AMSA Bidvest Logistics Hub

AQUATIC BIODIVERSITY COMPLIANCE STATEMENT

Saldanha Steelworks

AMSA BIDVEST LOGISTICS HUB BAR
APRIL 2024

CONFIDENTIAL

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EXECUTIVE SUMMARY

Saldanha Steel (Pty) Ltd (Saldanha Steel) is proposing the expansion of the existing bulk steelworks and storage facility at Saldanha, Western Cape.

WSP Africa (Pty) (Ltd), was appointed to undertake a site sensitivity verification in response to the high aquatic biodiversity sensitivity ascribed by the DFFE screening tool for the proposed development area. The site sensitivity verification process confirmed that there were no wetlands or other watercourses within the study area, therefore an aquatic biodiversity compliance statement would be sufficient for the proposed development. This aquatic biodiversity compliance statement report will form part of the environmental regulatory process that will be required to authorise development-related activities and infrastructure.

This report describes the available aquatic biodiversity information for the area in which the proposed Project area will be situated. The outcome of the site sensitivity verification assessment, as required by the NEMA gazetted protocols for the specialist assessment and minimum report content requirements for environmental impacts on aquatic biodiversity, are presented. The report also makes recommendations for incorporation of design mitigation measures that will reduce biodiversity risks for the Project, through avoiding and minimising impacts in accordance with the mitigation hierarchy.

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Table 1 - Requirements for an Aquatic Compliance Statement

Item No.	Requirement	Report Reference
3.1.	The compliance statement must be prepared by a suitably qualified specialist registered with the SACNASP, with expertise in the field of aquatic sciences	Appendix A, Specialist CV.
3.2	The compliance statement must;	
3.2.1	be applicable to the preferred site and the proposed development footprint	Section 1.2
3.2.2	confirm that the site is of “low” sensitivity for aquatic biodiversity	Section 5
3.2.3	indicate whether or not the proposed development will have an impact on the aquatic features	Section 5
3.3	The compliance statement must contain, as a minimum, the following information:	
3.3.1.	contact details of the specialist, their SACNASP registration number, their field of expertise and a curriculum vitae	Appendix B, Specialist Statement
3.3.2	a signed statement of independence by the specialist	Appendix B, Specialist Statement
3.3.3	a statement on the duration, date and season of the site inspection and the relevance of the season to the outcome of the assessment	Section 4
3.3.4	a baseline profile description of biodiversity and ecosystems of the site;	Section 4.1
3.3.5	the methodology used to verify the sensitivities of the aquatic biodiversity features on the site including the equipment and modelling used where relevant	Section 3
3.3.6	in the case of a linear activity, confirmation from the aquatic biodiversity specialist that, in their opinion, based on the mitigation and remedial measures proposed, the land can be returned to the current state within two years of completion of the construction phase	Section 6
3.3.7	where required, proposed impact management outcomes or any monitoring requirements for inclusion in the EMPr;	Section 6
3.3.8	a description of the assumptions made as well as any uncertainties or gaps in knowledge or data; and	Section 3.3
3.3.9	any conditions to which this statement is subjected.	Section 3.3
3.4	A signed copy of the compliance statement must be appended to the Basic Assessment Report or Environmental Impact Assessment Report.	Quality Control

1 INTRODUCTION AND BACKGROUND

Saldanha Steel (Pty) Ltd (Saldanha Steel), a subsidiary of ArcelorMittal South Africa Limited (AMSA), is a steelworks factory focused on the export market located in Saldanha Bay, West Coast District Municipality (WCDM), Western Cape, South Africa (Figure 1-1). Saldanha Steel and BPO intend to establish a Logistics Hub to store, handle and export up to 5,000,000 t.p.a of bulk material commodities. The bulk commodity will be stored within a warehouse, with most activities, such as the offloading and loading of haul trucks, stockpiling, stockpile management and material handling occurring within the warehouse.

The operations at Saldanha Steel ceased in 2020. AMSA have been investigating alternatives to enable Saldanha Steel to return a portion of the facility back to economic productivity.

A number of existing environmental related authorisations are in place for Saldanha Steel. The steelworks currently requires further environmental related applications to authorise additional activities that are required for expansion upgrades which were not included in the previous authorisations, and authorise changes required in infrastructure layout as a result of optimised planning. These activities require an Environmental Authorisation (EA) as contemplated under Section 24 of the National Environmental Management Act, 1998 (Act 107 of 1998) (NEMA) (as amended).

WSP Africa (Pty) (Ltd) was appointed to undertake the necessary ecological studies in support of the environmental regulatory process that will be required to authorise development related activities.

1.1 PURPOSE OF THE REPORT

This report describes the outcomes of the aquatic site sensitivity verification of the potential environmental sensitivity of the site under consideration for proposed development and describes the aquatic biodiversity context of the study area, in accordance with the gazetted requirements for an Aquatic Biodiversity Compliance statement. This report will be submitted with the application for Environmental Authorisation, in accordance with the requirements of the Environmental Impact Assessment Regulations.

1.2 PROJECT LOCATION AND EXTENT

The proposed AMSA expansion area is approximately 31.5ha, located south of the railway line and to the west of the existing Saldanha Steel plant, Saldanha, Western Cape (Figure 1-2).

Proposed expansion infrastructure includes:

- warehouse on the existing iron ore stockyard (handling up to 5,000,000 t.p.a of bulk material commodities);
- new conveyor for manganese;
- transfer station; and
- exit weighbridge able to carry approximately 69t of commodities per truck load.

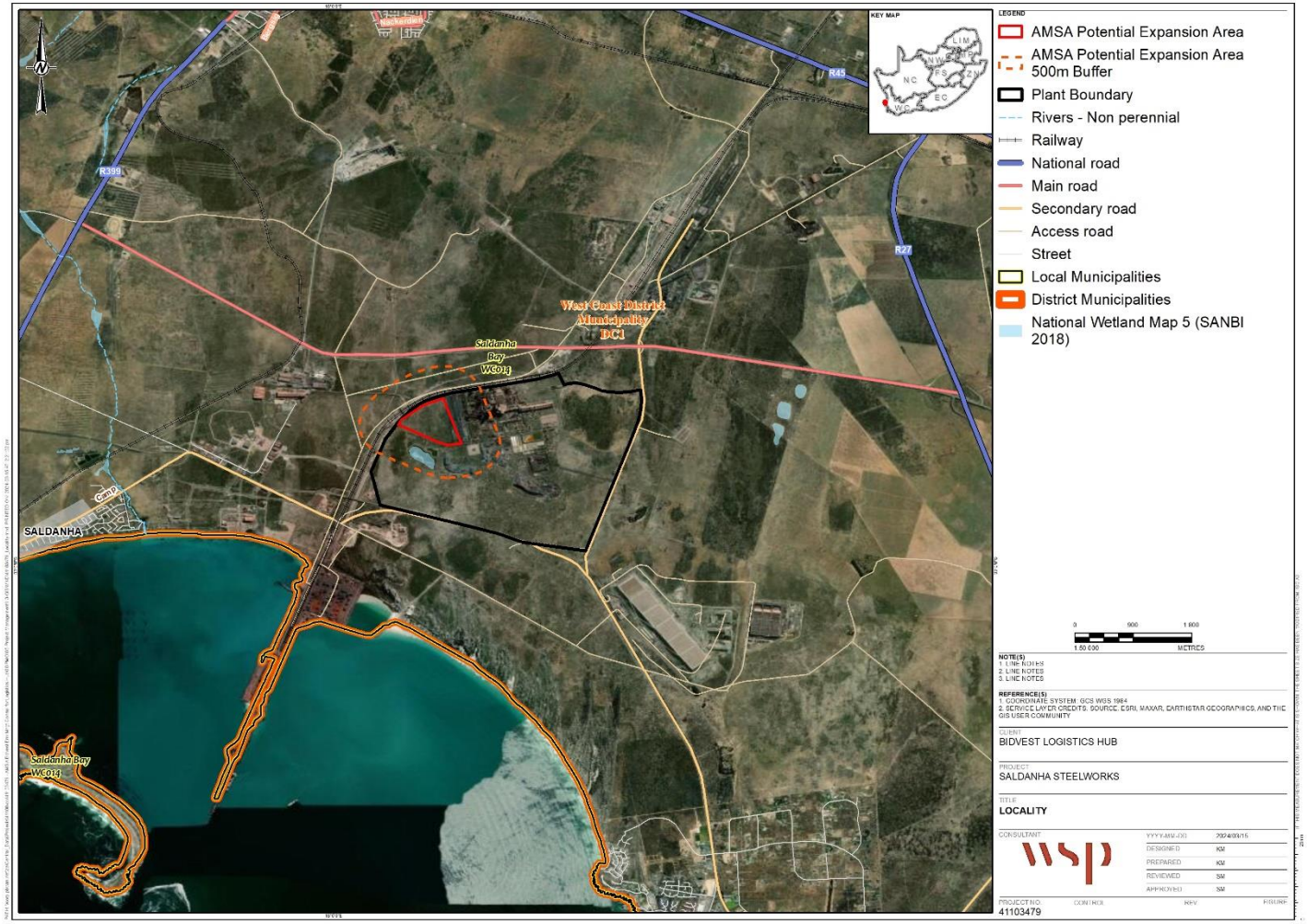

Figure 1-1 - AMSA Locality

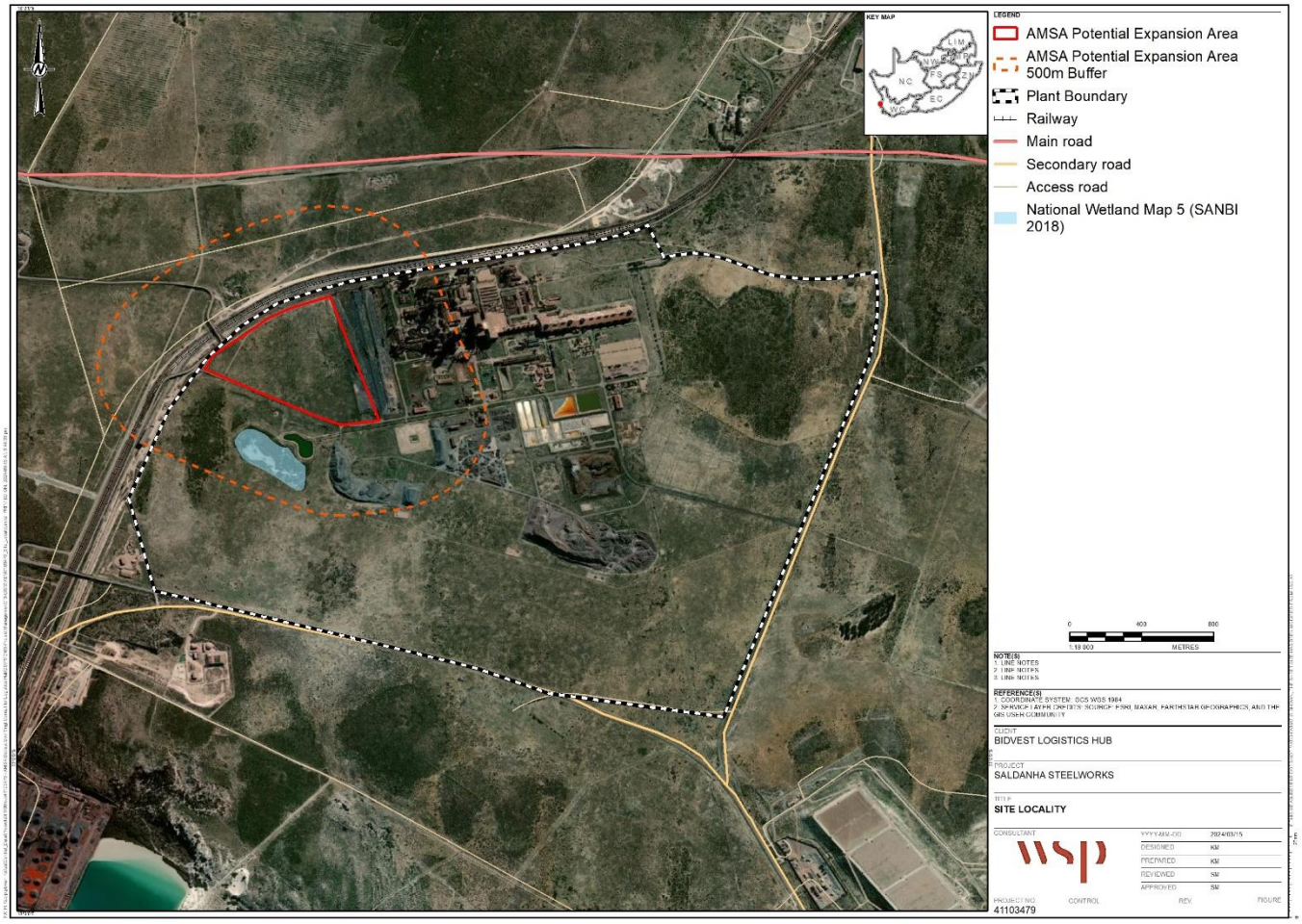

Figure 1-2 - Proposed Expansion Area

2 APPLICABLE LEGISLATION, POLICY AND STANDARDS

This aquatic biodiversity compliance statement took cognisance of the requirements of specific applicable national and provincial legislation and associated regulations that are pertinent to biodiversity. These were used to guide this assessment, and include:

- National Environmental Management Act (NEMA) (Act No. 107 of 1998) including Section 24, concerning Procedures for the assessment and minimum criteria for reporting on identified themes in terms of Sections;
  - 24(5)(a) and (h) and 44 of the NEMA, when applying for environmental authorisation;
    - Protocol for the specialist assessment and minimum report content requirements for environmental impacts on aquatic biodiversity;
- National Environmental Management: Biodiversity Act (Act No. 10 of 2004) (NEMBA), specifically:
  - ToPS – National lists of critically endangered, endangered, vulnerable and protected species (2007);
  - National list of threatened aquatic ecosystems for South Africa (2011) (NEMBA Threatened Ecosystems, 2011);
  - National list of alien and invasive species (2016);
- Environment Conservation Act (Act No. 73 of 1989), specifically:
  - Lists of declared weeds and invader plants (CARA, 1983);
- National Water Act (Act No. 36 of 1998);
- Western Cape Biodiversity Bill (2021);
- Western Cape Provincial Biodiversity Strategy and Action Plan (2017-2025); and
- Western Cape Biodiversity Sector Plan (2017).

Recent, relevant South African national policies and guidance were also taken into consideration, in the development of the baseline description and impact assessment process, including:

- Draft National Biodiversity Offset Policy (2017);
- National Biodiversity Offset Guideline (2022); and
- Species Environmental Assessment Guideline (SANBI, 2020).

3 METHODOLOGY

The aquatic biodiversity compliance statement took cognisance of Government Notice No. 1150, published in Government Gazette 43110 (20 March 2020) under the National Environmental Management Act (1998) concerning the 'Protocol for the specialist assessment and minimum report content requirements for environmental impacts on aquatic biodiversity'.

In line with the assessment and reporting requirements set out in the protocol, and subsequent to the site sensitivity verification process, an aquatic biodiversity compliance statement was prepared according to the minimum reporting requirements set out in the protocol.

Methods used to develop a baseline understanding of biodiversity constraints within the study area, so that the aquatic biodiversity and sensitivity ratings for the Project could be verified, included a review and consolidation of existing baseline biodiversity literature and datasets, supplemented by information gathered during the site visit. The tasks associated with these components are described below.

3.1 Study Area

The study area for the assessment was defined as the development footprint i.e. the area on which the proposed development will take place, which includes the area that will be disturbed or impacted – see Figure 1-2) plus any watercourses situated within 500 m of that development, i.e. the 'regulated zone' of a watercourse as defined by the National Water Act (see Figure 4-1).

3.2 SITE SENSITIVITY VERIFICATION

The proposed infrastructure footprint was assessed at desktop level using the National Web-based Environmental Screening Tool. The Tool indicated that the entirety of the Project area is rated as 'Very high' sensitivity under the relative Aquatic Biodiversity Theme sensitivity, due to the potential presence of wetlands and estuaries, aquatic CBA's and strategic water source areas.

A desktop analysis of existing biodiversity studies that have been conducted at the Project area in recent years was conducted to confirm the indicated sensitivity to determine the need for a full Aquatic Biodiversity Specialist Assessment, or Aquatic Biodiversity Compliance Statement.

Nationally-available datasets which were consulted to inform the site sensitivity verification include:

- the South African National Wetland Map version 5 (NWM5) (Van Deventer et al., 2019), and
- the National Freshwater Ecosystem Priority Area database
- Department of Water and Sanitation datasets, including available information on surface water resources, water management areas, and quaternary catchments.
- The National List of Threatened Ecosystems (NEMBA Threatened Ecosystems, 2011),
- the South African Protected Areas Database (SAPAD),
- the South African Conservation Areas Database (SACAD) and
- the National Protected Area Expansion Strategy (NPAES).

3.3 STUDY ASSUMPTIONS AND LIMITATIONS

DATA USED FOR SPECIALIST ASSESSMENTS

- The Aquatic Biodiversity Species Compliance statement was prepared on the basis of the site sensitivity verification process undertaken in response to the national web-based screening report. The site sensitivity verification was completed via desktop analysis of nationally-available datasets, and the findings of surveys conducted onsite by Nick Helme (2023).
- It is therefore considered that there are no sampling or information limitations pertaining to this Aquatic Biodiversity Compliance Statement and the recommendations contained in this report.

ASSUMPTIONS, UNCERTAINTIES, OR GAPS IN KNOWLEDGE

- The Aquatic Biodiversity Compliance statement was prepared on the basis of the site sensitivity verification process undertaken in response to the national web-based screening report. The site sensitivity verification was completed via desktop analysis of the available existing baseline riparian data and site surveys. Thus, there is high confidence in the baseline description.

4 AQUATIC BIODIVERSITY BASELINE DESCRIPTION

This section summarises the baseline aquatic biodiversity environment of the locality. It draws upon available data, published information, local knowledge and observations made during the field survey conducted on the 12th of January 2023.

The proposed expansion area was assessed at desktop level using the National Web-based Environmental Screening Tool (Appendix B.) According to the Tool, the Aquatic Biodiversity Theme for the proposed expansion area is rated as 'Very High Sensitivity', due to its overlap with lands mapped as:

- Critical Biodiversity Area (CBA) – Aquatic Rivers;
- Wetlands and estuaries; and
- Strategic Water Source Areas.

4.1 REGIONAL CONTEXT

Aquatic critical biodiversity areas (CBAS) and ecological support areas (ESAS)

The proposed expansion area was compared to relevant available spatial biodiversity planning datasets, i.e. the Western Cape Biodiversity Sector Plan (2017) (Figure 4-1), in order to assess the local and regional biodiversity context of the Project area.

The proposed expansion area coincides with areas mapped as ESA and CBA: Wetland. Since this mapping is based on satellite imagery interpretation and requires ground-truthing, these areas were examined in the field in January 2023 as part of the site sensitivity verification assessment.

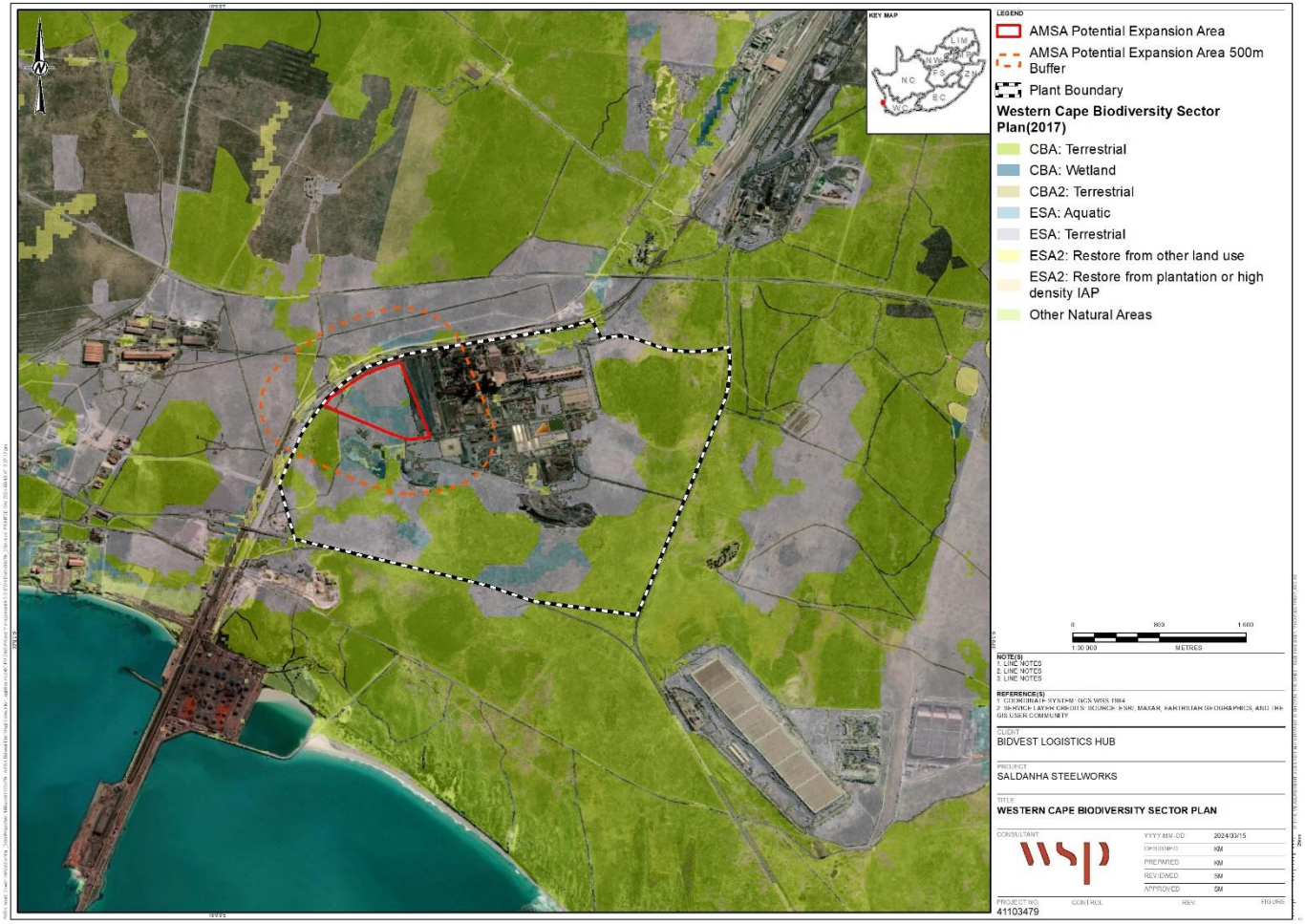

Figure 4-1 – Study area in relation to Western Cape Biodiversity Sector Plan

NATIONAL WETLAND MAP 5 (NWM5)

The South African National Wetland Map version 5 (NWM5) portrays the most up-to-date spatial data for the extent and types of estuarine and inland aquatic (freshwater) ecosystems of South Africa (Van Deventer et al., 2019). The NWM5 database indicates that there a ‘depression wetland’ habitat that occurs South of the proposed area of expansion, and that a potential area of ‘channelled valley bottom wetland’ habitat occurs just outside of the 500 m buffer of the proposed infrastructure (Figure 4-2). Since the NWM5 was interpreted via land cover analysis of satellite imagery and site-level verification of the presence of natural wetland features is required, the potential depression area was ground-truthed in the field during the site sensitivity verification assessment.

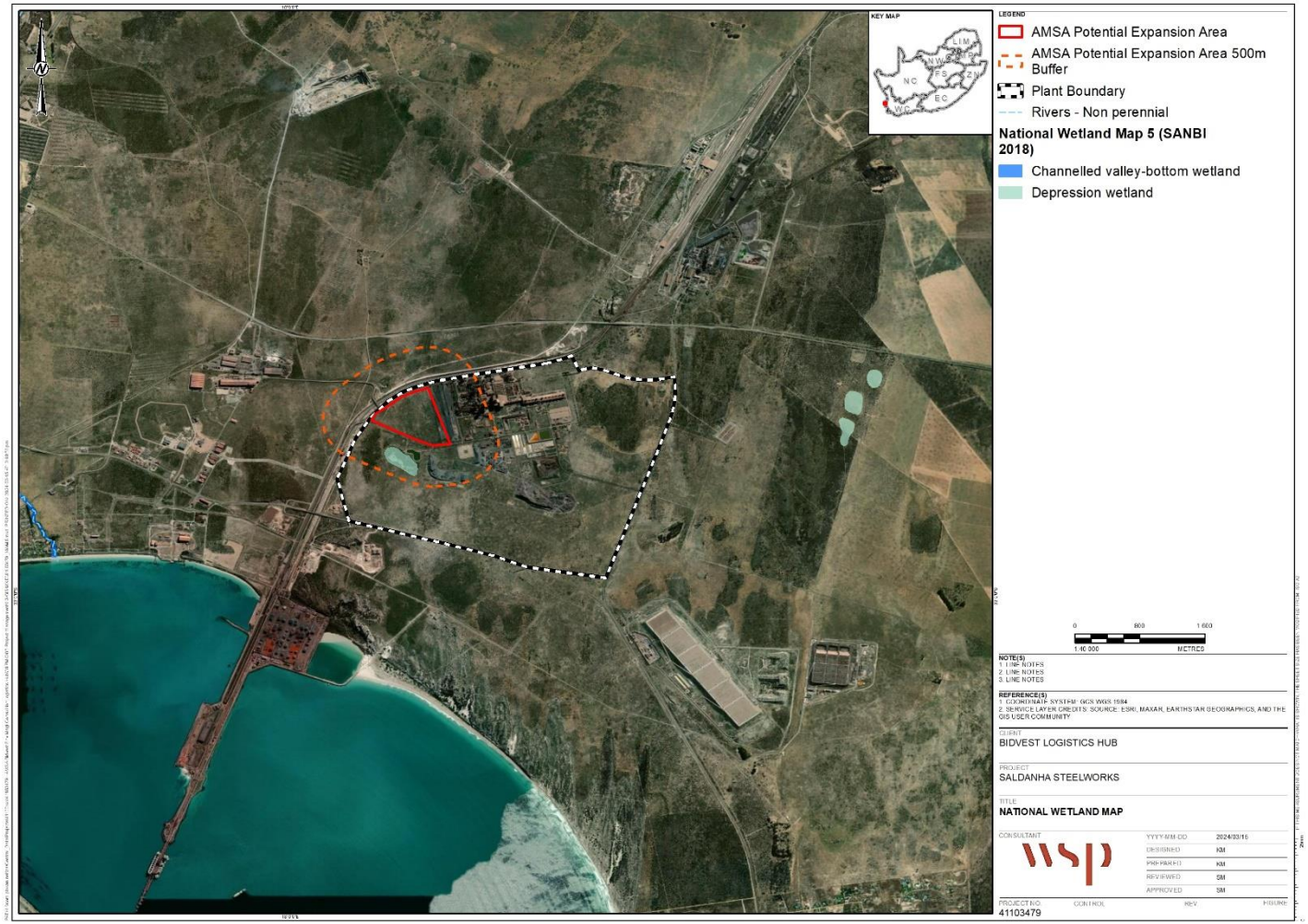

Figure 4-2 - Project area in relation to NWM5

NFEPA CATCHMENTS

The National Freshwater Ecosystem Priority Areas (NFEPA) project (Driver et al., 2011) represents a collaboration of multiple organisations including the South African National Biodiversity Institute (SANBI), Council for Scientific and Industrial Research (CSIR), Water Research Commission (WRC), Department of Environmental Affairs (DEA), Department of Water Affairs (DWA), Worldwide Fund for Nature (WWF), South African Institute of Aquatic Biodiversity (SAIAB) and South African National Parks (SANParks). The project is aimed to "*provide guidance on how many rivers, wetlands and estuaries, and which ones should remain in a natural or near-natural condition to support the water resource protection goals of the National Water Act (Act 36 of 1998), the National Environmental Management: Biodiversity Act (Act 10 of 2004) and the National Environmental Management: Protected Areas Act (Act 57 of 2003)*" (Water Research Commision, 2011).

The NFEPA mapping for the locality indicates that the nearest priority area is a Rehabilitation FEPA, which is situated beyond the 500m buffer, to the west of the proposed expansion area (**Error! Reference source not found.**).

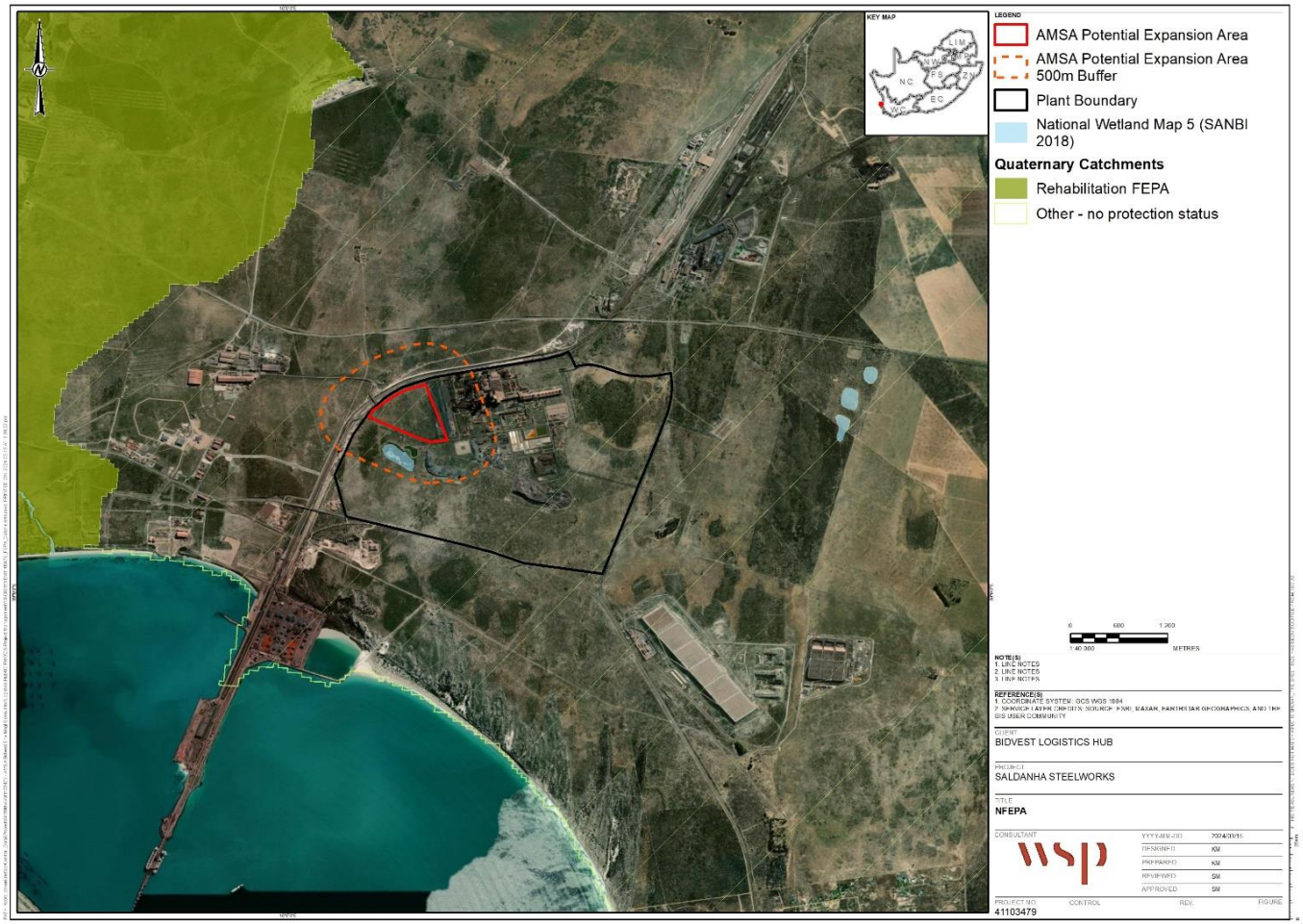

Figure 4-3 - Project Area in relation to NFEPA

4.2 FIELD SURVEY FINDINGS

No natural aquatic ecosystems (rivers or wetlands) were observed within the study area during the field assessment conducted in early 2023.

The area to the south of the proposed expansion area, that is indicated as a depression wetland by NMW5, appears to be a previously excavated area which is now water-filled. Landsat 4-5 satellite imagery of the study area dated 1998 (https://apps.sentinel-hub.com/), shows extensive excavations in the area (Figure 4-1). No other wetland or watercourse features were identified in the proposed expansion area, nor within the 500 m study area.

Figure 4-4 - Landsat imagery of Project area, 24 Feb 1998 (approx. site extent in red).

5 MOTIVATION FOR SUBMISSION OF A COMPLIANCE STATEMENT

The National Web-based Environmental Screening Tool indicated that some sections of the MRA are rated as ‘Very high’ sensitivity under the relative Aquatic Biodiversity Theme sensitivity, due to the potential presence of rivers or wetlands. However, ground truthing revealed that no wetland or watercourse features were present in the proposed expansion area, nor within the 500 m study area. As such, the system is not considered to support wetland or riparian habitat and a ‘low sensitivity rating’ for aquatic biodiversity in the study area is therefore motivated, in line with the protocol.

6 PROPOSED MANAGEMENT AND MONITORING ACTIONS

The construction of the proposed new infrastructure is not anticipated to result in significant impacts to any aquatic biodiversity receptors; however, the following measures are recommended to minimise the projects contribution to cumulative impacts at a catchment level:

- Limit vegetation removal to the infrastructure footprint area only. Where removed or damaged, bare areas should be revegetated as soon as possible, and monitored for alien invasive species colonisation – where this occurs, it should be controlled immediately.
- Runoff from construction areas, and the finished operational infrastructure, should be designed and managed to ensure that sediments do not reach watercourses in the wider catchment during rainfall events.
- The implementation of the recommended mitigation measures should be monitored on an at least annual basis, to audit their efficacy in addressing potential impacts, so that adaptive management actions can be timeously undertaken as necessary, to ensure that potential impacts on the receiving environment are avoided/minimised.

7 REFERENCES

Department Of Water Affairs And Forestry. (1996). South African Water Quality Guidelines. Volume 7: Aquatic ecosystems. In Aquatic Ecosystems (Vol. 7).

Dickens, C. W. S., & Graham, P. M. (2002). The South African Scoring System (SASS) Version 5 Rapid Bioassessment Method for Rivers [supplemental]. African Journal of Aquatic Science, 27(1), 1–10.

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DWS. (2016). Present Ecological State, Ecological Importance & Ecological Sensitivity. https://www.dws.gov.za/iwqs/rhp/eco/peseismodel.aspx

Helme, N. and A. Rebelo. 2016. Coastal Ecosystems – Strandveld. In: Cadman, A (ed.). Ecosystem Guidelines for Environmental Assessment in the Western Cape, Ed.2 Fynbos Forum, Fish Hoek, South Africa.

Kleynhans, C. J. (2008). River Ecoclassification: Manual for Ecostatus Determination (Version 2). Module D: Volume 1 – Fish Response Assessment Index (FRAI) (WRC Report No. TT 330/08.). Water Research Commission.

Thirion, C. (2008). River Ecoclassification: Manual for Ecostatus Determination (Version 2). Module E: Volume 1 – Macroinvertebrate Response Assessment Index (MIRAI). (WRC Report No. TT 332/08.). Water Research Commission.

U.S. Environmental Protection Agency. (2010). A Field-Based Aquatic Life Benchmark for Conductivity in Central Appalachian Streams (External Review Draft).

Water Research Commission. (2011). Atlas of Freshwater Ecosystem Priority Areas in South Africa: Maps to support sustainable development of water resources (No. TT 500).

Ollis, D.J., Snaddon, C.D., Job, N.M. & Mbona, N. (2013). Classification System for Wetlands and other Aquatic Ecosystems in South Africa. User Manual: Inland Systems. SANBI Biodiversity Series 22. South African National Biodiversity Institute, Pretoria.

van Deventer, H., van Niekerk, L., Adams, J., Dinala, M. K., Gangat, R., Lamberth, S.J., Lotter, M., Mbona, N., MacKay, F., Nel, J.L., Ramjukadh, C-L., Skowno, A. and Weerts, S. P. (2019). National Wetland Map 5 – An improved spatial extent and representation of inland aquatic and estuarine ecosystems in South Africa. bioRxiv preprint first posted online May. 17, 2019; doi: http://dx.doi.org/10.1101/6404. Accessed 10 March 2024.

WEBSITES:

Sentinel Hub EO Browser (https://apps.sentinel-hub.com/). Landsat 4-5 satellite imagery of the study area dated 1998.

Appendix A

SPECIALIST CV

Aisling Dower

Earth & Environment, Biodiversity, Ecologist – Group Lead Africa

CAREER SUMMARY

Aisling is an ecologist with over 16 years consulting experience in Europe and sub-Saharan Africa. Experienced in designing, costing and conducting baseline flora and fauna surveys, ecosystem services assessments, ecological impact assessment and development of mitigation, compensation and offsetting measures for projects in the mining, O&G, waste, transport, land development and power generation sectors.

She has completed baseline biodiversity studies and ecosystem service reviews for numerous projects in Southern Africa, East Africa, and Central and West Africa, and is experienced in conducting such assessments to satisfy both national environmental regulations and international financing requirements particularly those demanded by the International Finance Corporation's 2012 Performance Standards. She has worked on biodiversity-related projects in Ireland, UK, Kosovo, Gabon, Guinea, Guinea-Bissau, Kenya, DRC, Mozambique and Uganda, in addition to numerous projects in South Africa, covering northern temperate, Mediterranean, tropical rainforest, desert, savanna and coastal environments.

She has specific expertise in bat survey and population assessment, having completed her MSc research on bat population correlates, carried out bat assessments for mining and wind power developments in Ireland and the UK, and conducted baseline studies of bat populations and subsequent impact assessments for both mining and power generation projects in West Africa, Central Africa, South Africa and Europe.

1 year with WSP

16 years of experience

Area of expertise

Designing, Costing & Conducting Baseline Flora & Fauna Surveys, Impact Assessments, Biodiversity Monitoring Plans, Mitigation and Offset Strategies

Critical Habitat Assessments in line with IFC and WB requirements

Ecosystem Services Assessments in line with IFC and WB requirements

Biodiversity due diligence audits and red flag assessments

Language

English – Fluent

French – Intermediate (B1)

EDUCATION

Master of Science (Hons) Applied Environmental Science, University College Dublin, Dublin, Ireland	2007
Bachelor of Science (Hons) Zoology, University College Cork, Cork, Ireland	2005

ADDITIONAL TRAINING

Tools for Wetland Assessment (WET-Health, WET-Ecoservices) Rhodes University	August 2016
Mainstreaming Biodiversity into Business National Business and Biodiversity Network	November 2014
First Aid Level 1 Action Training Academy	July 2014
Wetland Management: Introduction and Delineation University of the Free State	November 2013

Aisling Dower

Earth & Environment, Biodiversity, Ecologist – Group Lead Africa

Flora of Witwatersrand Botany Dept, University of Witwatersrand	October 2013
Mammal Identification the Mammal Society	May 2009
Bat Detector Workshop, Bat Conservation Ireland	June 2007 – June 2008
Irish Botany National Botanic Gardens, Glasnevin	2008
Outdoor Safety & First Aid Mountain Rescue Trainer, November 2007	November 2007

PROFESSIONAL MEMBERSHIPS

Institution - Professional Natural Scientist – Member No. 114477/15	2015
SABAA – Member, South African Bat Assessment Association	2020
IAIASA – Member, International Association for Impact Assessment South Africa – Member No. 5817	2017

PROFESSIONAL HISTORY

WSP Group Africa (Pty) Ltd.	July 2021 – present
Golder Associates Africa (Pty) Ltd. – Johannesburg. Senior Ecologist	February 2013 – June 2021
Golder Associates Ireland – Naas, Ireland. Ecologist	April 2008 – January 2013
NATURA Environmental Consultants – Wicklow, Ireland. Ecologist	September 2007 – March 2008

PROJECT EXPERIENCE

IFC Performance Standard 6

Confidential, Iron Ore ESIA, Gabon
2022 – Ongoing
Biodiversity Specialist
Lead for development of IFC PS6 standard biodiversity impact assessment, including Critical Habitat assessment, flora, fauna, aquatic ecosystems and ecosystem services impact assessment.

Confidential, Water Pipeline, South Africa
2023
Biodiversity Specialist
Lead for due diligence review of biodiversity baseline studies and ESIA developed for a pipeline project, with a view to identifying gaps that need to be addressed in fulfilment of IFC PS6 standards on biodiversity impact assessment, such as Critical Habitat assessment, ecosystem services impact assessment, and Biodiversity Management Plan.

RMB, Water Pipeline, South Africa
2023
Biodiversity Specialist
Lead for due diligence review of biodiversity baseline studies and ESIA developed for a mine in Gauteng, with a view to identifying gaps that need to be addressed in fulfilment of IFC PS6 and World Bank standards on biodiversity impact assessment.

Confidential, Wind Energy Facility, Mozambique
2023
Biodiversity Specialist

Aisling Dower

Earth & Environment, Biodiversity, Ecologist – Group Lead Africa

Lead for development of IFC PS6 standard biodiversity impact assessment, including Critical Habitat assessment, ecosystem services impact assessment, and Biodiversity Management Plan.

Kamoa, Biodiversity Mitigation and Offset Strategy, DRC
2023
Biodiversity Specialist
Lead biodiversity specialist for biodiversity mitigation and offset strategy development.

Confidential, Gas to Power Plant, Nacala Mozambique
2022
Biodiversity Specialist
Compliance audit for IFC PS6 standards and gap analysis.

Confidential, Road Development, Senegal
2022
Biodiversity Specialist
Compliance audit for IFC PS6 standards and gap analysis.

Confidential, Hydroelectric Dam, Cote d'Ivoire
2021
Biodiversity Specialist
BAP implementation audit and red flag analysis for lenders subscribing to WB standards and IFC PS6.

Confidential, Proposed Bauxite Mine, Cameroon
2021
Biodiversity Specialist
Capacity building of local consultants for IFC PS6-standard baseline surveys and impact assessment.

Globeleq, Large Infrastructure Barging Route, Marine Ecology Impact Assessment, Vilankulo, Mozambique
2020
Lead Biodiversity Specialist
Marine baseline surveys including sea grass and coral reef extent and condition assessments, to inform micro routing of a proposed barging route in close proximity to Bazaruto Archipelago National Park

Konza Techno City, Biodiversity Baseline and BMP Review, Machakos, Kenya
2019
Biodiversity Specialist
On behalf of the lending institution, was responsible for review of the initial biodiversity baseline study and BMP, and development of recommendations for additional work required to ensure that the baseline and BMP are of the standard necessary to satisfy the requirements of Performance Standard 6.

TKBV, Proposed Oil Field Development, Turkana, Kenya
2014 – 2019
Lead Ecologist
Screening for Critical Habitats as defined by IFC PS6 and IFC GN6, 2012. Desktop biodiversity description and remote land cover sensing to inform scoping report and fieldwork planning for biodiversity and ecosystem services baseline data gathering phase. Authored Biodiversity baseline report and impact assessment to Kenyan and IFC standards

Ahafo North Mine, Biodiversity Baseline and IA, Brong-Ahafo, Ghana
2018
Lead Ecologist
Consolidated biodiversity data from previous studies with up-to-date baseline data on aquatic ecosystems and vegetation into an updated biodiversity baseline report and impact assessment for the proposed mining of Ahafo North

Aisling Dower

Earth & Environment, Biodiversity, Ecologist – Group Lead Africa

Globeleq, Beach Landing Sites, Marine and Coastal baseline and Critical Habitat Assessment, Vilanculos, Mozambique
2018
Lead Ecologist
Authored marine and coastal baseline study report based on available reports and data. Determined species and ecosystem triggers of Critical Habitat in the study area and assessed impacts and developed bespoke mitigation measures to ensure NNL of natural habitat and NG of critical habitat

Kinsevere Copper Mine, ESIA, Haut-Katanga, DRC
2018
Lead Ecologist
Consolidated biodiversity data from previous studies with up-to-date baseline data on flora and birds into an updated biodiversity baseline report and impact assessment for the proposed expansion of TSF to adjoining tenement

CNOOC, Oil Exploration Block, Biodiversity Baseline and Impact Assessment, Hoima, Uganda
2018
Biodiversity Specialist
Baseline biodiversity description to inform the overall Environmental Baseline Report for that exploration block. Updated biodiversity impact assessment chapter and authored cumulative impact assessment report for the project.

Kamoa Copper, Proposed Copper Mine, Katanga, DRC
2017
Lead Ecologist
Ecosystem services review and impact assessment to satisfy the requirements of IFC PS6 for a proposed copper mine development.

Confidential Client, Bokpoort Solar PV & CSP Tower, Northern Cape, South Africa
2016
Authored Ecosystem Services
Conducted specialist bat baseline study and impact assessment for solar PV and CSP tower project. Authored ecosystem services review and impact assessment for the full project.

CNOOC, Kingfisher Development Area, Lake Albert, Hoima, Uganda
2015
Biodiversity Specialist
Ecosystems goods and services assessment to IFC PS6 standards, for a proposed oil development project on the shore of Lake Albert

SMFG, Nimba Fauna Baseline, Guinea
2020
Terrestrial Fauna Ecologist
Complied baseline fauna report for the ESIA, including update of baseline information with results of various taxonomic studies done since the original 2013 baseline, and critical habitat-triggering species descriptions.

Confidential Client, Mine ESIA, KwaZulu-Natal, South Africa
2013
Ecologist
Ecosystems goods and services assessment to IFC PS6 standards, for a proposed magnetite mine in an area of tribal lands in KZN, also known for its rich biodiversity.

SMFG, Bat survey of proposed mine site, Nimba, Guinea
2012
Lead Ecologist

Conducted extensive wet and dry season bat presence and activity surveys and established population status of a Critically Endangered bat species within proposed site. Produced Critical Habitat mapping and reporting in accordance with requirements of IFC Performance Standard 6.

Confidential Client, Bat survey of proposed mine site, Gabon
2012
Lead Ecologist
Bat survey of proposed mine site in a remote rainforest area in Gabon. Conducted wet and dry season bat presence and activity surveys to get a baseline bat species list for the proposed site, which included new bat records for Gabon.

Ecosystem Services Assessment

Kamoa, Copper Mine, DRC
2022
Ecologist
Lead author for ecosystem services review and impact assessment.

TKBV, Oil Development Block, Turkana, Kenya
2018
Ecologist
Ecosystem Services review and impact assessment to IFC PS6 for a proposed oil field development including proposed overland haulage route.

CNOOC, Kingfisher Development Area, Hoima, Uganda
2018
Ecologist
Ecosystem Services review and impact assessment to IFC PS6 standards, for a proposed oil development project on the shore of Lake Albert.

Kipoi/Luputo Mine, ESIA, Katanga, DRC
2016
Ecologist
Ecosystem Services Review and impact assessment to IFC PS6 for a copper/cobalt mine in DRC.

Metalkol, ESIA update, Kolwezi, DRC
2016
Ecologist
Ecosystem Services Review and impact assessment to IFC PS6 for a copper/cobalt mine in DRC.

Confidential Client, Proposed Mine ESIA, Melmoth, KwaZulu-Natal, South Africa
2015
Ecologist
Ecosystems goods and services assessment to IFC PS6 standards, for a proposed magnetite mine in an area of tribal lands in KZN, also known for its rich biodiversity.

Confidential Client, Gas to Liquid Mine, Tashkent, Uzbekistan
2013
Ecologist
Produced ecosystem goods and services assessment based on information garnered from ecology, surface water and social baseline assessments, in order to fulfil International Finance Corporation Performance Standard 6 requirements for the project funding and ESIA

Bat Survey

Confidential, Iron Ore ESIA, Gabon
2022 – Ongoing
Biodiversity Specialist

Conducted bat presence and activity surveys and produced Critical Habitat mapping and reporting in accordance with requirements of IFC Performance Standard 6.

SMFG, Proposed Iron Ore Mine - ESIA to IFC Standards, Nimba Mountains, Guinea
2013
Lead Specialist
Bat survey of proposed mine site in Guinea. Conducted extensive wet and dry season bat presence and activity surveys and established population status of a Critically Endangered bat species within proposed site. Produced Critical Habitat mapping and reporting in accordance with requirements of IFC Performance Standard 6.

Confidential Client, ESIA to IFC Standards,), Gabon
2012
Lead Specialist
Led a six-week specialist bat field survey of proposed mine site in a remote rainforest area in Gabon. Conducted wet and dry season bat presence and activity surveys to compile a baseline bat species list for the study area, which included new bat records for Gabon. Authored baseline and impact assessment reports to inform the overall ESIA.

Phalaborwa Mine - Artificial Roost Creation Guidance, Phalaborwa, Limpopo
2014
Design Guidance
For the construction of an artificial bat roost using old mining vehicle tyres and overburden materials.

Kosovo Wind Farm, ESIA to World Bank Standards, Kosovo
2020
Ecologist
Analysed passive acoustic monitoring data for bats to compile a baseline report on bat species assemblage, diversity and spatial distribution of bat activity within the wind farm area of influence.

Varkensvlei Mine, ESIA, Waterberg, Limpopo, South Africa
2017
Ecologist
Baseline study of bat species assemblage, diversity and spatial distribution of bat activity within the surface mining rights area, including identification of sensitive habitats and terrain features on site that could constitute important roosting or foraging habitat for various species. Authored baseline and impact assessment reports to inform the overall ESIA.

Rio Tinto Tete, Bat Baseline Study, Tete, Mozambique
2017
Ecologist
Bat monitoring surveys (passive acoustic monitoring supplemented by trapping surveys) in compliance with environmental authorisation conditions and in line with the recommended mitigation measures of the ESIA.

Confidential Client, Farim Phosphate Project ESIA, Guinea-Bissau
2014
Terrestrial Ecologist
Responsible for undertaking wet and dry season field survey work to establish baseline bat diversity, including passive acoustic monitoring and identification of sensitive habitats and terrain features on site that could constitute important roosting or foraging habitat for various species. Authored baseline study report to inform the ESIA.

ACWA Power, Bokpoort, Solar PV & CSP Tower, Northern Cape, South Africa
2016
Ecologist

Aisling Dower

Earth & Environment, Biodiversity, Ecologist – Group Lead Africa

Conducted specialist bat baseline surveys including passive acoustic monitoring and identification of sensitive habitats and terrain features on site that could constitute important roosting or foraging habitat for various species. Authored the baseline report and the impact assessment for a solar PV and CSP tower project, to IFC PS6 standard.

Wetland Ecology

Confidential client, WEF wetland offset strategy, Mpumalanga, South Africa
2023
Ecologist
Wetland impact assessment and mitigation/offset strategy for proposed wind energy facility.

Glencore, Wetland rehabilitation project, South Africa
2018 – ongoing
Wetland ecologist
Wetland rehabilitation design input, baseline assessments and monitoring for wetland rehabilitation project intended as an offset for wetland loss to authorised coal mining activity.

Seriti, Kriel, South Africa
2022 – ongoing
Ecologist
Wetland impact assessment and mitigation/offset strategy for proposed opencast coal project.

Eskom, Lethabo Power Station, South Africa
2021
Ecologist
Wetland impact assessment and mitigation/offset strategy for proposed opencast coal project.

Exxaro, Coal Mine, South Africa
2021
Ecologist
Wetland impact assessment and mitigation/offset strategy for proposed opencast coal project.

Glencore, Coal Mine, South Africa
2021
Ecologist
Wetland audit and water use authorization audit for consolidated WUL for Tweefontein and Impunzi operations.

Sasol, Wetland and watercourse rehabilitation strategy, Secunda, South Africa
2019
Ecologist
Wetland and watercourse rehabilitation strategy and associated water use authorisations for Secunda operation.

AGA, Pipeline wetland assessment, Gauteng, South Africa
2019
Ecologist
Wetland delineation, baseline PES, EIS and EcoServices scores and impact assessment for proposed water return pipeline.

Twinsaver, Water Use License, Gauteng, South Africa
2018
Ecologist

Wetland delineation, baseline PES, EIS, and EcoServices scores and impact assessment for ESIA for water use license application

Breede-Gouritz Catchment Management Agency, Catchment Management Strategy, Western Cape, South Africa
2016
Ecologist
Wetland situation assessment for Breede-Gouritz catchment management strategy

Exxaro, Belfast Implementation Project, Mpumalanga, South Africa
2015 – 2018
Ecologist
Wetland baseline monitoring to inform environmental impact assessment, including multi-seasonal surveys and updates of PES, EIS and WET-Ecoservices scores for each HGM unit concerned.

Kangra Kuisipongo Overland Conveyor ESIA, Kwazulu Natal, South Africa 2017
Ecologist
Conducted wetland delineation and baseline assessment (PES, EIS, Wet Ecoservices) and impact assessment of overland coal conveyor.

Mafube LifeX Project, Mpumalanga, South Africa
2015 – 2017
Ecologist
Wetland mitigation strategy fieldwork and assessments. Ongoing project support during construction through monitoring and management of construction activities and overseeing implementation of WUL conditions on the ground.

BECSA Middelburg, ESIA Mpumalanga, South Africa
2015
Ecologist
Wetland delineation and assessment of proposed sludge pipeline river crossings, and wetlands lying within 500m of proposed slurry dump pits to inform Water Use Licence application and EIA.

Metmar Steelpoort, WULA, Limpopo, South Africa
2014
Ecologist
Delineation and assessment of floodplains of the Steelpoort River, upstream, within and downstream of the proposed site of an open cast pit.

Mooifontein, WULA, Arnot, Mpumalanga, South Africa
2014
Ecologist
Bird and amphibian surveys of pans and wetlands within mining rights area to update PES and EIS, for use in determining wetland reserve .

Interwaste, WULA, Amadwala, Gauteng, South Africa
2014
Ecologist
Delineated wetlands and assessed Present Ecological Status, Ecological Importance and Sensitivity, and Ecosystem services provided by each wetland within project area of influence. Conducted impact assessment and devised mitigation measures and monitoring regimes.

Mining

Confidential, Sand mining ESIA, KZN
2022 – Ongoing
Biodiversity Specialist

Aisling Dower

Earth & Environment, Biodiversity, Ecologist – Group Lead Africa

Lead for biodiversity baseline and impact assessment, in line with NEMA reporting protocols and DWS requirements.

Confidential, Iron Ore ESIA, Gabon
2022 – Ongoing
Biodiversity Specialist
Lead for development of IFC PS6 standard biodiversity impact assessment, including Critical Habitat assessment, flora, fauna, aquatic ecosystems and ecosystem services impact assessment.

Kamoa, Biodiversity Mitigation and Offset Strategy, DRC
2023
Biodiversity Specialist
Lead biodiversity specialist for biodiversity mitigation and offset strategy development.

Confidential Client, Proposed Mine expansion ESIA, Northern Cape
2022
Biodiversity Specialist
Lead for biodiversity baseline and impact assessment, in line with NEMA reporting protocols and DWS requirements.

AngloAmerican, Coal Operations, Mpumalanga
2020
Biodiversity Specialist
Lead for biodiversity value assessment and biodiversity management plan with the aim of securing net gain of natural habitat across six operations.

Confidential Client, Bankable Feasibility Study, Mpumalanga, South Africa
2019
Author
Responsible for authoring environment chapter of BFS.

Belfast, Implementation Project, Mpumalanga, South Africa
2015 – 2018
Lead Ecologist
Led three years of pre-construction wetland monitoring including assessment of PES, EIS and EcoServices for mining right area

Phalaborwa Mine, Biomonitoring, Limpopo, South Africa
2015 – ongoing
Biological Monitoring
Of the Oliphants and Selati Rivers, including assessment of fish populations, aquatic macroinvertebrates and riparian vegetation to monitor the condition of habitat in the vicinity of the mine, observing any significant changes and providing advice to PMC on biodiversity management. This ongoing project continues to be conducted in compliance with the most rigorous health and safety standards, due to the frequent presence of dangerous large mammal fauna including elephant, buffalo and lion in and around the mine site.

Tshikondeni Mine, Rehabilitation Plan, Limpopo, South Africa
2014
Ecologist on Terrestrial Ecology Team
Responsible for undertaking wet and dry season field survey work to determine baseline large and small mammal, bat and bird diversity and vegetation community mapping for development of a rehabilitation plan for mined areas.

Confidential Client, Bat Baseline Study to IFC Standards, Gabon
2012
Lead Specialist

Bat survey of proposed mine site in a remote rainforest area in Gabon. Conducted wet and dry season bat presence and activity surveys to get a baseline bat species list for the proposed site, which included new bat records for Gabon.

SMFG, Bat Baseline Study to IFC Standards, Nimba, Guinea
2012
Lead Specialist
Bat survey of proposed mine site in an upland region of Guinea. Conducted extensive wet and dry season bat presence and activity surveys and established population status of a Critically Endangered bat species within proposed site. Produced Critical Habitat mapping and reporting in accordance with requirements of IFC Performance Standard 6.

Confidential Client, Phosphate Project ESIA, Farim, Guinea Bissau
2011
Ecologist on Terrestrial Ecology team.
Responsible for undertaking wet and dry season field survey work to establish baseline bat, mammal and bird diversity and vegetation mapping for subsequent ecological impact assessment.

Rio Tinto Tete Project, Tete, Mozambique
2013 – 2015
Ecologist on Terrestrial Ecology team.
Responsible for undertaking wet and dry season field survey work to determine baseline small mammal and bird diversity and vegetation community mapping for subsequent ecological impact assessment.

Renewable Power

Confidential, WEF and Solar ESIA, Mpumalanga
2022 – Ongoing
Biodiversity Specialist
Lead for biodiversity baseline and impact assessment, in line with NEMA reporting protocols and DWS requirements.

Eskom, Komati Solar PV and BESS ESIA, Mpumalanga
2022 – Ongoing
Biodiversity Specialist
Lead for biodiversity baseline and impact assessment, in line with NEMA reporting protocols and DWS requirements.

Bokpoort, CSV and PV developments, Northern Cape, South Africa
2017
Ecologist
Biodiversity and ecosystem Services Baseline and impact assessment as part of overall ESIA for two PV and one CSV development on adjoining properties.

Eskom, Solar Park - Gordonia Park substation powerline, Northern Cape, South Africa
2016
Ecologist
Conducted survey of powerline route to identify cluster of protected trees, other plants of conservation importance, and areas potentially important to bird species of concern to inform the final routing and placement of pylons and bird deterrents.

Kendal Power Plant, EIA, Mpumalanga, South Africa
2013
Ecologist
Terrestrial vegetation, bird and mammal monitoring to assess impacts of existing ash dump, and compile baseline data for proposed new ash dump.

Aisling Dower

Earth & Environment, Biodiversity, Ecologist – Group Lead Africa

Eskom, Ndumo-Gezisa Powerline Route Corridor, Impact Assessment, KwaZulu-Natal, South Africa
2013
Ecologist
Terrestrial flora and fauna assessment of route corridor options for proposed powerline approx. 30 km long. Studies included small and large mammals, birds, reptiles and vegetation mapping.

Eskom, Vaalbank 88 Kv Powerline - Basic Assessment, Gauteng, South Africa
2014
Ecologist
Terrestrial and wetland baseline study and impact assessment reports to assess the impacts of a proposed powerline corridor and switching station footprint.

Confidential Client, Begg Farm, Wind Cluster EIA, Fife, Scotland
2012
Ecologist
Responsible for production of Environmental Impact Statement for a 3MW wind farm at Begg Farm, Kirkcaldy, Fife. Authored chapters including Project Description, Scoping, Existing Environment, Summary of Effects and Non-Technical Summary. Also responsible for authoring baseline chapter on Local Land Use and Recreational Access.

Confidential Client, Barrel Law, Wind Farm EIA, Scottish Borders, Scotland
2012
Ecologist
Responsible for co-ordinating front-end production of Environmental Impact Statement for a 21MW wind farm at Barrel Law, Hawick. Authored chapters including Project Description, Scoping, Policy Framework and Existing Environment.

PUBLICATIONS

Journal Articles

Monadjem, A., L. Richards, P. J. Taylor, C. Denys, A. Dower and S. Stoffberg. Diversity of *Hipposideridae* in the Mount Nimba massif, West Africa, and the taxonomic status of *Hipposideros lamottei*. Acta Chiropterologica, 15(2) (2013), 341-352.

Other

The Status of E.U. Protected Habitats and Species in Ireland. National Parks & Wildlife Service, 2008.

Appendix B

DFFE SCREENING TOOL

Building 1, Maxwell Office Park
Magwa Crescent West, Waterfall City
Midrand, 1685
South Africa

wsp.com