment and Minimum Criteria for Reporting on Identified Environmental Themes when applying for Environmental Authorisation.

Web-Based Screening Tool Outcomes				DEFF Protocols Requirements			Comment
Theme	Sensitivity and Features			Protocol Published (Y / N)	Compliance Statement (Y / N)	Specialist Study (Y / N)	
Agriculture	SPP and Most Preferred OPL LiLo Corridor Footprint:			Y	Y – post SSV indicated a Medium sensitivity	Y (but post SSV – N)	The STR determined a 'High Sensitivity' for the Agriculture Theme. However, after SSV the Agricultural Specialist disputed the 'High Sensitivity' rating and verified that the site is, in fact a 'Medium Sensitivity'. An Agricultural Compliance Statement was therefore provided for the project. Furthermore, the Specialist report (attached as Appendix D1 of the DEIAR) states that the STR "rating of the agricultural sensitivity of the assessment area is mostly medium but it includes some areas of high sensitivity. This assessment disputes the classified land capability, based on the assessment of the cropping potential of the site in this report. It verifies the land capability as a maximum of 7 (unsuitable for cropping). This assessment therefore disputes the high sensitivity rating by the screening tool and verifies the entire assessment area as being of medium agricultural sensitivity. The cropping potential of the site is limited predominantly by the shallow soils. The site is not suitable for rain-fed crop production. The limited agricultural potential of the site limits its agricultural use to grazing only".
	Very High sensitivity	High sensitivity	Medium sensitivity				
Animal Species	SPP and Most Preferred OPL LiLo Corridor Footprint:			Y	Y – Animal Species Compliance Statement (Medium Sensitivity)	Y (but post SSV – N)	The STR list of animals warranting a 'Medium' rating for the site, bar avifaunal species mentioned below, are the 'Vulnerable' Bush cricket (<i>Clonia uvaroi</i>), the 'Least Concern' Potchefstroom blue butterfly (<i>Lepidochrysops procera</i>) and the 'Vulnerable' Spotted-necked otter (<i>Hydriclis maculicollis</i>). An Animal Species Compliance Statement, which has been attached as Appendix D3.2 of the DEIAR and (as relevant to the Carpe Diem North site), states that, "Uvarov's <i>Clonia</i>, <i>Lepidochrysops praeterita</i> and <i>Lepidochrysops procera</i> will be all but unaffected by the proposed development especially in context with the prevailing current impacts on site. The likelihood of occurrence of the species is marginal at best but given the moderate to high impact development footprint on the species, avoidance of the bushveld habitat is the only option here". All areas indicated as 'High' sensitivity no-go areas (including buffers provided by the Specialist) have been avoided. Bushveld habitat associated with the ridge/sloped terrain falls within the Ecological Support Area (ESA) which is also a no-go area and has been avoided. The Animal Species Compliance Statement further states that, "Both the <i>Maquassie Musk Shrew</i> (<i>Crocidura maquassiensis</i>; IUCN Vulnerable) and <i>Spotted-neck Otter</i> (<i>Hydriclis maculicollis</i>; IUCN Vulnerable) are considered (under the precautionary principle) to occur within the watercourse habitats in the study area. The presence of these species elevates the site ecological importance (SEI) of the river/riparian/wetland habitats to HIGH. Habitats with a High SEI should be avoided by development infrastructure and activities (SANBI 2020)". There are no watercourses within the Carpe Diem North SPP Facility site (see Aquatic Specialist Report attached as Appendix D2 of the DEIAR), and it appears that the statement concerning these mammals is more relevant to the Carpe Diem South site, which does have watercourses/wetland habitats. With specific reference to the <i>Maquassie Musk Shrew</i>, it should be noted that the Compliance Statement also states that, "... it is assumed that the species is present in the wetland habitats within the Project Area of Influence but not within the affected development footprint". The STR indicates that there are three species of bird (the African marsh harrier, the African grass owl and the White-bellied bustard). The STR indicates that there are three species of bird viz. the African marsh harrier (<i>Aves-Circus ranivorus</i>), the African grass owl (<i>Aves-Tyto capensis</i>) and the White-bellied bustard (<i>Aves-Eupodotis senegalensis</i>). The African grass owl is classified as a 'Vulnerable' species and the other two bird species as classified as species of 'Least Concern' in terms of Conservation Status.
	Very High sensitivity	High sensitivity	Medium sensitivity				

Site Sensitivity Verification Report

Carpe Diem North SPP Facility



Web-Based Screening Tool Outcomes					DEFF Protocols Requirements			Comment								
Theme	Sensitivity and Features				Protocol Published (Y / N)	Compliance Statement (Y / N)	Specialist Study (Y / N)									
								The STR lists the African marsh harrier has a ‘High’ sensitivity rating, while the African grass owl and the White-bellied bustard both have medium sensitivity ratings. The Avifaunal Specialist Report (Appendix D4 of the DEIAR) and discussed in detail below, states that, “ <i>The PAOI [Project Area of Interest] as a whole is not considered an area of avifaunal importance, although the impact assessment must follow avoidance mitigation</i> ”.								
Aquatic Biodiversity	SPP and Most Preferred OPL LiLo Corridor Footprint: <table><tr><th>Very High sensitivity</th><th>High sensitivity</th><th>Medium sensitivity</th><th>Low sensitivity</th></tr><tr><td></td><td></td><td></td><td>X</td></tr></table>				Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity				X	Y	Y	Y	This site sensitivity rating is not disputed since there are no aquatic features prevalent on the proposed SPP and associated infrastructure footprint. It must be noted that since the original SSV was undertaken for the combined properties of the now Carpe Diem North site viz. Portion 5 of the Farm Varkenslaagte No. 119, and the Carpe Diem South site viz. Portion 27 of the Farm Doornfontein No. 118, the Specialist report (attached as Appendix D2 to the DEIAR) refers to the original STR used for preliminary screening which indicated a ‘Very High’ Aquatic sensitivity. According to the Aquatic Specialist the “<i>Combined Aquatic Biodiversity Theme Sensitivity is classified as ‘Very High’ (DFFE, 2022). The classification trigger is the location of the proposed development area within a Strategic Groundwater Source Area (SWSA) for Groundwater (Far West Karst Region), as well as the presence of aquatic Critical Biodiversity Areas (CBAs) and watercourses within the proposed development area. After the field assessment conducted on the 27th and 28th of October 2022; as well as the 16th and 17th of February 2023, the majority of the development area was determined to be of “Low” aquatic sensitivity, apart from areas where the proposed activities traverse wetland areas which were subsequently deemed to be of “Very High” aquatic sensitivity</i>”. It should be noted that the Carpe Diem North site does not traverse any watercourses as indicated in the Aquatic Biodiversity Report. The Combined Aquatic Biodiversity sensitivity for the proposed Carpe Diem North SPP Facility has deliberately been located in an area where aquatic sensitivity is rated as ‘Low’.
Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity													
			X													
Archaeological and Cultural Heritage	SPP and Most Preferred OPL LiLo Corridor Footprint: <table><tr><th>Very High sensitivity</th><th>High sensitivity</th><th>Medium sensitivity</th><th>Low sensitivity</th></tr><tr><td>X</td><td></td><td></td><td></td></tr></table>				Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity	X				N	N	Y (post SSV for Carpe Diem North SPP indicated ‘Low’ sensitivity)	According to the Heritage Impact Assessment report, “<i>the pre-construction and construction phase of the proposed development will entail extensive surface clearance and excavations into the superficial sediment cover and underlying bedrock. The possible pre-construction impacts calculated on the tangible cultural heritage resources is an overall ‘Medium Negative’ rating. Still, with the implementation of the recommended buffers and management guidelines will be reduced to a ‘Low Negative’ impact</i>”. The Heritage Assessment included a Palaeontological Impact Assessment which also refutes the STR’s ‘Very High’ Palaeontological rating. See below.
Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity													
X																
Avian	SPP and Most Preferred OPL LiLo Corridor Footprint: <table><tr><th>Very High sensitivity</th><th>High sensitivity</th><th>Medium sensitivity</th><th>Low sensitivity</th></tr><tr><td></td><td>X</td><td></td><td></td></tr></table>				Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity		X			Y	N	Y – (post SSV for Carpe Diem North SPP indicated ‘Medium to Low’ sensitivity)	The STR indicates that there are three species of bird viz. the African marsh harrier (<i>Aves-Circus ranivorus</i>), the African grass owl (<i>Aves-Tyto capensis</i>) and the White-bellied bustard (<i>Aves-Eupodotis senegalensis</i>). The African grass owl is classified as a ‘Vulnerable’ species and the other two bird species as classified as species of ‘Least Concern’ in terms of Conservation Status. Based on the DFFE STR generated for the project, the Animal Combined Sensitivity Theme for the project area of influence (PAOI) is indicated as a combination of ‘Low’ and ‘High’ sensitivity. The Avifaunal Specialist is of the opinion that the DFFE STR, for the actual Carpe Diem North SPP project area (PA) footprint was ‘Medium’ Sensitivity and that the STR did not take into account the supposed proximity to Cape Vulture roosting habitat related to OPLs, which was activated for a separate proposed development within Carletonville (about 8 km away) in which the Avifaunal Specialist is involved.
Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity													
	X															

Site Sensitivity Verification Report

Carpe Diem North SPP Facility



Web-Based Screening Tool Outcomes					DEFF Protocols Requirements			Comment								
Theme	Sensitivity and Features				Protocol Published (Y / N)	Compliance Statement (Y / N)	Specialist Study (Y / N)									
								Nonetheless, the Avifaunal Specialist stated that, “<i>The proposed Carpe Diem SEF¹ is not located in an Important Bird Area (IBA) or protected area,</i>”. The proposed development site is located within 5 km of the expansive Abe Bailey Nature Reserve. However, the Avifaunal Specialist Report states that although the PA “shows some proximity to protected areas and IBAs, the PA shows no ecological linkage to these habitats”. The report further states that, “Due to the moderate diversity and density of the above-mentioned SCC recorded during the survey, (including regionally and globally listed Endangered and Vulnerable birds), the PAOI is not considered an area of Critical avifaunal importance, although the impact assessment must follow avoidance mitigation due to regional high avifaunal sensitivity. No nests were confirmed to be present after the completion of the 6-month pre-construction monitoring. Any establishment of nests that arise during or post construction will be subject to mitigation measures referring to the above guidelines described as well as the mitigation measures characterised in the Impact Analysis below. The presence of Cape Vultures within the PAOI has no bearing on the site layout for the Carpe Diem SEF”.								
Civil Aviation	SPP and Most Preferred OPL LiLo Corridor Footprint: <table><tr><td>Very High sensitivity</td><td>High sensitivity</td><td>Medium sensitivity</td><td>Low sensitivity</td></tr><tr><td></td><td></td><td>X</td><td></td></tr></table>				Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity			X		Y	Y	N (but Glint and Glare and Vertical Obstruction studies undertaken)	The STRs indicate a ‘Medium’ sensitivity rating for the proposed Carpe Diem North SPP Facility due to its location within 8 km of a civil aviation aerodrome. The Carletonville Aerodrome lies about 5 km to the north-east from the northern most corner of the Carpe Diem North SPP Facility. Although only a specialist Compliance statement was required due to the ‘Medium rating’, a specialist Glint and Glare Assessment was specifically undertaken because the proposed development planned for the property by JUWI, is an SPP. A Specialist Glint and Glare Study (Appendix D12 of the DEIAR) and a separate Obstacle Evaluation report in line with the International Civil Aviation Organization (ICAO) Annex 14 requirements to be submitted to the South African Civil Aviation Authority (SACAA), was commissioned to evaluate the potential Civil Aviation impacts. The Specialist reports states that “<i>The Carletonville Airstrip (ICAO: FACR) is a small-scale aerodrome primarily utilized by the Johannesburg Skydiving Club for conducting skydiving operations. The aerodrome features a single runway identified as Runway 13/31, positioned in an East-West configuration</i>”, and further recommends (after assessment of the potential impacts of the proposed development on the operation off the Aerodrome), that “<i>the project receive authorisation from the Civil Aviation Authority from a glint and glare perspective</i>”. In terms of vertical obstacles, the proposed Carpe Diem North SPP Facility is surrounded by HV pylons to the east and west and Carmel MTS to the south/south-west. In addition, the topography of the landscape towards the north/north-easterly direction from the proposed SPP Facility includes a hill (to the immediate north-east) and several mine tailings dams/dumps of more than 10 m in height. Although the exact height of any telecommunication mast is not known, should an 11 m to 15 m telecommunications mast be installed as part infrastructure required for the project, it is not anticipated that the structure would cause additional vertical obstruction to the Carletonville Aerodrome traffic, than the vertical obstructions currently in the area.
Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity													
		X														
Defence	SPP and Most Preferred OPL LiLo Corridor Footprint: <table><tr><td>Very High sensitivity</td><td>High sensitivity</td><td>Medium sensitivity</td><td>Low sensitivity</td></tr><tr><td></td><td></td><td></td><td>X</td></tr></table>				Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity				X	Y	N	N	In terms of the DFFE Protocol, a low sensitivity rating indicates that ‘<i>no negative impacts on defence installations are expected</i>’. No further assessment requirements were identified or undertaken.
Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity													
			X													

¹ Specialist refers to the SPP as a Solar Energy Facility (SEF)

Web-Based Screening Tool Outcomes				DEFF Protocols Requirements			Comment						
Theme	Sensitivity and Features			Protocol Published (Y / N)	Compliance Statement (Y / N)	Specialist Study (Y / N)							
Relative Landscape Solar	SPP and Most Preferred OPL LiLo Corridor Footprint:			N	Y	Y (but post SSV – N)	A high sensitivity rating indicates that a specialist assessment must be undertaken but the STR did not identify any specialist study/assessment for inclusion in the SSV or impact assessment report, neither are any protocols provided for such an assessment. Nonetheless various specialist reports that address the sensitivity requirements have been undertaken as indicated below: High Sensitivity due to a Slope between 1:4 and 1:10 – a Visual Impact Assessment was undertaken as per Appendix D5 of the DEIAR. Additionally, a Glint and Glare Assessment as well as a Vertical Obstruction Assessment were undertaken (Appendix D12). Areas of increased slope fall within designated no-go regions, which will not be developed with solar arrays. High Sensitivity due to the development property being within 500 m of a river – the only area that potentially falls within 500 m of a watercourse is the south-western corner of the development site <u>property</u>. The area of land that actually falls within the 500 m zone of regulation for watercourses (under the National Water Act, No. 36 of 1998) is designated as a no-go area and is to be left free of development to allow for a visual buffer. An Aquatic Biodiversity Specialist Assessment has been undertaken (as per Appendix D2 of the DEIAR). Medium Sensitivity due to the development property being within 2 km of a town or village – a baseline Socio-economic Assessment was undertaken as per Appendix D7 of the DEIAR. Medium Sensitivity due to the development property being within 1000 m of a wetland – an Aquatic Biodiversity Specialist Assessment, has been undertaken (Appendix D2 of the DEIAR). Very High Sensitivity due to mountain tops and high ridges – The only ridges identified near the development site is a Class 2 ridges on two adjacent properties which lie to the east and south of the proposed SPP. Both ridges fall outside Carpe Diem North SPP Facility’s development footprint. Nonetheless, the ridge to the south was highlighted in the Terrestrial Biodiversity Assessment (attached as Appendix D3.2 of the DEIAR), the entire ridge has been designated as a no-go area and no development is proposed on or near the ridge. The ridge located on property to the east of the proposed development site, forms part of a Class 2 Ecological Support Area (ESA 2) and the hill that falls within this ESA 2 and lies within the proposed development site has been designated as a no-go area (refer to Figure 48 of the DEIAR – Sensitivities Map).						
	<table><tr><td>Very High sensitivity</td><td>High sensitivity</td><td>Medium sensitivity</td><td>Low sensitivity</td></tr><tr><td>X</td><td></td><td></td><td></td></tr></table>							Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity	X	
Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity										
X													
Palaeontological	SPP and Most Preferred OPL LiLo Corridor Footprint:			N	Y	Y (but post SSV – N)	Although the Archaeological and Cultural Heritage Assessment (attached as Appendix D6.1 to the DEIAR) rated the proposed development as a Medium to Low sensitivity, the Heritage Assessment included a Palaeontological Impact Assessment, which negated the STR’s ‘Very High’ Palaeontological rating for the Carpe Diem North property. However, according to the Heritage specialist (<i>pers. comm.</i> Wouter Fourie PGS Heritage) the high palaeontological sensitivity rating in the STR is typically due to the Dolomitic nature of the geology of the area and the Palaeontological Impact Assessment undertaken provided comprehensive verification that this rating should actually be ‘Medium’ pre-mitigation and ‘Low’, post mitigation.						
	<table><tr><td>Very High sensitivity</td><td>High sensitivity</td><td>Medium sensitivity</td><td>Low sensitivity</td></tr><tr><td>X</td><td></td><td></td><td></td></tr></table>							Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity	X	
Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity										
X													
Terrestrial Plant Species	SPP and Most Preferred OPL LiLo Corridor Footprint:			Y	Y - Terrestrial Plant Species Report (High Sensitivity)	Y	The STR identified the Carpe Diem North SPP Facility as having a ‘Very High’ sensitivity rating. A Terrestrial Biodiversity Assessment (attached as Appendix D3.1 of the DEIAR) with attention to flora/plant species was undertaken. The proposed Carpe Diem North SPP Facility has been deliberately positioned in an areas of ‘Low’/‘Medium’ sensitivity and takes cognisance of the Terrestrial Biodiversity Specialist’s <u>verified</u> Ecological Support Areas and Critical Biodiversity Areas.						
	<table><tr><td>Very High sensitivity</td><td>High sensitivity</td><td>Medium sensitivity</td><td>Low sensitivity</td></tr><tr><td>X</td><td></td><td></td><td></td></tr></table>							Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity	X	
Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity										
X													

Site Sensitivity Verification Report

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Web-Based Screening Tool Outcomes					DEFF Protocols Requirements			Comment								
Theme	Sensitivity and Features				Protocol Published (Y / N)	Compliance Statement (Y / N)	Specialist Study (Y / N)									
								In addition, the Gauteng C-Plan v.3.3 (since this application occurred before 1 April 2025, when v4 of the C-Plan became applicable), was taken in account for the site itself and verified/ground-truthed by the Specialist. Refer to Site Development Layout with Environmental Sensitivities Overlay indicated in Figure 48 of the DEIAR. The presence and abundance of alien invasive species are high with several other impacts including roads, waterways, agricultural land, secondary grassland (previously ploughed) and rubbish dumping. The Terrestrial Biodiversity sensitivity rating has given the Rocky Grassland and Watercourses as ‘High’ sensitivity and the Grassland, which is a combination of natural and disturbed habitat, as ‘Moderate’ sensitive. Hence, the DFFE sensitivity rating for these two themes is disputed but the verified ‘High’ sensitivity areas have been avoided as designated a no-go areas (Figure 48, of the DEIAR).								
Radio Frequency Interference (RFI)	SPP and Most Preferred OPL LiLo Corridor Footprint: <table><tr><td>Very High sensitivity</td><td>High sensitivity</td><td>Medium sensitivity</td><td>Low sensitivity</td></tr><tr><td></td><td></td><td></td><td>X</td></tr></table>				Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity				X	N	N	N	In terms of the DFFE Protocol, a low sensitivity rating indicates that ‘<i>no negative impacts in terms of RFI are expected</i>’. No further assessment requirements were identified or undertaken.
Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity													
			X													
Terrestrial Biodiversity	SPP and Most Preferred OPL Corridor Footprint: <table><tr><td>Very High sensitivity</td><td>High sensitivity</td><td>Medium sensitivity</td><td>Low sensitivity</td></tr><tr><td>X</td><td></td><td></td><td></td></tr></table>				Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity	X				Y	Y	Y	The verified STR ratings mapped in the Terrestrial Biodiversity Report, for the actual SPP Preferred Alternative layout footprint i.e., including the LiLo corridor, indicates a ‘Medium’ sensitivity rating. The SPP facility itself covers areas of ‘Medium’ and ‘High’ sensitivity areas but the areas where the facility footprint appears to be in ‘High’ sensitivity areas are confined to existing roads, fences and stormwater drainage. Although the Specialist assessment undertaken indicates that the Alternative 3 grid connection option lies very close to an area of a ‘Very High’ to ‘High’ sensitivity for Terrestrial Biodiversity, this rating is triggered by the Least Likely power line corridor, which is proposed to be underground in the area of ‘High’ sensitivity as part of the mitigation hierarchy approach for impact management of the Alternative 3 grid connection option. Furthermore, Alternative 3’s corridor lies primarily on disturbed/transformed land.
Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity													
X																
Visual	Not indicated in the proposed SPP Facility STR				N	N	N	A Visual Impact Assessment was undertaken congruent to the Scoping phase of an EIA process. The finding as detailed in Appendix D5 of the DEIAR, stated that during the construction phase impacts on the visual environment were “<i>assessed to have a Low intensity over a localized area and would occur over the short-term (less than five years). The significance of the unmitigated impact would be localized but extend beyond the site boundary (to at least 3,0km in some areas) and is predicted to be Moderate. The implementation of mitigation measures would not significantly reduce the anticipated impact, which would remain Moderate.</i> <i>The impact on the visual environment during the operational phase is assessed to have a Moderate intensity and would occur over the long-term (anticipated to be thirty years). The unmitigated impact would be localized but extend beyond the site boundary (to at least 3,0 km) and is assessed to be Moderate. The significance of a moderate impact is that it should have an influence on the decision and the impact will not be avoided unless it is mitigated. With effective mitigation the impact could reduce to Low.</i> <i>At decommissioning the impact is expected to have a low intensity over a localized area and would occur over the short-term (less than five years). The significance of the unmitigated impact would be localized but extend beyond the site boundary (to at least 3,0km in some areas) and is predicted to be</i>								

Site Sensitivity Verification Report

Carpe Diem North SPP Facility



Web-Based Screening Tool Outcomes		DEFF Protocols Requirements			Comment
Theme	Sensitivity and Features	Protocol Published (Y / N)	Compliance Statement (Y / N)	Specialist Study (Y / N)	
					<i>Low. The implementation of mitigation measures would not significantly reduce the anticipated impact during this phase and would remain Low."</i>
Socio-economic	Not indicated in the proposed SPP Facility STR	N	Y	Y	A socio-economic assessment was undertaken for what would have been the Scoping Phase of the project. See Specialist report attached as Appendix D7 of the DEIAR.
Geohydrological	Not indicated in the proposed SPP Facility STR	N	N	N (but studies undertaken)	A full geohydrological assessment with a hydrocensus of neighbouring properties to ascertain potential water supply to any development in the area (be it the original SPP Facility or the proposed SPP Facility) was undertaken. Water supply will probably be sourced from a neighbouring water supply entity and trucked on to site for storage in 20 000l tanks on the site.
Geotechnical	Required in the proposed SPP STR but not given a sensitivity rating.	N	Y	Y	A preliminary dolomite risk assessment was undertaken by JUWI for Portion 5 of the Farm Varkenslaagte No. 119. See Specialist report attached as Appendix D11 to the DEIAR. Since no significance rating was allocated to this theme, the equivalent of a Compliance Statement (i.e., a preliminary geotechnical risk assessment) was undertaken.
Traffic	Not indicated in the proposed SPP Facility STR	N	N	N (but study undertaken)	Due to the scale of the site, a comprehensive Traffic Impact Assessment was undertaken for the proposed development. However, the cumulative impact of traffic generated by the proposed project is projected to be 'Low' since the activity is localized, and any cumulative effect will mostly be negligible. From a traffic engineering perspective, the proposed development is expected to have a minimal traffic impact on the current surrounding road network as concluded within the study (Appendix D8 of the DEIAR). Hence it was recommended by the traffic specialist that the development be approved from a traffic engineering perspective.

12. Cumulative Impacts of Environmental Themes Identified

Cumulative impacts, for the environmental themes listed in the STR, have been included in various Specialist Reports. The specialist assessments (quoted *verbatim*, where possible) and EAP statements regarding cumulative impacts have been included below.

Agriculture:

“It should also be noted that renewable energy development can only be located in fairly close proximity to a substation that has available capacity. This creates cumulative impact in such places. However, this is acceptable because it also effectively protects most agricultural land in the country from renewable energy development because only a small proportion of the country's total land surface is located in close enough proximity to an available substation to be viable for renewable energy development.”

Aquatic Biodiversity:

“Desktop resources indicate no aquatic features within Portion 5 of Farm Varkenslaagte No. 119. This was confirmed by the site assessments conducted on the 27th and 28th of October 2022.”

It should be noted that the cumulative impact for the immediately adjacent proposed Carpe Diem South SPP (which has a pre-mitigation impact rating of ‘Medium’ to ‘Medium-High’) was ‘Very Low’, ‘Low’ and ‘None’ (pre-mitigation). This further corroborates that the overall cumulative impact for the proposed Carpe Diem **North** SPP development is not affected by the proposed development

Terrestrial Biodiversity inclusive of ecosystems, as well as Plant/Flora Species and Animal Species:

The Terrestrial Biodiversity Specialist Report indicates that the cumulative impact/s of the development are primarily “Loss of vegetation during construction phase” and assigns a sensitivity rating of ‘Moderate’ (pre-mitigation) to ‘Moderate’ (post mitigation) to the cumulative impact.

Avifaunal:

“There are a number of existing renewable energy projects (such as the proposed Carpe Diem SEFs) that already have quantified negative impacts on the avifauna community in the region. Therefore, any impacts anticipated from the proposed solar facility will add to these existing impacts and require assessment under a Cumulative Impacts assessment. Results obtained during this preconstruction survey and from the subsequent impact analysis should be considered in conjunction with the impacts created by the proposed development. The current developments within the region raise the possibility of significant cumulative impacts, especially concerning collision risk, habitat loss and fragmentation and loss of suitable habitat for threatened species.”

The Avifaunal Specialist Report evaluated the following cumulative impacts identified during construction and operational phases:

Habitat Loss – ‘Moderate-High’ (pre-mitigation) to ‘Moderate’ (post mitigation)

Collision Mortality (vehicles) – ‘Moderate’ (pre-mitigation) to ‘Low’ (post mitigation)

Collision Mortality (infrastructure) – ‘Very High’ (pre-mitigation) to ‘Moderate-High’ (post mitigation)

Visual:

“The significance of the cumulative impact of these projects during their operational phases is assessed to be ‘Moderate’ intensity and over the long term, with an unmitigated sub-regional impact extending beyond the sites, which is assessed to be ‘Moderate’.”

and

“The intervisibility and the Project, along with these solar PV projects, would, over time, result in the nature and character of the sub-region being impacted like the anticipated moderate cumulative negative impact of the proposed Project alone. The combined effect of these developments would cause a change in the nature, sense of study and character of the sub-region’s landscape’s baseline. However, the projects would never be viewed in the same visual scene.”

Archaeological/Cultural Heritage:

“The possible preconstruction impacts calculated on the tangible cultural heritage resources is an overall ‘Medium’ Negative rating. Still, with the implementation of the recommended buffers and management guidelines will be reduced to a ‘Low’ Negative impact.”

Paleontological:

“The Cumulative impacts of the development are considered to be ‘Medium’ (pre-mitigation) and ‘Low’ (post mitigation) and falls within the acceptable limits for the project. It is therefore considered that the proposed development will not lead to damaging impacts on the palaeontological resources of the area.”

Socio-economic:

“Potential negative impacts would be compounded, such as a sense of place, influx, traffic, crime, and nuisance factors. The benefits of several renewable energy projects will also be compounded, especially regarding skills development in a sector still in its infancy in South Africa. Contributing to economic income and local authorities could catalyse further economic development, whilst a compounded demand for goods and supplies could provide new business opportunities. There are several other renewable energy projects within 30 km of the Carpe Diem North site, including the proposed 300 MWp Carletonville SPP and 150 MWp Carpe Diem South SPP within 5 km.”

The Socio-economic Specialist Report evaluated the following cumulative impacts identified during:-

Construction phase

Nuisance factors (dust and noise) – ‘Moderate’ negative (pre-mitigation) to ‘Moderate’ negative (post mitigation)

Influx of job seekers – “‘Moderate’ negative (pre-mitigation) to ‘Moderate’ negative (post mitigation)

Local communities – ‘Moderate’ negative (pre-mitigation) to ‘Moderate’ negative (post mitigation)

Local crime – ‘Moderate’ negative (pre-mitigation) to ‘Moderate’ negative (post mitigation)

Contribution towards local economic income and employment – ‘Moderate-High’ positive

Operational phase

Provision of renewable energy – ‘High’ positive

Sense of place – ‘Moderate-High’ negative (pre-mitigation) to ‘Moderate’ (post mitigation)

Local crime – ‘Moderate’ negative (pre-mitigation) to ‘Moderate’ negative (post mitigation)

Surrounding property values – ‘Moderate’ negative (pre-mitigation) to ‘Moderate’ positive (post mitigation)

Contribution towards employment – ‘Moderate’ positive

Contribution towards local income – ‘Moderate-High’ positive

13. Specialist Assessments Identified in the Screening Tool Report

Based on the environmental sensitivities of the proposed development footprint, the STR identified several specialist assessments for inclusion in the assessment report. Legacy EMC confirms that all specialist assessments identified in the STR have been undertaken and provides a reasoned motivation for not including any of the identified specialist assessments in the application for environmental authorisation.

In addition to the specialist assessments/ compliance statements listed in the STR, further specialist studies, not specifically required by the STR, were commissioned by Legacy EMC to provide a comprehensive assessment of environmental impacts of the project.

These additional specialist assessments include a Geohydrological Impact Assessment with a Hydrocensus, Aviation Glint and Glare Study and Vertical Obstruction Assessment, a Visual Impact Assessment, Traffic Impact Assessment and Engineering Services Study.

The various Specialists' site sensitivity verification assessments aligned with the Scoping Phase and Environmental Impact Assessment (EIA) Phase of the SPP's EIA process.