Scientific Aquatic Services

Applying science to the real world

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Name: Stephen van Staden
Date: Monday, 12 November 2018
Ref: SAS 218164

Attention: Mr. N. Hanekom

TECHNICAL REVIEW MEMORANDUM

FRESHWATER ECOLOGICAL IMPACT ASSESSMENT: PROPOSED DUALLING OF AMANDEL ROAD, KRAAIFONTEIN OVER THE BOTTELARY RIVER

Overview

Based on the review of this study, overall the study is considered objective, concise, and easy to follow. Some descriptive requirements such as the definition of the PES have not been undertaken using the latest methods and cannot be considered best practice. The recommendations presented in the report are appropriate, relevant/necessary, sensible and achievable. The proposed mitigatory measures are considered the best options available. If the results presented in the baseline report of Hanekom (2017) are read in conjunction with the results obtained from the field verification of SAS 2018, the information can be considered appropriate and to align with current best practice methods.

Should the baseline report be considered in conjunction with the peer review report and recommended additions and changes be made, the information available can be considered to be acceptable for decision making purposes and to guide the proposed development which should be considered favourably.

Should the above recommended additions and changes be made, the report can be considered to meet current best practice standards and be deemed acceptable for decision making purposes.

BACKGROUND

In July 2018 Scientific Aquatic Services (SAS) was requested to undertake a peer review of the specialist freshwater assessment and DWS Risk Assessment Matrix conducted by Mr Nicolaas Willem Hanekom in 2017 for the proposed Duelling of Amandel Road, Kraaifontein over the Bottelary River, Western Cape[1]. The extension of the existing bridge crossing across the Bottelary River has also been proposed.

[1] Freshwater Ecological Impact Assessment. Proposed dualling of Amandel Road, Kraaifontein over the Bottelary River. Mr N Hanekom (2017).

Due to Mr. Hanekom being appointed as both the EAP and freshwater specialist for the project by the City of Cape Town, the Freshwater Assessment and the Risk Assessment is required to undergo a technical peer review by an independent suitably qualified specialist.

PROJECT DESCRIPTION:

The proposed dualling of Amandel Road and the bridge crossing is surrounded by residential developments, and the Jan Kriel School is situated directly west thereof. The dualling (upgrade) of Amandel Road and expansion (upgrade) of the bridge crossing is presented in Figure 1.

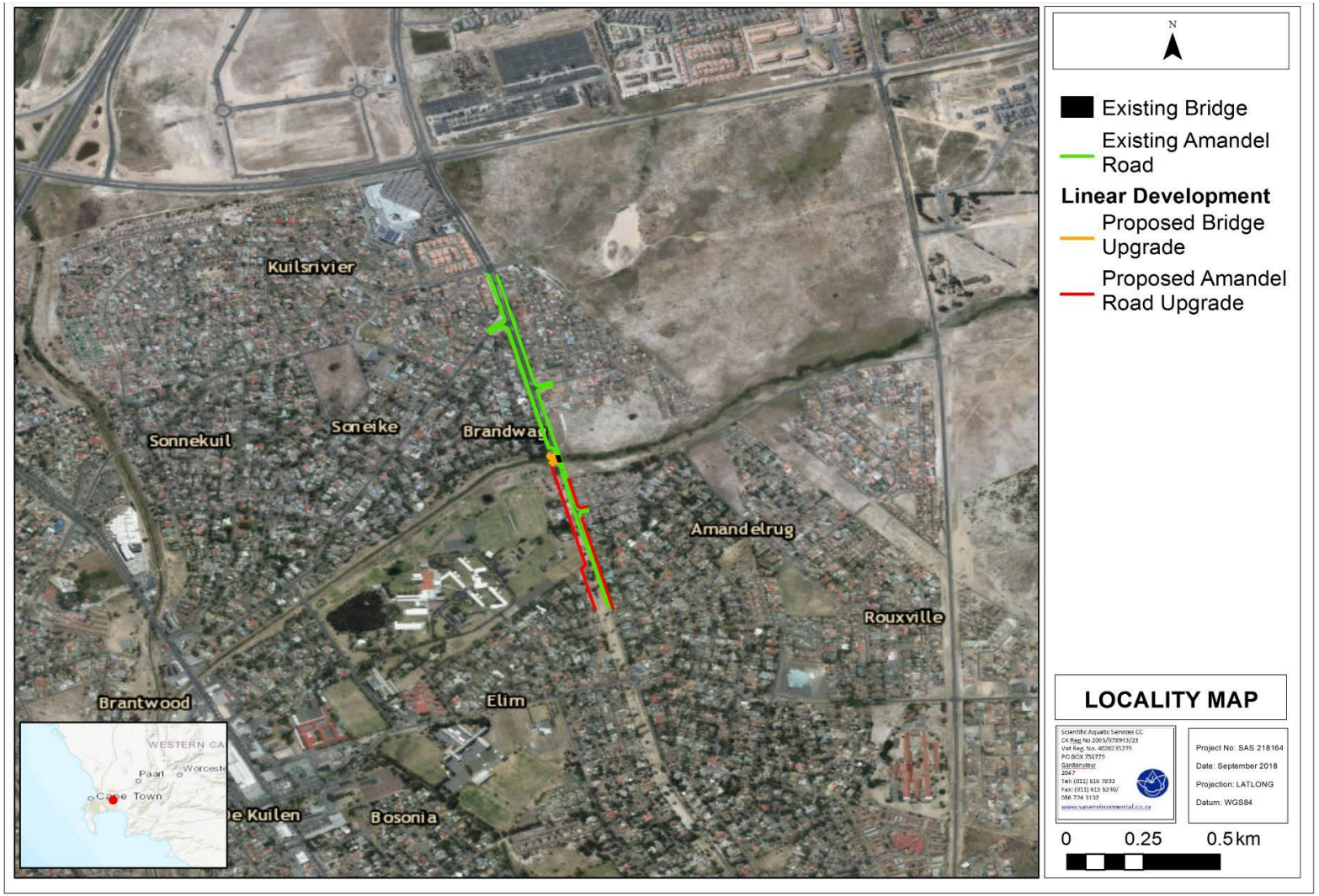

Figure 1: Digital satellite imagery depicting the location of the linear development in relation to the surrounding environment. The focus area indicates the specific area downstream of the bridge, where a wetland has been identified (as per BioNet), indicated in light blue.

SCOPE OF WORK OF THE PEER REVIEWER:

Scientific Aquatic Services was requested to undertake a specialist external review of the specialist Freshwater Assessment and Risk Assessment reports.

The scope of Work for the peer review is defined in the bullets below:

- Conduct a desktop technical review of the reports in line with National Environmental Management Act (NEMA) (Act no. 107 of 1998) minimum specialist report requirements, which are presented within Appendix 6 of the NEMA: EIA Regulations (2014, as amended);
- The review was to exclude analysis of the grammar and sentence structure;
- Comment on whether all the items listed under the terms of reference provided for the abovementioned reports have been addressed within the relevant reports;
- A review of the methodology and techniques implemented during the field survey in line with best practice guidelines and methodologies;
- A review of the databases and legislation that were consulted by the specialist;
- A comprehensive review of the findings presented within the report;
- An in-depth analysis of the site-specific impact assessment and associated mitigation measures pertaining to the pre-construction, construction and rehabilitation phases of the proposed development and the identified alternatives, as well as the use of the material sources; and
- Agree or disagree with the specialist's recommendations and provide comment if deemed necessary.

A CV presenting the expertise of the peer reviewer has been included as an appendix to this short Memo.

This external review is based on a review of the information presented as well as a field verification of the wetland delineations and their characteristics, undertaken by a SACNASP Registered ecologist.

Less attention was paid to formatting and grammatical issues as these have no bearing on the scientific validity and independency of the work done. Notes were however made on the document on selected identified issues of this nature during the review process and forwarded to the project manager by means of comments on the Portable Document File (PDF) format reports. In addition, comments were made in the report to guide rectification of the report, where required, or where wording made interpretation cumbersome.

The table below highlights the findings of the review process considering the National Environmental Management Act (NEMA) (Act no. 107 of 1998) minimum specialist report

requirements, which are presented within Appendix 6 of the NEMA: EIA Regulations (2014, as amended).

Table 1 Review of Document according to Appendix 6 of the NEMA: EIA Regulations (2014, as amended).

No.	Requirement	Status	Comments
a)	**Details of** -	NA	
(i)	The specialist who prepared the report.	✔	NA
(ii)	The expertise of that specialist to compile a specialist report including a curriculum vitae.	✔	NA
b)	A declaration that the specialist is independent.	✔	NA
c)	An indication of the scope of, and the purpose for which, the report was prepared.	✔	NA
cA)	An indication of the quality and age of base data used for the specialist report.	✔ X	Data has been presented but the quality, age acceptability of some aspects of the data can be better defined in the assumptions and limitations section.
cB)	A description of existing impacts on the site, cumulative impacts of the proposed development and levels of acceptable change.	✔ X	Existing impacts have been well defined however improved description of cumulative impacts associated with the proposed development should be presented.
d)	The duration, date and season of the site investigation and the relevance of the season to the outcome of the assessment.	✔ X	The relevance of the sampling date in relation to the seasons and the accuracy of the work has not been sufficiently clearly stated.
e)	A description of the methodology adopted in preparing the report or carrying out the specialised process inclusive of equipment and modelling used.	✔	Although the methodology is provided, it is recommended that this be presented in a separate section, prior to the results thereof given.
f)	Details of an assessment of the specific identified sensitivity of the site related to the proposed activity or activities and its associated structures and infrastructure, inclusive of a site plan identifying site alternatives.	✔	NA
g)	An identification of any areas to be avoided, including buffers.	X	No sensitivity map is provided to indicate the freshwater resource identified in relation to the proposed activities. A separate map is presented but does not indicate any conservation buffers or zones of regulation applicable to the development.
h)	A map superimposing the activity including the associated structure and infrastructure on the environmental sensitivities of the site including areas to be avoided, including buffers.	X	
i)	A description of any assumption made and any uncertainties or gaps in knowledge.	✔ X	The assumptions and limitations section can be better defined and should provide a better indication of and the significance of knowledge gaps.
j)	A description the findings and potential implication\s of such findings on the impact of the proposed activity, including identified alternatives on the environment or activities.	✔	NA
k)	Any mitigation measures for inclusion in the EMPr.	✔	NA
l)	Any conditions for inclusion in the environmental authorisation.	X	None presented. If any are required, this should be made clear.
m)	Any monitoring requirements for inclusion in the EMPr or environmental authorisation.	✔	NA
n)	A reasoned opinion -	✔	
(i)	As to whether the proposed activity, activities or portions thereof should be authorised.	✔	
(iA)	Regarding the acceptability of the proposed activity or activities.	✔	
(ii)	If the opinion is that the proposed activity, activities or portions thereof should be authorised, any avoidance, management and mitigation measures	✔ X	Based on the field verification study done by SAS, this has been refined. The results of the baseline report if read

No.	Requirement	Status	Comments
	that should be included in the EMPr, and where applicable, the closure plan.		in conjunction with the field verification undertaken by SAS is sufficient for decision making.
o)	A description of any consultation process that was undertaken during the course of preparing the specialist report.	X	No Record of interaction is given. If no interaction took place, this should be stated.
p)	A summary and copies of any comments received during any consultation process and where applicable all responses thereto.	X	No Record of interaction is given. If no interaction took place, this should be stated.
q)	Any other information requested by the competent authority.	X	No Record of interaction is given. If no interaction took place, this should be stated.

The table below highlights the findings of the review process according to the additional TOR requirements for the reviewer as per the appointment documents for the reviewer.

Table 2 Review Outcomes of the specialist Freshwater Habitat Impact Assessment according to the peer review TOR.

ASSESSMENT CRITERION	COMMENTS	RECOMMENDATIONS
1. Review process considering the National Environmental Management Act (NEMA) (Act no. 107 of 1998) minimum specialist report requirements, which are presented within Appendix 6 of the NEMA: EIA Regulations (2014, as amended).	1. Refer to the review outcomes of Table 1.	Na
2. Comment on whether all the items listed under the terms of reference provided have been addressed within the relevant report.	In broad terms the Terms Of Reference (TOR) are acceptable but to some degree are vague and some gaps are notable. 1. The TOR did not specify that an area of 500m from the proposed development area be investigated to determine if any wetlands occur within this area which would potentially trigger GN509 as promulgated in 2016; 2. The TOR did not make specific mention of the methods to be employed in the delineation of the watercourse nor the methods to be used to define the Present Ecological State (PES) and Ecological Importance and Sensitivity (EIS) of the watercourses in the area;	It is deemed more appropriate that the following tools for wetland assessment be considered for application: 1. All wetlands within 500m of the proposed development need to be considered; 2. Ollis et al 2013. Classification System for Wetlands and other Aquatic Ecosystems in South Africa. User Manual: Inland Systems. 3. Department of Water Affairs and Forestry (DWAF). 2008. Updated Manual for the Identification and Delineation of Wetlands and Riparian Areas; 4. McFarlane 2008. WET-Health: A technique for rapidly assessing wetland health; or 5. Department of Water Affairs (DWA). 2007. Manual for the assessment of a Wetland Index of Habitat Integrity for South African floodplain and channelled valley bottom wetland types; 6. Rountree & Kotze 2013. Appendix A3: Ecological Importance and Sensitivity Assessment. Kotze et al 2009. WET-EcoServices: A technique for rapidly assessing ecosystem services supplied by wetlands.
3. A review of the methodology and techniques implemented during the field survey in line with best practice guidelines and methodologies.	1. Based on the desktop review the methods seem to have been accurately applied, however outdated methods were applied refer to 2 above.	1. If the results presented in the baseline report of Hanekom (2017) are read in conjunction with the results obtained from the field verification of SAS 2018, the information can be considered appropriate and to align with current best practice methods.
4. A review of the databases and legislation that were consulted by the specialist.	1. Limited background information is presented, with limited use of the available databases.	1. If the results presented in the baseline report of Hanekom (2017) are read in conjunction with the results obtained from the field verification of SAS 2018, the information can be considered appropriate and to align with current best practice use of available data.

ASSESSMENT CRITERION	COMMENTS	RECOMMENDATIONS
5. A comprehensive review of the findings presented within the report.	1. Except for the shortcomings presented above the findings presented within the report are comprehensive, concise, well presented and easy to follow. 2. A key shortcoming although not clearly defined in the TOR is the definition of all relevant zones of regulation to be considered during the EIA and WUL application processes.	1. It is recommended that all zones of regulation applicable in terms of NEMA and the NWA and their associated regulations be presented in maps to ensure the reader clearly understands which areas of the proposed activities fall within the zones of regulation of each article of legislation.
6. An in-depth analysis of the site-specific impact assessment and associated mitigation measures pertaining to the pre-construction, construction and rehabilitation phases of the proposed development and the identified alternatives, as well as the use of the material sources.	1. The impact assessment presented within the report is comprehensive, well written, concise, well presented and easy to follow. 2. With the information presented in the wetland review report of SAS, 2018, including the additional mitigatory measures, the information presented can be considered appropriate for decision making.	1. Consideration should be given to recording more scientific monitoring measures even if applied less frequently or upon close out of the construction works as applicable.
7. Agree or disagree with the specialist's recommendations and provide comment if deemed necessary.	1. The recommendations presented are appropriate, relevant/necessary, sensible and achievable however further detail (including maps thereof) should be presented. 2. The proposed mitigatory measures are considered the best options available. 3. Consideration should be given to expanding the monitoring program.	1. Further consideration should be given to the monitoring program to ensure that adequate detail is catered for to allow for informed and adaptive construction management and operation. Consideration should be given to recording more scientific monitoring measures even if applied less frequently or upon close out of the construction works as applicable.

CONCLUSION

Based on the review of this study, overall the study is considered objective, concise, and easy to follow. Some descriptive requirements such as the definition of the PES have not been undertaken which is a significant omission from the report. The determination of the Ecological Importance and Sensitivity (EIS) does not follow the latest methods and cannot be considered best practice. The recommendations presented in the report are appropriate, relevant/necessary, sensible and achievable however, further detail (including maps) should be presented. The proposed mitigatory measures are considered the best options available. The wetland verification undertaken by SAS presents further information on the river as well as additional construction and operational phase mitigatory measures which should be implemented. Consideration should be given to expanding the monitoring program to include more scientific data.

Should the baseline report be considered in conjunction with the peer review report and recommended additions and changes be made, the information available can be considered to be acceptable for decision making purposes.

SCIENTIFIC AQUATIC SERVICES (SAS) – SPECIALIST CONSULTANT INFORMATION

CURRICULUM VITAE OF STEPHEN VAN STADEN

PERSONAL DETAILS

Position in Company	Managing member, Ecologist with focus on Freshwater Ecology
Date of Birth	13 July 1979
Nationality	South African
Languages	English, Afrikaans
Joined SAS	2003 (year of establishment)
Other Business	Trustee of the Serenity Property Trust and emerald Management Trust

MEMBERSHIP IN PROFESSIONAL SOCIETIES

Registered Professional Scientist at South African Council for Natural Scientific Professions (SACNASP);
Accredited River Health practitioner by the South African River Health Program (RHP);
Member of the South African Soil Surveyors Association (SASSO);
Member of the Gauteng Wetland Forum;
Member of International Association of Impact Assessors (IAIA) South Africa;
Member of the Land Rehabilitation Society of South Africa (LaRSSA)

EDUCATION

Qualifications

MSc (Environmental Management) (University of Johannesburg)	2003
BSc (Hons) Zoology (Aquatic Ecology) (University of Johannesburg)	2001
BSc (Zoology, Geography and Environmental Management) (University of Johannesburg)	2000
Tools for Wetland Assessment short course Rhodes University	2016

COUNTRIES OF WORK EXPERIENCE

South Africa – All Provinces
Southern Africa – Lesotho, Botswana, Mozambique, Zimbabwe Zambia
Eastern Africa – Tanzania Mauritius
West Africa – Ghana, Liberia, Angola, Guinea Bissau, Nigeria, Sierra Leone
Central Africa – Democratic Republic of the Congo

PROJECT EXPERIENCE (Over 2500 projects executed with varying degrees of involvement)

1 Mining: Coal, Chrome, PGM's, Mineral Sands, Gold, Phosphate, river sand, clay, fluorspar
2 Linear developments
3 Energy Transmission, telecommunication, pipelines, roads
4 Minerals beneficiation
5 Renewable energy (wind and solar)
6 Commercial development
7 Residential development
8 Agriculture
9 Industrial/chemical

REFERENCES

- Terry Calmeyer (Former Chairperson of IAIA SA)
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