PB CONSULT
ENVIRONMENTAL MANAGEMENT SERVICES

DENC Ref: NC/BA/24/NAM/HAN/CAL2/2019
Authorization Number: 05/2020

Date of decision: 2020-02-20

DENC Case Officer: Mr A Nyakaza

CONSTRUCTION OF A TWO-LANE VEHICLE AND PEDESTRIAN BRIDGE ACROSS WATER COURSE ON ERF 461 AND ERF 927 LOERIESFONTEIN, HANTAM LOCAL MUNICIPALITY, NORTHERN CAPE

NEMA COMPLIANCE AUDIT REPORT

Required in terms of Condition 47 & 48 of the Environmental Authorization,

DATE: 25 MARCH 2021

P.J.J. Botes (Pr.Sci.Nat: 400184/05)

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EXECUTIVE SUMMARY

ENVIRONMENTAL AUTHORIZATION(S)

The original Environmental Authorization was granted in terms of the National Environmental Management Act, 1998 (Act. 107 of 1998) and the Environmental Impact Assessment Regulations 2014 (as amended). Environmental authorization was granted as described in the Final Basic Assessment Report (BAR), dated 25 July 2019.

- DENC Ref. no.: **NC/BA/24/NAM/HAN/CAL2/2019**
- Dated: 2020-02-11
- Date of decision: 2020-02-20

IMPORTANT DATES

- Construction **commenced on 19 October 2020**.
- **Construction completion date**: 2 February 2021 (a period of about 4 months)

COMPLIANCE TO CONDITIONS OF THE EA

No non-compliances were observed during the day of the compliance audit (Refer to Table 2). In fact the site seems to have been well managed with good environmental control. The ECO reports also did not indicate any non-compliance in terms of the EA.

COMPLIANCE WITH THE EMP

Compliance to the EMP was was evaluated through the ECO reports and other correspondence between the ECO, BVi Engineers and the main contractor. The construction footprint and construction site (after rehabilitation) was used as reference to evaluate the success of the environmental control.

From the site visit it was clear that rehabilitation started with footprint minimisation. The footprint seems to have been managed with great care and only the areas needed for the physical structures were impacted. The surrounding areas were almost intact. As a result, minimal rehabilitation was needed. Adequate erosion measures had been installed, which included wing walls (protecting the bridge structures) and gabion baskets (protecting the surrounding soils). If the mixing areas were on site, they were well rehabilitated and probably placed in the existing road footprint (since no evidence of these areas was observed). There were also no obvious indications of any spillages, including oils, fuel or wastewater (from the mixing areas) in the site or its surroundings

No significant non-compliance in terms of the requirements of the EMP had been observed. The ECO made a number of minor findings, which were resolved during the contract period.

POTENTIAL SHORTCOMINGS OF THE EMP

No obvious shortcomings or oversights were observed in the EMPr. It is considered well written and generally easy to use.

AMENDMENTS TO THE EMP

No amendments to the EMP'r are considered necessary.
Although the EMP'r might be considered slightly generic, it is also a strong point, since it ensures that all potential construction activities are covered. Meaning that although all the aspects described in the EMP'r may not necessarily applicable on this specific project, any potential deviation or potential issue (e.g. blasting) are already covered and can be addressed by the ECO without further amendments.

CLOSURE PLAN.

The final ECO report, dated 2 February 2021, has been taken as the closure plan. In the report the ECO mentioned a few findings that were still outstanding. In an email dated 9 February 2021, the ECO confirmed that a further site visit was done on the 8th of February 2021 and that site clean-up was completed.

The site inspection done for this audit report also confirms that rehabilitation work as well as site stabilization was done excellently. No significant shortcomings or non-conformities were observed during this site visit. In fact the site seems to have been well managed, especially with regards to footprint minimisation and erosion measures installed.

FINAL NOTES

The observations made during the site visit for this audit suggests that the site was well managed during construction and excellent erosion control and rehabilitation measures were implemented. For this the ECO, BVi Engineers and the contractor's team should be given credit.

COMPLIANCE WITH GN 982 (4 DECEMBER 2014)

REG	CONTENT OF ENVIRONMENTAL AUDIT REPORT	INCLUDED (YES / NO OR N/A)	REPORT REFERENCE
1.	An environmental audit report prepared in terms of the NEMA EIA Regulations (2014, as amended) must contain:		
(a)	(i) Details of the independent person who prepared the environmental audit report;	**Yes**	**Page v & vi**
	(ii) The expertise of independent person that compiled the environmental audit report;	**Yes**	**Page v & vi**
(b)	A declaration that the independent auditor is independent in a form as may be specified by the competent authority;	**Yes**	**Page v & vi**
(c)	An indication of the scope of, and the purpose for which, the environmental audit report was prepared;	**Yes**	**Par. 1.2**
(d)	A description of the methodology adopted in preparing the environmental audit report;	**Yes**	**Par. 2**
(e)	An indication of the ability of the EMPr, and where applicable, the closure plan to-		
	(i) sufficiently provide for the avoidance, management and mitigation of environmental impacts associated with the undertaking of the activity on an on-going basis;	**Yes**	**Par. 4 & 5**
	(ii) sufficiently provide for the avoidance, management and mitigation of environmental impacts associated with the closure of the facility; and	**Yes**	**Par. 7**
	(iii) ensure compliance with the provisions of environmental authorisation, EMPr, and where applicable, the closure plan;	**Yes**	**Par. 3, 3.1, 4 & 5**
(f)	A description of any assumptions made, and any uncertainties or gaps in knowledge;	**Yes**	**Par. 2.1**
(g)	A description of any consultation process that was undertaken during the course of carrying out the environmental audit report;	**Yes**	**Par. 2 & 2.1**
(j)	A summary and copies of any comments that were received during any consultation process; and	**N/a**	
(k)	Any information requested by the competent authority;	**N/a**	

INDEPENDENCE & CONDITIONS

PB Consult is an independent entity with no interest in the activity other than fair remuneration for services rendered. Remunerations for services are not linked to approval by decision making authorities and PB Consult have no interest in secondary or downstream development as a result of these services. There are no circumstances that compromise the objectivity of this report. The findings, results, observations and recommendations given in this report are based on the author's best scientific and professional knowledge and available information. PB Consult reserve the right to modify aspects of this report, including the recommendations if new information become available which may have a significant impact on the findings of this report.

RELEVANT QUALIFICATIONS & EXPERIENCE OF THE AUTHOR

Mr. Peet Botes holds a BSc. (Hons.) degree in Plant Ecology from the University of Stellenbosch (Nature Conservation III & IV as extra subjects). Since qualifying with his degree, he had worked for more than 20 years in the environmental management field, first (1997) at the Overberg Test Range (a Division of Denel) managing the environmental department of OTR and being responsible for developing and implementing an ISO14001 environmental management system, ensuring environmental compliance, performing environmental risk assessments with regards to missile tests and planning the management of the 26 000 ha of natural veld, working closely with CapeNature (De Hoop Nature Reserve).

In 2005 he joined Enviroscientific, an independent environmental consultancy specializing in wastewater management, botanical and biodiversity assessments, developing environmental management plans and strategies, environmental control work as well as doing environmental compliance audits and was also responsible for helping develop the biodiversity part of the Farming for the Future audit system implemented by Woolworths. During his time with Enviroscientific he performed more than 400 biodiversity en environmental legal compliance audits.

During 2010 he joined EnviroAfrica in order to move back to the biodiversity aspects of environmental management. Experience with EnviroAfrica includes NEMA EIA applications, environmental management plans for various industries, environmental compliance audits, environmental control work as well as more than 90 biodiversity & botanical specialist studies.

Towards the end of 2017, Mr Botes started his own small environmental consulting business focusing on biodiversity & botanical assessments, biodiversity management plans and environmental compliance audits.

Mr. Botes is a registered Professional Botanical, Environmental and Ecological Scientists at SACNASP (South African Council for Natural Scientific Professions) as required in terms of Section 18(1)(a) of the Natural Scientific Professions Act, 2003, since 2005.

DECLARATION OF INDEPENDENCE

THE INDEPENDENT PERSON WHO COMPILED THE COMPLIANCE AUDIT REPORT

I Petrus, Jacobus, Johannes Botes, as the appointed independent specialist hereby declare that I:

- act/ed as the independent specialist in this application;
- regard the information contained in this report as it relates to my specialist input/study to be true and correct, and
- do not have and will not have any financial interest in the undertaking of the activity, other than remuneration for work performed in terms of the NEMA, the Environmental Impact Assessment Regulations, 2014, as amended, and any specific environmental management Act;
- have and will not have no vested interest in the proposed activity proceeding;
- have disclosed, to the applicant, EAP and competent authority, any material information that have or may have the potential to influence the decision of the competent authority or the objectivity of any report, plan or document required in terms of the NEMA, the Environmental Impact Assessment Regulations, 2014 and any specific environmental management Act;
- am fully aware of and meet the responsibilities in terms of NEMA, the Environmental Impact Assessment Regulations, 2014 (specifically in terms of regulation 13 of GN No. R. 326) and any specific environmental management Act, and that failure to comply with these requirements may constitute and result in disqualification;
- have ensured that information containing all relevant facts in respect of the specialist input/study was distributed or made available to interested and affected parties and the public and that participation by interested and affected parties was facilitated in such a manner that all interested and affected parties were provided with a reasonable opportunity to participate and to provide comments on the specialist input/study;
- have ensured that the comments of all interested and affected parties on the specialist input/study were considered, recorded and submitted to the competent authority in respect of the application;
- have ensured that the names of all interested and affected parties that participated in terms of the specialist input/study were recorded in the register of interested and affected parties who participated in the public participation process;
- have provided the competent authority with access to all information at my disposal regarding the application, whether such information is favourable to the applicant or not; and
- am aware that a false declaration is an offence in terms of regulation 13 of GN No. R. 326.

Note: The terms of reference must be attached.

Signature of the specialist:

PB Consult (Sole Proprietor)

Name of company:

8 April 2021

Date

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APPENDICES

1. INTRODUCTION

The activity involves the construction of a two-lane vehicle and pedestrian bridge across a water course on Erven 461 and 927, Loeriesfontein (Hantam Local Municipality, Northern Cape Province). The activity triggered listed activities in terms of the NEMA EIA regulations, namely activity 19 (i) of GN. R.327 of 7 April 2017 (as amended) with regards to the infilling or depositing of any material of more than 10 m^3 into, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock of more than 10 m^3 from a watercourse.

Since construction was completed at the time when the site visit was done the physical audit could only evaluate the construction site in terms of the final product, the disturbance footprint and rehabilitation done.

It is important to note that the construction site was relatively small and located within the urban edge of Loeriesfontein (an area already disturbed by urban activities). The most significant environmental aspects were the seasonal watercourse and its associated riparian vegetation. However, it is also important to note that the site is located in a semi-desert area, which was still experiencing the effects of a severe 7-year drought period. From the site visit it was clear that little actual riparian vegetation was associated with the watercourse to begin with. As a result, management of erosion and alien vegetation as part of the rehabilitation would have been the most important aspects of the project.

1.1 PROJECT TEAM

- BVi Engineers were the consulting engineers on the project.
- ASLA Construction was appointed as the main contractor responsible for the physical construction of the bridge.
- Enviro Namaqua was appointed to perform the duties of the Environmental Control Officer.

1.2 ENVIRONMENTAL AUDIT

This compliance audit is required in terms of conditions 47 & 48 of the Environmental Authorization (EA) for this project, which states that the holder of the authorization must submit an environmental audit report to the Department within 30 days of completion of the construction phase and within 30 days of completion of the rehabilitation activities.

This report is applicable to both the completion of the construction- and the rehabilitation activities (as they were completed simultaneously).

1.2.1 Scope of the audit

This audit report aims to evaluate the construction activity in terms of compliance with the conditions of the Environmental Authorization (EA) and the Environmental Management Plan (EMP) and to conform to the requirements of the NEMA EIA regulations 2014 (as amended), GN 326, 7 April 2017, Appendix 7, for Environmental Audit Reports.

PB Consult was commissioned to undertake the compliance audit. The environmental audit report will be submitted to the DENC for comments and all interested and affected parties will be notified of the submission of the report.

1.2.2 Objectives of the audit

The objective of the environmental audit report (in terms of GN 326, 7 April 2017) is to:

- Report on:
    a. The level of compliance with the conditions of the environmental authorization and the EMP'r, and where applicable, the closure plan; and
    b. The extent to which the avoidance, management and mitigation measures provided for in the EMP'r, and where applicable the closure plan, achieve the objective and outcomes of the EMP'r, and closure plan.
- Identify and assess any new impacts and risks as a result of undertaking the activity;
- Evaluate the effectiveness of the EMP'r, and where applicable the closure plan;
- Identify shortcomings in the EMP'r, and where applicable the closure plan; and
- Identify the need for any changes to the avoidance, management and mitigation measures provided for in the EMP'r, and where applicable, the closure plan.

1.3 PROJECT DESCRIPTION

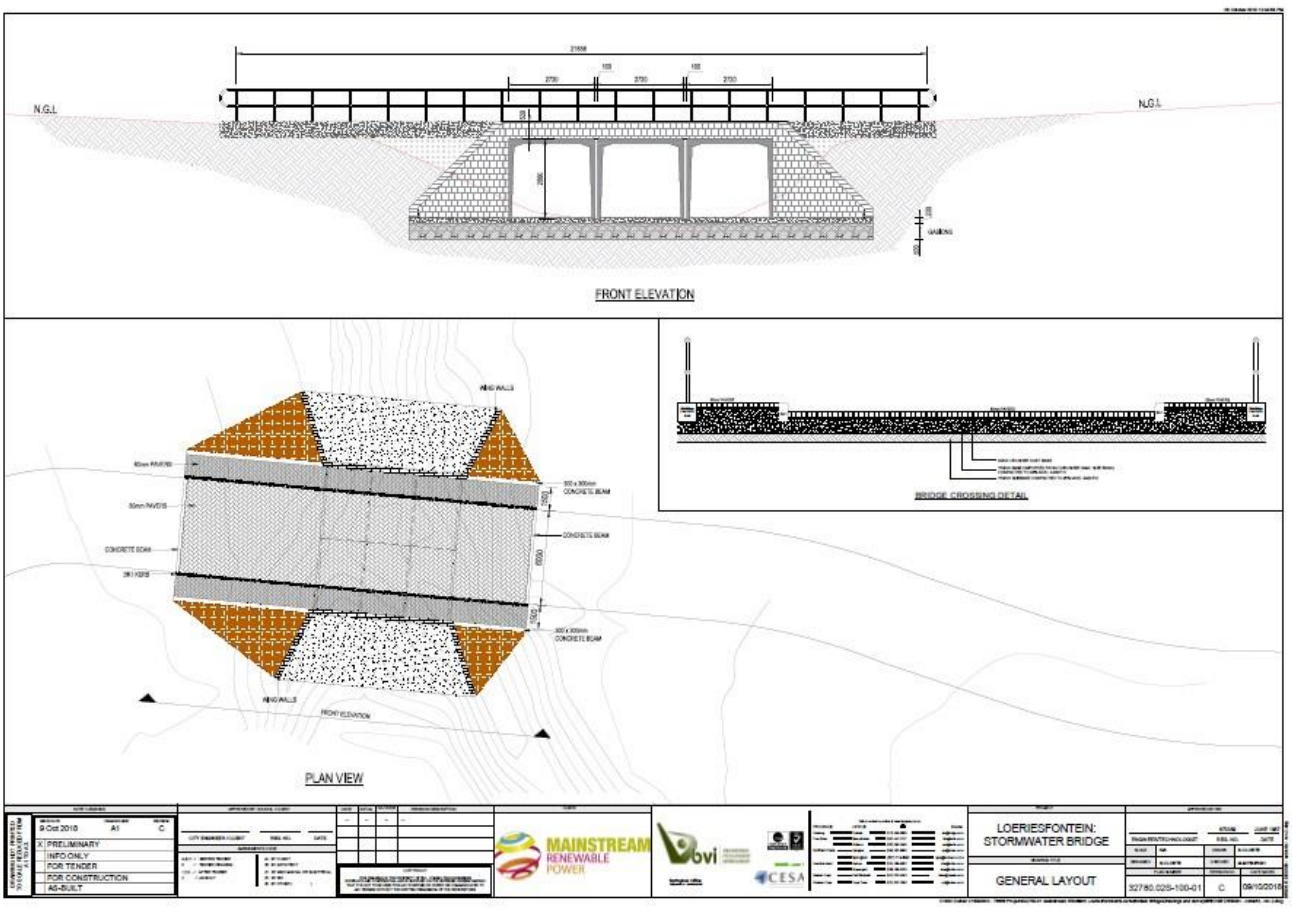
The construction of a two-lane vehicle and pedestrian bridge across a watercourse on Erven 461 and 927 (Loeriesfontein).

Co-ordinates for the centre point of the bridge are as follows:

- S30° 57' 20.8" E19° 26' 14.0" (Refer to Figure 1).

Figure 1: Location of the new bridge at Loeriesfontein

Figure 2: General layout design of the bridge (BVi Consulting Engineers)



1.4 PROJECT STATUS

Table 1 gives a short summary of chronological order of events regarding the commencement of construction and progress.

Table 1: Chronological order of events in terms of the EA approval and commencement process

DATE	DESCRIBTION OF EVENT	NOTES
2020/02/20	Environmental Authorization (EA) granted in terms of the National Environmental Management Act, 1998 (Act. 107 of 1998) and the Environmental Impact Assessment Regulations 2014 (as amended). Project description is given in the Final Basic Assessment Report (BAR), dated 25 July 2019. • DENC Ref. no.: **NC/BA/24/NAM/HAN/CAL2/2019** • Date of decision: 2020-02-20	**GRANTED**. Refer to Appendix 1 for a copy of the EA.
2020/10/08	Notice of intent to commence submitted to DENC • Enviro Namaqua (Ms. Arika van den Niekerk) was appointed as the ECO for the project	Refer to Appendix 2
2020/10/21	Induction training and environmental site handover meeting (by Enviro Namaqua)	Refer to Appendix 3
2020/10/21	Actual commencement date	
2021/02/02	Completion of construction (activity)	Refer to Appendix 4
2021/02/02	Final ECO report	Refer to Appendix 5
2021/02/08	Final ECO site visit (to ensure all environmental snag list items were addressed)	Refer to Appendix 6
2021/03/25	Independent Compliance audit (in terms of Condition 47 & 48 of the EA)	This Report

1.5 ABBREVIATIONS USED

BAR	Basic Assessment Report
CBA	Critical biodiversity area (in terms of the 2017 City of Cape Town Biodiversity Network)
DENC	Department of Environment & Nature Conservation
EA	Environmental Authorization (Record Of Decision)
EAP	Environmental assessment practitioner
ECO	Environmental Control Officer
EIA	Environmental impact assessment
EMP	Environmental Management Plan or Program
EMS	Environmental management system
ESA	Ecological support area (in terms of the 2017 City of Cape Town Biodiversity Network)
MSDS	Material Safety Data Sheet(s)
NEMA	National Environmental Management Act, 1998 (Act no. 107 of 1998)

2. METHODOLOGY ADOPTED FOR PREPARING THE AUDIT REPORT

Information on the background and technical aspects of the project was obtained from the Environmental Control Officer (ECO) and the Consulting Engineers (BVi).

A site visit was conducted on the 25th of March 2021.

Further information was gained from evaluating relevant documentation such as:

- The Environmental authorization;
- The Basic Assessment Report;
- The EMP approved by DENC;
- The notice of intent to commence;
- The ECO files;
- Other documentation relevant to the proposed development;

In this environmental audit, compliance with the conditions of the EA is discussed under Heading 3. Findings are discussed in the comments & recommendations column next to each Condition of the EA.

Compliance with the EMP is discussed under Heading 4, with findings discussed under each heading.

2.1 Assumptions & uncertainties

Since construction was completed at the time when the site visit was done the physical audit could only evaluate the construction site in terms of the final product, the disturbance footprint and rehabilitation done. The observations and conclusions therefore refer to the site conditions at the time of the site inspection.

Site conditions during construction would have differed significantly. However, the ECO reports and findings made in these audit reports give a good overview of the issues encountered, potential non-conformities- and non-compliances observed and potential shortcomings of the EMP (although these findings rely heavily on the detail of the ECO reports). In this case the ECO reports were very detailed and professional, which allows for a good understanding of the on-going construction challenges (or lack there-off).

Uncertainties are then discussed with the ECO and the Project managers or site engineers in order to make the best informative decision with regards to potential shortcomings and improvements that can be made, which in turn can lead to amendments to the EMP or improved method statements in terms of future projects or further works on the same project.

3. COMPLIANCE WITH THE CONDITIONS OF THE ENVIRONMENTAL AUTHORIZATION

Table 2 gives a summary of the conditions applicable to this environmental authorization and discuss compliance on the hand of evidence obtained.

Table 2: A short summary of the Conditions of the EA and comments on compliance with recommendations

No.	SHORT DESCRIPTION OF EACH CONDITION	COMMENTS ON COMPLIANCE & RECOMMENDATION(S)
Scope of authorization		
1	Authorisation of the activity is subject to the conditions of the EA and are binding on the holder of the EA.	**Noted**
2	The holder of the EA shall be responsible for ensuring compliance with the conditions by any person acting on his behalf.	**Noted**
3	The activities may only be carried out at the property indicated above.	**Compliant** Refer to the updated EA (Co-ordinates as described in the EMP – Appendix).
4	Any changes to, or deviations from the project description must be approved in writing by the competent authority.	**Noted** None required.
5	This authorization does not negate the holder's responsibility to comply with any other statutory requirements that may be applicable.	**Compliant** Refer to the Water Use Registration Record (DWS Reg. 221 443 96), attached to Appendix 2
General conditions		
6	A copy of the EA and EMP must be kept at the property where the activity will be undertaken and produced to any authorised official representing the competent authority.	**Compliant** According to the ECO, a copy of the EA and EMP were available at the site offices, together with a complaints register.
7	Should any detail of the applicant change (including contact detail or name of the responsible person) the applicant must notify the Department of such changes.	**Compliant** No changes required.
8	The holder must notify the Department (in writing), within 24 hours if condition 16 of this EA cannot be or is not adhered to. In all cases the holder must notify the Department within 7 days if any condition of the EA is not adhered to (with reasons for the non-compliance).	**Compliant** The ECO did not observe or note any significant non-compliance and none was observed on the day of the site inspection for this audit report.
9	Non-compliance with any condition of the EA or EMP may render the holder liable for criminal prosecution.	**Noted – Non observed**

No.	SHORT DESCRIPTION OF EACH CONDITION	COMMENTS ON COMPLIANCE & RECOMMENDATION(S)
10	This EA is subject to approval by relevant local authorities in terms of any relevant legislation	**Noted** Please note that the Holder of the EA is the Local Authority in this case.
11	The activity must not commence without the necessary permits/licences/approval and/or service agreements, where relevant.	**Compliant** Refer to the Water Use Registration Record (DWS Reg. 221 443 96), attached to Appendix 2
12	The activity, including site preparation, may not commence before the 30 days appeal period expires or until the Department has considered any appeals that have been lodged. a) One week's notice must be given to the Department before commencement with the activity; b) Such notice shall make clear reference to the site location details and reference number of the EA; c) The notice must also include proof of compliance with condition 11.	**Compliant** **Date of decision (EA)**: 20 February 2020 **Commencement date**: 21 October 2020 (more than 30 days after the EA was issued). **Compliant: Refer to Appendix 2** The notice of intent makes clear reference to the site location, the EA reference number and include proof of compliance with Condition 11 and Condition 41
13	The applicable conditions of the EA must from part of all contractors and sub-contractors conditions of contract.	**Compliant:** All contractors were given an environmental induction course as well as copies of the EA and EMP'r (which had to be kept on site). Environmental performance was an agenda point at each monthly meeting.
14	The applicant must carry out regular environmental audits to establish compliance with the conditions of the EA and contracts.	**Compliant** The ECO performed regular site visits and submitted monthly reports to BVi and the contractor. The ECO report also allow for "score rating" with regards to compliance and non-compliance issues (Refer to Appendix 5)
15	Any complaints regarding the said development must be brought to the attention of the Department within 24h. A complaints register must be kept up to date.	**Compliant** According to the ECO and the Complaints register no complaints were lodged.
16	Environmental Management Inspectors (EMI) employed by the Department, must be given access to the property.	**Compliant** According to the ECO the site was open to any entity for inspections.
17	The Department may add to, change and/or amend any of the conditions of the EA (if such change is justified). In the event that an impact exceeds its significance as predicted in the environmental reports the authorization may be withdrawn (with proper procedure).	**Noted**
18	In the event of a dispute concerning the significance of a particular impact, the opinion of the Department will prevail.	**Noted**

No.	SHORT DESCRIPTION OF EACH CONDITION	COMMENTS ON COMPLIANCE & RECOMMENDATION(S)
19	The Department and any national-, provincial department, local authority etc. shall not be held responsible for any damage or losses suffered by the applicant or his successor in title.	**Noted** The applicant is the Local Authority in this case.
20	The applicant is responsible for all costs necessary to comply with conditions of the EA.	**Noted**
21	The applicant must apply the principle of best practicable environmental option for all technologies used/implemented during the construction and operational phases.	**Noted** Environmental performance was monitored by the ECO throughout.
Appeal of authorization		
22	The applicant must notify all registered I&AP's within 12 calendar days of the outcome of the application and their right to appeal.	**Compliant** Refer to Appendix 7
23	The notification referred to must – • Specify the date on which the EA was issued; • Inform the I&AP's of the appeal procedure; • Advice I&AP's that a copy for the EA and reasons for the decision will be furnished on request.	Refer to Appendix 7
24	If the applicant should appeal against the EA, the applicant must provide all I&AP's with a copy of the notice to appeal.	**Not applicable in this case.**
Management of the activity		
25	The EMPr submitted, as part of the application for Environmental Authorization is hereby approved and must be adhered to.	**Compliant** Monitored through the ECO site visits.
26	Before any work is done the site and access routes must be clearly demarcated.	**Compliant** According to the ECO reports, demarcation was maintained throughout.
27	The riparian vegetation and ephemeral stream must not be disturbed outside the footprint area.	**Compliant** The site visit confirmed that construction was contained within a well-defined physical footprint, which was minimised and very well rehabilitated.
28	Proper measures to prevent/reduce the risk of erosion and the invasion of alien species must be implemented.	**Compliant** The site visit confirmed that adequate erosion control measures had been installed, which includes side walls and gabion baskets. The ECO also confirmed that alien eradication was

No.	SHORT DESCRIPTION OF EACH CONDITION	COMMENTS ON COMPLIANCE & RECOMMENDATION(S)
		done upstream and downstream of the construction footprint.
29	The spreading of invasive alien plant species must be controlled and monitored.	**Compliant** BVi confirmed that ASLA made resources available to remove Prosopis upstream and downstream from the bridge as well as in the adjacent watercourse.
30	Stabilisation and rehabilitation of erosion areas must take place immediately after construction ended.	**Compliant** Refer to the comments under Conditions 27 and 28 above.
31	Indiscriminate disturbance of areas outside the footprint must be avoided.	**Compliant** Refer to the comments under Conditions 27 and 28 above.
32	Proper measures to prevent soil erosion must be implemented to ensure the sustainability of the structures and activities.	**Compliant** Refer to the comments under Conditions 27 and 28 above.
Monitoring		
33	In the event of oil spillage and contamination of soil by hazardous substances, such areas must be cleaned up immediately and disposed responsibly.	**Compliant** According to the ECO reports no spillages were observed or reported. The compliance audit site visit also did not show any evidence of contaminated soils.
34	A storm water management plan must be implemented during the construction and operation of the facility.	
35	A monitoring program must be implemented for early detection of alien invasive plant species in accordance with CARA.	**Compliant** Refer to the comments under Condition 29 above.
36	Dust control measures must be implemented.	**Compliant** It must be noted that during the construction phase the Northern Cape was still in the grips of a severe drought and Loeriesfontein were under severe water restrictions for a long period of time. However, dust control was monitored by the ECO and no dust complaints were received.
37	Noise levels during construction must be well managed and comply with Noise Control regulations.	**Compliant** Noise levels were monitored by the ECO (no complaints recorded).
38	All pipelines and infrastructure no longer in use must be removed.	**Compliant** The compliance audit site visit confirmed that no waste material of any kind were left on site.

No.	SHORT DESCRIPTION OF EACH CONDITION	COMMENTS ON COMPLIANCE & RECOMMENDATION(S)
Environmental Control Officer (ECO) and duties		
39	The holder of the EA must appoint an independent and suitably experienced ECO before commencement of any land clearing or construction activities.	**Compliant** Enviro Namaqua was appointed to fulfil the duties of the ECO (refer to Appendix 2)
40	The ECO must meet with the contractor to discuss the conditions of the EA and the contents of the EMP'r.	**Compliant** Induction training and environmental site handover meeting was done on the 21st of October 2020 (Before commencement). Refer to Appendix 3
41	Once appointed the name and contact detail of the ECO must be submitted to the Directorate: Compliance and Enforcement Unit of the Department.	**Compliant** Refer to Appendix 2 for a copy of the letter to DENC
42	The ECO must keep record of all activities on site, potential impacts, problems identified, transgressions noted and tasks undertaken by the ECO.	**Compliant** The ECO submitted a monthly ECO report, which reported on all of these items (Refer to Appendix 5)
43	The ECO must remain employed until all rehabilitation measures are completed and the site is ready for operation.	**Compliant** Enviro Namaqua was appointed throughout the project including the rehabilitation process.
Recording and reporting to the Department		
44	The holder must keep all records relating to monitoring and auditing on site and made available for inspection to any relevant competent authority.	**Compliant** According to the ECO an environmental file was maintained throughout the construction phase.
45	All documentation such as audit/monitoring/compliance reports and notifications, required in terms of this EA must be submitted to the Directorate: Compliance and Enforcement Unit of the Department.	**Noted**
46	Records relating to compliance or non-compliance with any condition of the EA must be kept in good order and made available to officials of the Department within 7 days of written request.	**Noted** According to the ECO an environmental file was maintained throughout the construction phase. For attention of the Applicant.
Environmental audit report		
47	The holder must submit an environmental audit report within 30 days of completion of the construction phase and within 30 days of completion of the rehabilitation phase.	**Compliant** This report. Site visit was performed on the 25th of March 2021.

No.	SHORT DESCRIPTION OF EACH CONDITION	COMMENTS ON COMPLIANCE & RECOMMENDATION(S)
48	The environmental audit report must: • Be compiled by an independent environmental auditor; • Indicate the date of the audit, the name of the auditor and the outcome of the audit in terms of compliance with the EA and EMP'r; • Include measures to be implemented to attend to any non-compliance; • Include copies of any approvals granted by other authorities; • Highlight any outstanding environmental issues along with recommendations for corrective action; • Include evidence of adherence to the EA & EMP'r where relevant such as training records.	**Compliant** • Refer to the declaration of independence (Page iii); • Refer to Page iii and the Executive summary (Page ii); • Refer to the Executive summary (Page ii); • Refer to Condition 5, above; • Refer to the Executive summary (Page ii); • Refer to the various Appendixes attached.
Commencement of the activity		
49	14 days written notice must be given to the Department before commencement of the activity.	**Compliant** Refer to Condition 12(a-c).
50	The activity may not commence before the 30 day appeal period has expired.	**Compliant** Refer to Condition 12
51	The holder may not commence if notified of an appeal against the project.	**Noted** According to the ECO, they were not notified of any appeal against the project.
52	Backfill material must only be obtained from legal sources with the necessary permits.	**Compliant** No backfill material needed as excavated material was re-used as backfill.
53	A storm water management plan must be implemented during the construction and operation of the facility.	**Compliant** Refer to Condition 34.
54	Soil stockpiles must be in low heaps to widen the use options of the rehabilitated surface/land capability/sustainability land-use options.	**Compliant** Monitored by the ECO throughout, including stockpiles placement and maintenance.
55	Rehabilitation must strive to replicate the pre-construction topography where possible and not to increase the overall slope gradients without suitable erosion control measures.	**Compliant** From the site visit it was clear that rehabilitation started with footprint minimisation. By reduction the footprint the impacted area was minimised and the need for extensive rehabilitation reduced. The completed project speaks of a well-managed and well-rehabilitated site.

No.	SHORT DESCRIPTION OF EACH CONDITION	COMMENTS ON COMPLIANCE & RECOMMENDATION(S)
56	Waste management and no burying of waste on site.	**Compliant** The ECO noted minor incidents, but they were addressed timeously (Refer to Point 17 of the ECO reports)
57	Protection of archaeological finds	**N/a** According to the ECO reports no archaeological finds were observed or reported.
58	Chemical mobile toilets must be available for workers on-site.	**Compliant** Monitored throughout by the ECO (Refer to Point 14 of the ECO reports).
59	Surrounding areas may not be used as toilet facilities.	**Compliant** Monitored throughout by the ECO (Refer to Point 14 of the ECO reports).
60	Concrete mixers must be used and placed within contained areas.	**Compliant** Monitored throughout by the ECO (Refer to Point 16 & 20 of the ECO reports).
61	Cleaning of equipment and flushing of mixers must not result in pollution and may not be discharged into the watercourse.	**Compliant** Monitored throughout by the ECO (Refer to Point 16 of the ECO reports).
Site closure and decommissioning		
62	Should the proposed activity ever cease or become redundant, the applicant must undertake the required actions prescribed by legislation at the time.	**Noted** For attention the Applicant.

3.1 NON-COMPLIANCE WITH THE EA

No non-compliances were observed during the day of the compliance audit. In fact the site seems to have been well managed with good environmental control. The footprint seems to have been managed with great care and only the areas needed for the physical structures were impacted. The surrounding areas were almost intact. As a result, minimal rehabilitation was needed. Adequate erosion measures had been installed, which included wing walls (protecting the bridge structures) and gabion baskets (protecting the surrounding soils).

If the mixing areas were on site, they were well rehabilitated and probably placed in the existing road footprint (since no evidence of these areas was observed). There were also no obvious indications of any spillages, including oils, fuel or wastewater (from the mixing areas) in the site or its surroundings.

3.2 RECOMMENDATIONS ON CORRECTIVE ACTION

No corrective action needed.

4. COMPLIANCE WITH THE EMP

This section deals with compliance to the EMP based on the ECO reports and observations made during the site visit. The construction site was relatively small and located within the urban edge of Loeriesfontein (an area already disturbed by urban activities). The most significant environmental aspects were the seasonal watercourse and its associated riparian vegetation. However, it is also important to note that the site is located in a semi-desert area, which was still experiencing the effects of a severe 7-year drought period. From the site visit it was clear that little actual riparian vegetation was associated with the watercourse to begin with. As a result, management of erosion and alien vegetation as part of the rehabilitation would have been the most important aspects of the project.

Since construction was completed at the time when the site visit was done the physical audit could only evaluate the construction site in terms of the final product, the disturbance footprint and rehabilitation done.

Photo 1: On overview of the construction site (on completion of construction) looking from west to east.

Because of the small construction site (Photo 1 & 2), environmental control would have been relatively strait forward (being a small construction site) and the focus would have been around the management of the footprint (keeping it is small as possible), management of the construction team (ensuring the implementation of the best environmental option) as well as waste-, pollution- and erosion management.

The ECO checked environmental compliance monthly, using an environmental compliance checklist developed by Enviro Logic and Enviro Namaqua. The checklist allows for a scoring system, which aims to rate compliance with the EA and EMP'r using a systematic checklist derived from the EMP and EA (Refer to Appendix 5 for an example of such a report).

The rating system gives an excellent overview of the performance of the construction team in terms of the environmental compliance. From the ECO reports the contractor regularly scored above 90%.

Photo 2: The completed construction site looking from east to west.

Compliance to the EMP was was evaluated through the ECO reports and other correspondence between the ECO, BVi Engineers and the main contractor. The construction footprint and construction site (after rehabilitation) was used as reference to evaluate the success of the environmental control.

4.1 DOCUMENT CONTROL

Document control was evaluated by the ECO in terms of the following aspects (Refer to Section 1 of the ECO checklist):

- Environmental weekly checklists completed by the contractor;
- Environmental incidents register;
- Complaints register;
- Are the declaration of understanding signed and on file;
- Method statements required;

4.1.1 Compliance

According to the ECO reports the contractor maintained the weekly checklists and no significant environmental incidents or complaints were lodged.

Method statements were provided when required by the ECO.

4.2 SERVICES

Section 2 of the ECO checklist deals with the protection and care taken during the construction phase to prevent damage to existing services, fences, gates, telephone- and power lines.

4.2.1 Compliance

No incidents or issues were reported by the ECO reports.

4.3 MANDATORY SITE EQUIPMENT

Section 3 of the ECO checklist evaluated mandatory site equipment on site in terms of the following:

- Sufficient and suitable chemical toilet facilities on site;
- Adequate weather proof refuse bins on site;
- Fire extinguishers on site;
- Drip trays available;
- Leak proof containers for the storage of oil and fuel;

4.3.1 Compliance

According to the ECO reports no significant non-compliance were observed, but the following minor observations were made (which seems to have been corrected on time);

- Toilet facilities needs to be cleaned more regularly;
- Drip trays were used, but needs to be secured against the wind.

4.4 DEMARCATION AND FENCING

Section 4 of the ECO checklist deals with demarcation of the construction footprint According to the ECO criteria the construction site had to be fenced or marked with colour coded poles (in order to restrict / demarcate the physical footprint).

4.4.1 Compliance

According to the ECO reports the site was suitably demarcated and no incidents were reported.

The site inspection for this report confirms that environmental control in terms of footprint management had to be good (no unnecessary disturb areas were observed) (Photo 3).

Photo 3: Showing the southern side of the completed bridge. Note the minimal disturbance footprint outside of the finished bridge.

4.5 HERITAGE

Section 5 of the ECO checklist deals with monitoring of compliance to the potential exposure of heritage (or archaeological) sites during construction.

4.5.1 Compliance

According to the ECO reports no heritage or archeological sites were exposed during the construction phase.

Photo 4: Showing the northern side of the completed bridge. Note the minimal disturbance footprint outside of the finished bridge.

4.6 TOP MATERIAL REMOVAL AND STOCKPILING

Section 6 of the ECO checklist evaluated topsoil and stockpiling management. According to the ECO criteria, vegetation and topsoil must be removed from the construction footprint and stockpiled in heaps no higher than 1.5 m.

4.6.1 Compliance

According to the ECO reports topsoil was removed and stockpiled next to the demarcated construction site. No non-conformities were observed or reported in the ECO reports.

4.7 DUST CONTROL

Section 7 of the ECO checklist deals with dust control.

4.7.1 Compliance

According to the ECO reports, dust was a big problem on windy days (even after wetting of the site). However, it must be noted that Loeriesfontein would have still been under severe water restrictions a result of the ongoing drought and the use of water for dust control would have to be done with care. According to the ECO reports no complaints were received.

4.8 APPROPRIATE USE OF MACHINERY

Section 8 of the ECO checklist evaluates the machinery used on site in terms of their physical condition (are they maintained and in good condition).

4.8.1 Compliance

According to the ECO reports, no incidents or non-compliances were reported. Machinery were in good working order and drip trays were used as required.

4.9 ANTI-EROSION MEASURES

Section 9 of the ECO checklist evaluates the potential for erosion within the construction footprint and the measures implemented to minimize erosion

4.9.1 Compliance

According to the ECO reports, dust was the biggest issue (even after attempts to control it – refer to 4.7 above). No further erosion issues were reported during the construction phase.

4.10 CONTRACTORS SITE CAMP

Section 10 of the ECO checklist evaluates the contractor's camp in terms of maintenance, waste control and housekeeping.

4.10.1 Compliance

No non-compliances reported in the ECO report (in fact the ECO reports regularly refers to good housekeeping in terms of the contractor's camp).

4.11 LIGHTS

Section 11 evaluates the potential for light pollution that might interfere with road traffic or a nuisance factor to neighboring landowners.

4.11.1 Compliance

No non-compliances (according to the ECO reports, no lighting were needed or used on the site).

4.12 EATING, WASHING AND RESTING AREAS

Section 12 of ECO checklist evaluates the areas designated for eating and washing. These needs to be designated areas provided with suitable area and refuse receptors.

4.12.1 Compliance

The ECO reports frequently mention that refuse bins should be cleaned on a daily basis, but no significant non-compliances were reported.

4.13 DRINKING WATER

Section 13 of ECO checklist concerns itself with the availability of sufficient drinking water for staff and workers.

4.13.1 Compliance

The ECO reports that a drinking water connection point had been established on site (tapping into the water supply system for Loeriesfontein). Adequate drinking water was always available.

4.14 TOILETS

Section 14 of ECO checklist (just like section 3) concerns itself with the availability of sufficient and suitable toilet facilities and that they are secured and maintained regularly.

According to the ECO report chemical toilets were used, which was placed within the fenced site office area. It meant that the toilets were within 50 m of the river (in contradiction to the EMP specifications). However, the request for the placement within the office area was agreed upon by the ECO and Engineer for the following reasons:

- The site office site is above the flood line of the river;
- The toilets are better protected and maintained within the site office site;
- The toilets are fitted with storage tanks, which if regularly cleaned should not result in pollution;
- Moving the toilets away from the office site would mean that the disturbance footprint had to be enlarged unnecessary.

4.14.1 Compliance

According to the ECO reports no non-conformities or spillages were observed, although it was mentioned regularly that the toilets MUST be cleaned on a weekly basis (even when not yet filled).

4.15 HYDROLOGY

Section 15 of ECO checklist refers to the management of the site in terms of the potential for increased run-off as a result of construction activities.

4.15.1 Compliance

No non-conformities were reported or raised within the ECO reports. During the site visit for this audit no further run-off issues were observed.

4.16 DISCHARGE OF CONSTRUCTION WATER

Section 16 of the ECO checklist concern itself with the management of cement effluent from washings (mixers, wheelbarrows etc.) and the design and management of sediment ponds.

According to the ECO reports, two sedimentation ponds were established. They were each lined with HDPE liners and of suitable size (designed in accordance with the approved method statement). Cement wash water was trapped in these sedimentation ponds. Water evaporated or was re-used for mixing, while stabilized cement from the ponds were disposed into the Municipal approved waste disposal site.

4.16.1 Compliance

No non-conformities were reported or raised within the ECO reports.

4.17 WASTE DISPOSAL (REFUSE)

Section 17 of the ECO checklist deals with the management and disposal of general waste and hazardous waste. The EMP requires that sufficient weather and animal proof refuse bins must be located on site. General waste and construction waste must be regularly collected and disposed at a Municipal approved waste disposal site. Hazardous waste must be disposed at a registered hazardous waste disposal facility.

4.17.1 Compliance

Apart from occasional littering (e.g. cigarette buds en empty cigarette packets) the ECO did not report any significant non-conformity. On the day of the site visit for this report, the site were neat and clean with no visible waste items (not even construction related waste) that still needs to be removed.

Photo 5: A further overview of the completed bridge, looking from southwest to northeast.

4.18 FUEL AND SERVICE AREAS

Section 18 of the ECO checklist deals with the storage and management of fuel in terms of the following:

- Temporary, above ground fuel storage;
- Drip trays available on sit;
- Fuels, oils, chemicals and inflammable materials stored in suitably equipped storage areas;
- Fuel / oil containers left unattended within storage areas;
- Necessary materials and equipment on site to deal with spills.
- Bunded area and gravel traps
- Onsite emergency plan.

4.18.1 Compliance

No significant non-conformities reported.

One minor issue was rectified, concerning a generator leaking petrol, and the correct hazardous signage had to be placed on site. According to the ECO reports, the fuel containers were stored in bunded areas, while other items were stored in suitably contained areas. An emergency plan was established on site.

4.19 CONSTRUCTION AND BUILDING MATERIALS

Section 19 of the ECO checklist deals with the storage and preparation of construction related materials.

4.19.1 Compliance

No significant non-compliances were reported by the ECO.

Photo 6: Looking upstream (south) long the existing water course from the bridge itself.

4.20 CONCRETE WORKS

Section 20 of the ECO checklist deals with the management of concrete ("wet-works") on site. In accordance with the EMP concrete or cement mixing had to take place in dedicated mixers within a lined / bunded area to prevent indiscriminate concrete waste water discharge. Cement waste water must be contained and sediment must be disposed of at Municipal approved waste disposal site. Cement bags must be secured when stored on site.

4.20.1 Compliance

According to the ECO reports concrete / cement mixing did not take place on site (ready mix used). But when applicable cement bags were suitably stored and empty bags were secured.

4.21 BLASTING

Section 21 deals with blasting (when applicable). According to the ECO reports no blasting was done on this site.

4.22 FIRES

Section 22 of the ECO checklist evaluates the use of open fires and adequate firefighting equipment in case of an emergency. The fire rating risk for the surrounding environment would have been low (considering the low fuel load of the natural vegetation). However, in accordance with the EMP, no open fires were allowed at the construction site, while open fires were only allowed in designated areas within the construction camp. Adequate firefighting equipment had to be maintained.

4.22.1 Compliance

The ECO reports indicate that adequate firefighting equipment was maintained. No issues or non-conformities were reported.

4.23 WORKING HOURS

According to the ECO reports, all construction work was done during normal working hours to minimize the potential for nuisance disturbances to the neighboring land owners.

4.24 NOISE

Section 24 of the ECO checklist evaluates the potential for noise pollution or nuisance. According to the EMP noise levels must be kept within acceptable limits and neighbors to be notified with regards to any unusual noisy activities that may take place.

4.24.1 Compliance

According to the ECO reports, all work was done during normal working hours, construction machinery was in good working hours and noise levels were within acceptable levels (typical normal construction noises). No non-conformities were recorded or any complaints registered.

4.25 SAFETY

Section 25 of the ECO checklist evaluates general safety on site in terms of the following:

- Notices displayed at all entrances to the site (identifying it as a construction site);
- The names and contact numbers for responsible people must be posted at relevant locations;
- Traffic safety precautions / signs must be in place.

4.25.1 Compliance

No non-conformities or incidents were reported by the ECO.

Health & Safety in terms of the relevant health and safety legislation was done by the SHE Group (Mr. Francois du Toit).

4.26 CRIME

Section 26 of the ECO checklist reports on incidents of theft, of which none was reported.

4.27 SITE CLEAN UP

Section 27 of the ECO checklist evaluates site clean-up during and after construction. According to the EMP temporary structures, equipment and materials must be removed from site on completion of the construction phase.

During construction, the ECO took note and give instructions or unnecessary waste items to be removed as necessary.

4.27.1 Compliance

No non-conformities or incidents were reported by the ECO and the final site visit done by the ECO on the 8th of February 2021 confirmed that site clean-up was done to the satisfaction of the ECO (Refer to Appendix 6).

4.28 REHABILITATION

Section 28 of the ECO checklist evaluates rehabilitation after construction. According to the EMP the construction area must be stabilized and rehabilitated on completion of construction.

4.28.1 Compliance

Although the ECO reports does not specifically addresses this issue (probably an omission or it had been done in accordance with an approved method statement) it was clear from the site visit for this audit that rehabilitation and stabilization was done in accordance with good environmental principles. Erosion measures were in place (Refer to Photo 1 & 2) and the site was clearly well stabilized and rehabilitated.

No non-conformities were observed during the site audit visit.

5. EFFECTIVENESS OF THE EMP

The construction activities for which the EMPr had been developed were relatively strait forward, and located on a site that was not overly environmentally sensitive.

The EMP is considered to be well written and covers and incorporates the findings and mitigation measures prescribed by the specialist reports. It also seems to cover all reasonable environmental aspects that can be expected on a c construction site of this size and type.

5.1 POTENTIAL SHORTCOMINGS OF THE EMP

No obvious shortcomings or oversights were observed in the EMPr. It is considered well written and generally easy to use.

5.2 AMENDMENTS TO THE EMP

No amendments to the EMP'r are considered necessary.

Although the EMP'r might be considered slightly generic, it is also a strong point, since it ensures that all potential construction activities are covered. Meaning that although all the aspects described in the EMP'r may not necessarily applicable on this specific project, any potential deviation or potential issue (e.g. blasting) are already covered and can be addressed by the ECO without further amendments.

6. CONCLUSION

6.1 COMPLIANCE WITH THE EA

No non-compliances were observed in terms of the EA (Refer to Table 2).

6.2 COMPLIANCE WITH THE EMP

No significant non-compliance in terms of the requirements of the EMP had been observed. The ECO made a number of findings, but they were all addressed during the construction phase and all have been resolved.

7. CLOSURE PLAN

The final ECO report, dated 2 February 2021, has been taken as the closure plan. In the report the ECO mentioned a few findings that were still outstanding. In an email dated 9 February 2021, the ECO confirmed that a further site visit was done on the 8th of February 2021 and that site clean-up was completed.

The site inspection done for this audit report also confirms that rehabilitation work as well as site stabilization was done excellently. No significant shortcomings or non-conformities were observed during this site visit. In fact the site seems to have been well managed, especially with regards to footprint minimisation and erosion measures installed.

Photo 7: A picture showing the pedestrian footbridge next to the main bridge.

Appendix 1: Environmental Authorization

Appendix 2: Notice of intent to commence & DWS water use registration record

Appendix 3: Environmental induction training

Appendix 4: Notification to the DENC of completion of the construction phase.

Appendix 5: Final ECO report

Appendix 6: Final ECO notes (snag-list items)

Appendix 7: Proof of notification to I&AP's