



ARCUS

VOLUME II: SPECIALIST STUDIES

**PROPOSED MULILO TOTAL HYDRA STORAGE PROJECT:
GRID INTERCONNECTION AND ASSOCIATED
INFRASTRUCTURE, NEAR DE AAR IN THE NORTHERN
CAPE PROVINCE**

On behalf of

MULILO TOTAL HYDRA STORAGE (PTY) LTD

MARCH 2021



Prepared By:

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Registered in South Africa No. 2015/416206/07

PROJECT DETAILS

DEFF Reference Number:	To be allocated upon submission	
Arcus Reference No:	4194 Mulilo Total Hydra Storage Project- Grid Interconnection	
Title:	Basic Assessment Report for the Proposed Mulilo Total Hydra Storage Project-Grid Interconnection and associated infrastructure near De Aar in the Northern Cape Province	
EAP:	Ashleigh von der Heyden	Arcus Consultancy Services South Africa (Pty) Ltd
Report Authorisation:	Ashlin Bodasing	Arcus Consultancy Services South Africa (Pty) Ltd
Project Team:	Dr Owen Davies	Arcus Consultancy Services South Africa (Pty) Ltd
	Jamie Pote	Independent
	Jon Smallie	WildSkies (Pty) Ltd
	Dr Brian Colloty	Enviro Sci. (Pty) Ltd
	John Gribble	ACO Associates (Pty) Ltd
	Johann Lanz	Independent Consultant
Project Applicant:	Mulilo Total Hydra Storage (Pty) Ltd	
Report Status:	Basic Assessment Report – Draft for Public Comment	

PUBLIC PARTICIPATION LOCATION DETAILS

This report is available for public review and comment for a period of more than 30 days from 31 March 2021 to 03 May 2021, taking into consideration Chapter 2 Regulation 3 (1); (2) and (3) of the National Environmental Management Act, 1998 (Act No. 107 of 1998), at the following locations:


- www.arcusconsulting.co.za; and
- By appointment only and during business hours 09h00 – 16h00):

Address: 19 Van der Merwe Street, DE AAR, 7000

Contact Person: Beverley Horak

Contact Number: 083 793 9254

All comments to the submitted to the EAP no later than 03 May 2021.

 <p>EnviroSci (Pty) Ltd Reg No 2018/462716 /07</p>	<p>Dr Brian Colloty Ecologist (Pr Sci Nat 400268/07) Member of the South African Wetland Society</p>	
	<p>Contact Details b.colloty@gmail.com 083 498 3299</p>	<p>Address 1 Rossini Rd Pari Park Port Elizabeth 6070</p>

15 February 2021

Attention: Mrs. von der Heyden

AQUATIC ASSESSMENT OF THE APPLICATION FOR THE MULILO TOTAL HYDRA STORAGE PROJECT: GRID INTERCONNECTION AND ASSOCIATED INFRASTRUCTURE

EnviroSci (Pty) Ltd was appointed to review the proposed grid connection and associated components (switching station and access road) described below for the Mulilo Total Hydra Storage Project. The review was of the proposed activities against the aquatic impact assessment compiled and submitted by the same lead author as the undersigned. The aquatic assessment included several grid options that would connect to the Mulilo De Aar 2 South Wind Farm, and included the assessment of a 200m wide grid corridor that could also be used for Mulilo Total Hydra Storage Project: Grid Interconnection.

Mulilo Total Hydra Storage (Pty) Ltd has developed a hybrid power generation project comprising of Solar PV , battery energy storage system (BESS) and diesel based generators to produce a dispatchable 75 MW hybrid generation plant (the Project – Figure 1). Power generated will be supplied to the national grid via an approximately 6km, 132kV overhead powerline (OHPL) that will connect to the Eskom Hydra Substation.

The baseline aquatic environment could be summarised as follows:

The proposed connection corridor only occurs within the D62D quaternary catchment of the Brak River, in the Nama Karoo Ecoregion. Thus, permanent rivers and wetlands are limited mostly to mainstem rivers such as those observed within the study area, typically only flow during extended periods of rainfall.

The study region is further characterised by Northern Upper Karoo (Nku3) vegetation and to a limited degree Besemkaree Koppies Shrubland (Gh4). This is due to the limited annual rainfall (ca. 190 – 400 mm/a), while the regional geomorphology is dominated by flat pediplain areas and hills with rocky outcrops.

The geology is mostly Dwyka / Ecca shales overlaid with shallow sandy soils that drain well. This typically allows for the development of broad alluvial floodplains, interspersed by the rocky inselbergs and small mountain ranges observed. These features thus concentrate flows into the lower portions of the catchment, and have allowed for the development of Juncus rigidus dominated wetlands in some areas.

None of the wetland areas were found along this portion of the proposed 6km OHPL alignment, and only the broad alluvial watercourses (Figure 2).

Based then on the description of the project components when compared to the results of the aquatic baseline assessment and the impacts that were evaluated, the overall risk, with mitigation would below be **low** for the corridor that was assessed, particularly as the proposed route will avoid any significant alluvial and or wetland systems. Therefore the significance of the impact on the aquatic environment would remain low after mitigation during the construction, operation and decommissioning phases of the project upon assessing the following impacts read in conjunction with the original aquatic assessment, i.e. mitigations / recommendations:

The following impacts were not assessed as these were found not applicable:

- Loss of species of special concern – no listed or protected aquatic species were found during the assessment for the proposed option
- Loss of any wetlands – the only natural wetland observed could be avoided by this alignment

The following direct impacts were assessed with regard:

- Impact 1: Loss of riparian systems and the disturbance of the alluvial watercourses in the construction and decommissioning phases where the impact will remain LOW, mostly due to avoidance of these areas


- Impact 2: Impact on aquatic systems through the possible increase in surface water runoff on riparian/wetland form and function during the operational phase was rate LOW, due to avoidance and or mitigation
- Impact 3: Increase in sedimentation and erosion in the construction, operational and decommissioning phases would remain LOW, firstly due to the type of development, the receiving environment and management of any stormwater flows should they occur
- Impact 4: Potential impact on localised surface water quality during the construction and decommissioning phases would also remain LOW,
- Impact 5: The No-go Alternative, would remain LOW, as current impacts although limited would remain
- Impact 6: Cumulative impacts for the overall project due to the high number of projects surrounding this application. In the assessment of this project, several projects have been assessed by the report author within a 35km radius have been reviewed and or sites accessed during the course of travelling between the various projects. All of the projects have thus a similar intention to either avoid the impact (span aquatic systems) or where not possible place structures in areas that would have limited impact on the stability and functioning of the aquatic systems, i.e. remain in grid corridors and use existing tracks for example.

Thus, based on the findings of this study, the specialist has no objection to the approval of the proposed project. Similarly, in the assessment of potential cumulative impacts, no additional impacts or changes to the previously assessed impacts would be required due to the proposed amendment. Further, no changes to the original mitigations or EMPr considerations are required.

In conclusion, the final impact of the proposed project on the aquatic environment with mitigation will remain unchanged from the original impact assessment, i.e. it will remain of low significance.

Please don't hesitate to contact me directly should you have any further queries.

Yours Sincerely



Dr Brian Colloty
Cell: 083 498 3299

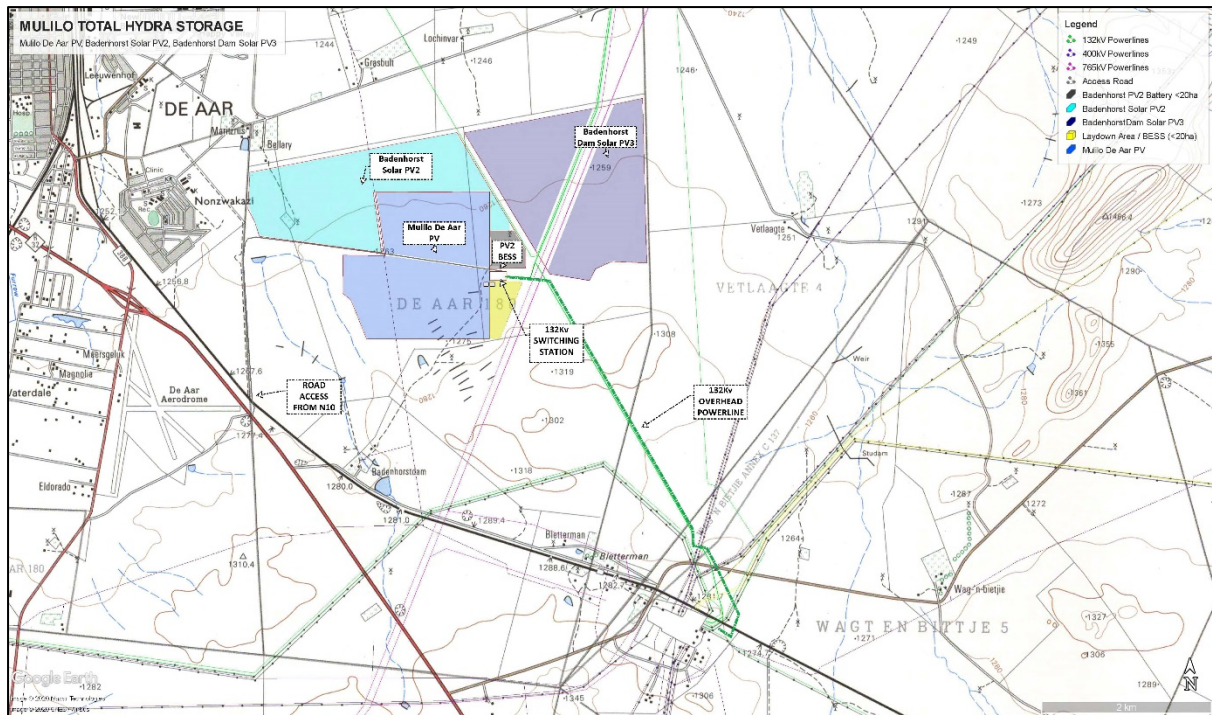


Figure 1: Proposed project activities, with the focus of this opinion being the 132 Kv transmission line (green line)

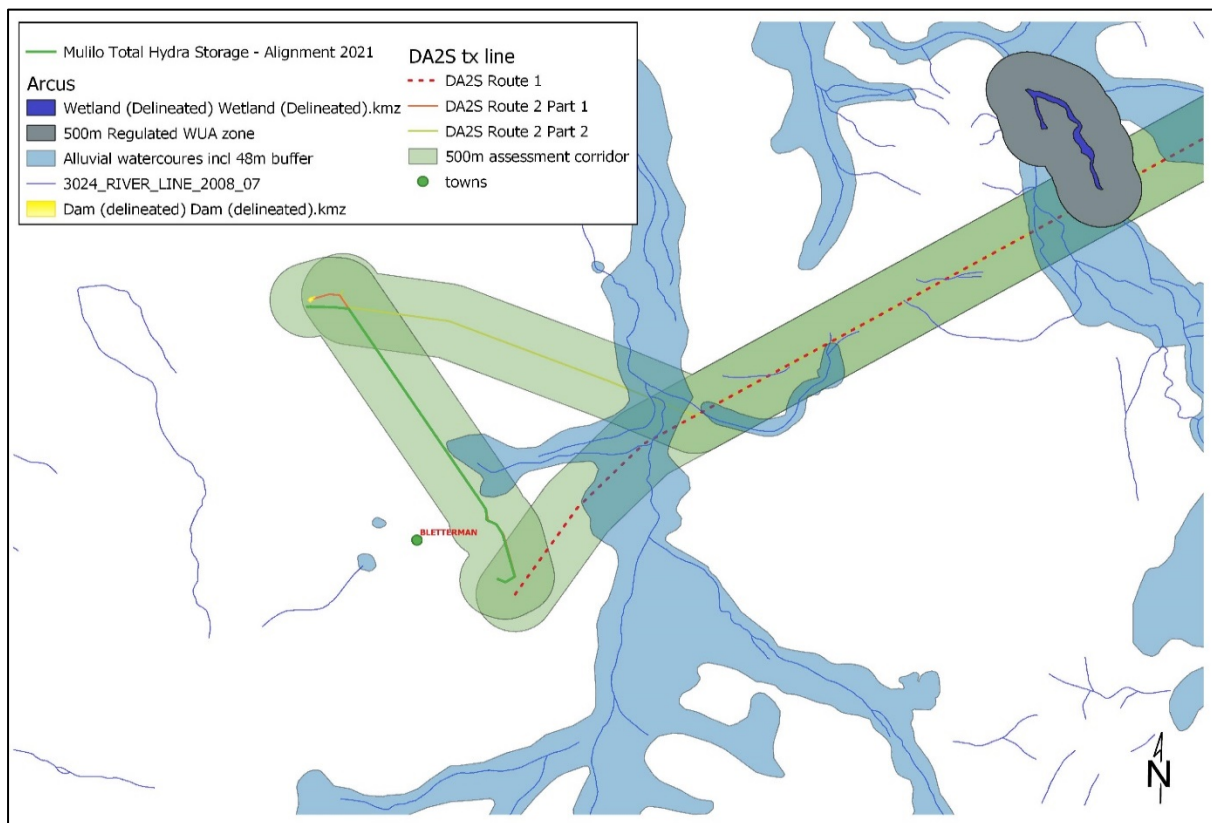


Figure 2: The baseline aquatic environment that was delineated as part of the aquatic assessment conducted for the same alignment corridor which contains the proposed alignment (Green line)

Site verification report, as per the DEFF Screening Tool

Prior to finalising the Aquatic Biodiversity Specialist Assessment in accordance with the Specialist Assessment and Minimum Report Content Requirements for Environmental Impacts on Aquatic Biodiversity (Government Notice 320, dated 20 March 2020), a site sensitivity verification was undertaken in order to confirm the current land use and environmental sensitivity of the proposed project area as identified by the National Web-Based Environmental Screening Tool (Screening Tool).

The details of the site sensitivity verification are noted below:

Date of Site Visit	29 – 30 September 2019
Specialist Name	Dr Brian Colloty
Professional Registration Number	400268/07
Specialist Affiliation / Company	EnviroSci (Pty) Ltd

Government Notice No. 320, dated 20 March 2020, includes the requirement that an Initial Site Sensitivity Verification Report must be produced for a development footprint. As per Part 1, Section 2.3, the outcome of the Initial Site Verification must be recorded in the form of a report that-

- (a) Confirms or disputes the current use of the land and environmental sensitivity as identified by the national web based environmental screening tool;
- (b) Contains a motivation and evidence of either the verified or different use of the land and environmental sensitivity;
- (c) Is submitted together with the relevant reports prepared in accordance with the requirements of the Environmental Impact Assessment Regulations.

This report has been produced specifically to consider the aquatic biodiversity theme and addresses the content requirements of (a) and (b) above. The report will be appended to the respective specialist study included in the Scoping and EIA Reports produced for the projects.

Site sensitivity based on the aquatic biodiversity theme included in the Screening Tool and specialist assessment

Based on the DEFF Screening Tool, the site was rated very high sensitivity due to the presence of strategic water resources areas, rivers and estuaries. (See Figure 1).

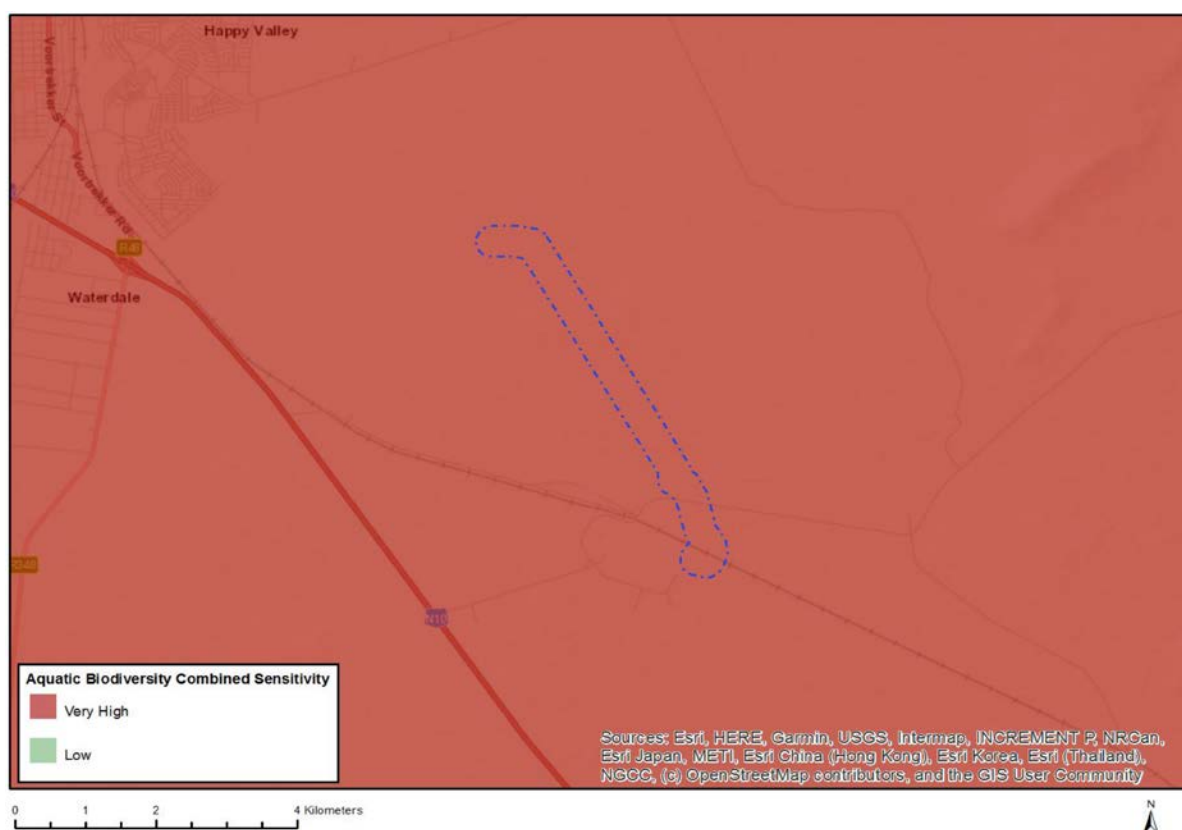


Figure 1. DEFF Screening Tool outcome for the aquatic biodiversity theme

Based on the above outcomes, the specialist **confirms** the environmental sensitivities identified on site, informed by a site visit undertaken by Dr Brian Colloty in September 2019 would be rated as High in areas as well as low in areas. The photo plates below shows the various aquatic features present on site. This information was then compared to current wetland inventories, 1: 50 000 topocadastral surveys mapping and the site.



Plate 1: A view of a typical riverine floodplain, dominated by *Vachellia karroo*



Plate 2: A view of channelled valley bottom wetland colonised by *Juncus rigidus* more than 1 km from any of the proposed corridors



Plate 3: Unchanneled valley bottom wetland, dominated by *Juncus rigidus* sedge within 500m of the transmission line corridor



Plate 4: Several man made dams are located within the study area and are not considered wetland areas

The PES of a river, watercourse or wetland represents the extent to which it has changed from the reference or near pristine condition (Category A) towards a highly impacted system where there has been an extensive loss of natural habit and biota, as well as ecosystem functioning (Category E).

The PES scores have been revised for the country and based on the new models, aspects of functional importance as well as direct and indirect impacts have been included (DWS, 2014). The new PES system incorporates Ecological Importance (EI) and Ecological Sensitivity (ES) separately as opposed to Ecological Importance and Sensitivity (EIS) in the old model, although the new model is still heavily centred on rating rivers using broad fish, invertebrate, riparian vegetation and water quality indicators. The Recommended Ecological Category (REC) is still contained within the new models, with the default REC being B, when little or no information is available to assess the system or when only one of the above-mentioned parameters are assessed or the overall PES is rated between a C or D.

The Present Ecological State scores (PES) for the main watercourses in the study area were rated as follows (DHSWS, 2014 – where B = Largely Natural and C = Moderately Modified):

Subquaternary Catchment Number	Present Ecological State	Ecological Importance	Ecological Sensitivity
5332	B	Low	Low
5391	C	Moderate	Low

These scores were substantiated by observations made in the field within the study area, and due to the overall lack of impacts or disturbance these scores for each of the watercourses within the site should be upheld. This was further substantiated by the inclusion of study area catchments into Critical Biodiversity Areas (Type 1 and 2), i.e. the wetland areas near the alignment crossing the Brak River in particular and Ecological Support Area as shown in the Northern Cape CBA MAP spatial data

Motivation of the outcomes of the sensitivity map and key conclusions

In conclusion, the DEFF Screening Tool identified one sensitivity rating within the development footprint, namely, Very High. Although there is some overlap with the findings on site and the Screening Tool's outcome, the development footprint contains only limited areas of High Sensitivity (Figure 2) (with the remaining areas

being low sensitivity) that were identified following the undertaking of a site visit and spatial input considerations. High sensitivity areas will be avoided by the proposed alignment (Figure 2).

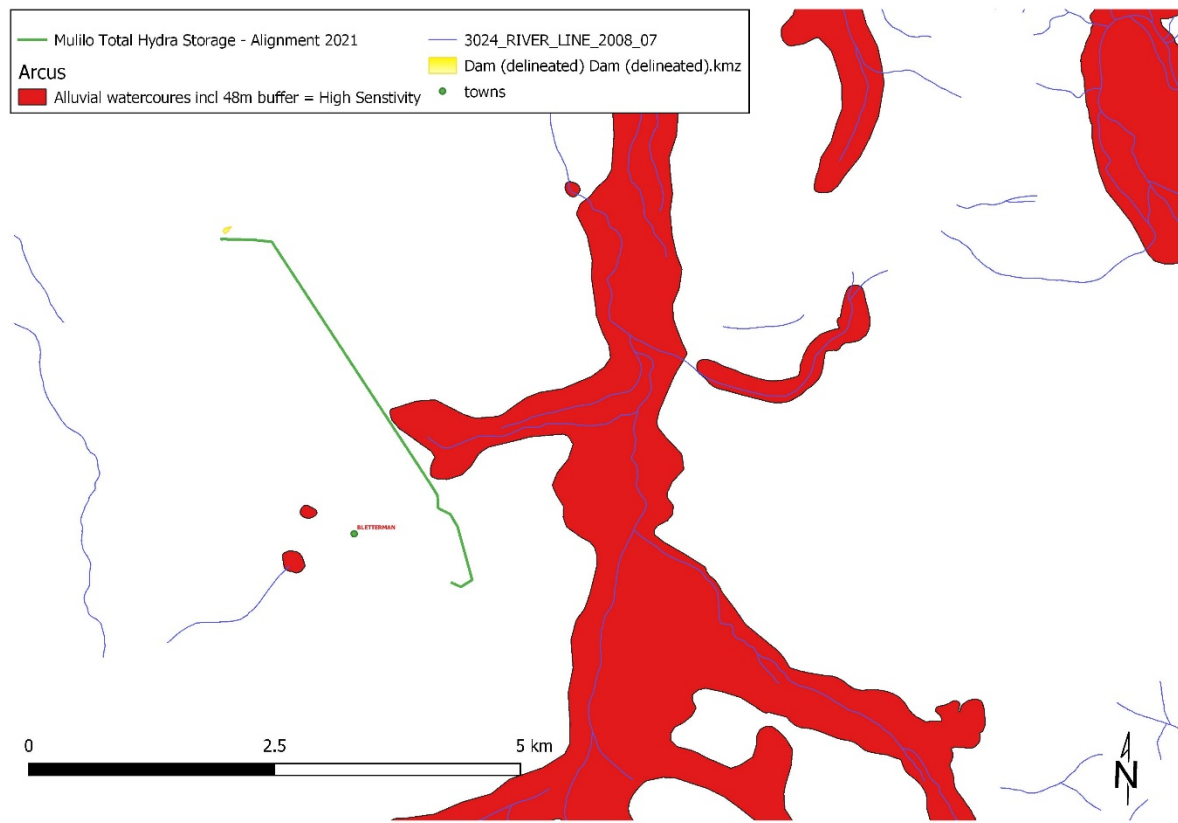


Figure 2. Sensitivity rating outcomes of the aquatic assessment in relation to the proposed alignment



environmental affairs

Department:
Environmental Affairs
REPUBLIC OF SOUTH AFRICA

DETAILS OF THE SPECIALIST, DECLARATION OF INTEREST AND UNDERTAKING UNDER OATH

File Reference Number:	(For official use only)
NEAS Reference Number:	DEA/EIA/
Date Received:	

Application for authorisation in terms of the National Environmental Management Act, Act No. 107 of 1998, as amended and the Environmental Impact Assessment (EIA) Regulations, 2014, as amended (the Regulations)

PROJECT TITLE

Mulilo Total Hydra Storage Project Grid Interconnection, near De Aar Northern Cape

Kindly note the following:

1. This form must always be used for applications that must be subjected to Basic Assessment or Scoping & Environmental Impact Reporting where this Department is the Competent Authority.
2. This form is current as of 01 September 2018. It is the responsibility of the Applicant / Environmental Assessment Practitioner (EAP) to ascertain whether subsequent versions of the form have been published or produced by the Competent Authority. The latest available Departmental templates are available at <https://www.environment.gov.za/documents/forms>.
3. A copy of this form containing original signatures must be appended to all Draft and Final Reports submitted to the department for consideration.
4. All documentation delivered to the physical address contained in this form must be delivered during the official Departmental Officer Hours which is visible on the Departmental gate.
5. All EIA related documents (includes application forms, reports or any EIA related submissions) that are faxed; emailed; delivered to Security or placed in the Departmental Tender Box will not be accepted, only hardcopy submissions are accepted.

Departmental Details

Postal address:

Department of Environmental Affairs
Attention: Chief Director: Integrated Environmental Authorisations
Private Bag X447
Pretoria
0001

Physical address:

Department of Environmental Affairs
Attention: Chief Director: Integrated Environmental Authorisations
Environment House
473 Steve Biko Road
Arcadia

Queries must be directed to the Directorate: Coordination, Strategic Planning and Support at:
Email: EIAAdmin@environment.gov.za

1. SPECIALIST INFORMATION

Specialist Company Name:	EnviroSci (Pty) Ltd		
B-BBEE	Contribution level (indicate 1 to 8 or non-compliant)	4	Percentage Procurement recognition
Specialist name:	Dr Brian Colloty		
Specialist Qualifications:	Ph.D Botany / aquatic sciences		
Professional affiliation/registration:	SACNASP Pr Sci Nat Ecology 400268/07		
Physical address:	1 Rossini Rd Pari Park PE		
Postal address:	As Above		
Postal code:	6070	Cell:	0834983299
Telephone:	0413662077	Fax:	-
E-mail:	b.colloty@gmail.com		

2. DECLARATION BY THE SPECIALIST

I, Brian Colloty, declare that

- I act as the independent specialist in this application;
- I will perform the work relating to the application in an objective manner, even if this results in views and findings that are not favourable to the applicant;
- I declare that there are no circumstances that may compromise my objectivity in performing such work;
- I have expertise in conducting the specialist report relevant to this application, including knowledge of the Act, Regulations and any guidelines that have relevance to the proposed activity;
- I will comply with the Act, Regulations and all other applicable legislation;
- I have no, and will not engage in, conflicting interests in the undertaking of the activity;
- I undertake to disclose to the applicant and the competent authority all material information in my possession that reasonably has or may have the potential of influencing - any decision to be taken with respect to the application by the competent authority; and - the objectivity of any report, plan or document to be prepared by myself for submission to the competent authority;
- all the particulars furnished by me in this form are true and correct; and
- I realise that a false declaration is an offence in terms of regulation 48 and is punishable in terms of section 24F of the Act.

Signature of the Specialist

EnviroSci (Pty) Ltd

Name of Company:

Date

3. UNDERTAKING UNDER OATH/ AFFIRMATION

I, Brian Colloty, swear under oath / affirm that all the information submitted or to be submitted for the purposes of this application is true and correct.

Signature of the Specialist

EnviroSci (Pty) Ltd

Name of Company

Date

Signature of the Commissioner of Oaths

Date

2021-03-08