EnviroAfrica

1 February 2019

ATT: Mr Schalk Viljoen
P.O. Box 21
Riviersonderend
7250
DEADP Ref: 16/3/3/2/E3/10/1003/17

Dear Mr. Viljoen

Please refer to the compliance rating score card which should be read in conjunction with the ECO construction site environmental inspection report. This report will serve as the closure report.
Please find attached:

- Appendix A: The ECO Environmental Bi-Weekly checklist & photo records 21 January 2019
- Appendix B: Updated photo record summary indicating the progress of the dam development. Please note that photos are also stored electronically and is available on request.

Yours sincerely,

Inge Erasmus
EnviroAfrica

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2019 ENVIRONMENTAL COMPLIANCE RATING SCORECARD: Dasberg Dam_9 February 2019

Compliance Rating 0/3/4/5/6
0 = Poor / 3 = Average / 4 = Good / 5 = Very Good / 6 = Excellent (bonus point)

Item No.	Description	Environmental Audit Findings & Comments	Score	Environmental Rating
1.	Demarcation	Appropriate methods of site demarcation and ongoing maintenance of construction site demarcation remains good.	4	Good
2.	No-go areas	No-go areas are being maintained.	4	Good
3.	Vegetation and Topsoil Removal	Topsoil managed as per method statement. Topsoil was spread out on site after construction of the dam to assist with leveling the ground for agricultural purposes.	3	Average
4.	Construction camp and site office	Construction camp office was removed. The area was graded and reshaped as per the agreed upon rehabilitation method statement. Land to be used for agriculture.	5	Good
5.	Personnel living in quarters	All caravans were removed from site and the area was graded to its natural shape. Land to be used for agriculture. Trench drains were filled and rehabilitated, as per the rehabilitation method statement.	5	Good
6.	Plant machinery/ refueling yard	All plant machinery was removed from site (except for the one excavator used for construction of the pipeline from the dam to the pumphouse). Refueling yard was rehabilitated as per the method statement. Land to be used for agriculture.	5	Good
7.	Construction vehicle maintenance	Construction vehicles/ machines need to be serviced as they are leaking oil.	0	Poor
8.	Access roads	Access roads are being maintained.	5	Very good
9.	Toilets	Toilets were removed from site.	5	Very good
10.	Drip Trays	All but one construction vehicle was removed from site. No drip trays were observed for this vehicle.	3	Average
11.	General waste	Dust bins were removed from site.	5	Very good
12.	Hazardous waste and spills	No oil spills were observed on site after rehabilitation. The excavator used for the construction of the pipeline did not have a drip tray, so possible spills could have occurred.	3	Average
13	Top up oil storage area	Storage area was removed, and the area was graded to its natural slope.	3	Average
14.	Construction waste	Construction waste used as filling under surface beds for the Dasberg pumphouse as per the agreed upon method statement. No concrete waste observed on site.	4	Good
15.	Concrete works	Concrete and cement work were completed on site.	4	Good
16.	Erosion control	No erosion control measures necessary to date. A discharge pipe was installed. If water is to be discharged from the dam it is to flow within the natural stream. The area to be monitored for erosion during discharge and erosion control measures to be implemented as per the EMPr and MMP. Please refer to photo records.	3	Average
17.	Heritage resources	No heritage resources observed to date	N/A	
18.	Dust control	Dust is not an issue on site as the site is kept quite wet for the construction of the dam wall	4	Good

19.	Method statements	Method statements in place.	4	Good
20.	Environmental Site file up to date	In order	5	Very good
			Total Score	**67/95 70,5%**

ECO CONSTRUCTION SITE ENVIRONMENTAL INSPECTION REPORT

Project Name:	**Dasberg Dam**	**Report no**	**3 (closure report)**
Main Contractor:	**Moresongrondverskuiwings**	**Date**	**1 Feb 2019**
ECO:	**Inge Erasmus**	**EnviroAfrica Ref. no.**	**0438**

ENVIRONMENTAL ASPECT	RATING	FINDINGS & RECOMMENDATIONS
RATING: 1 = EXTREMELY POOR 2 = POOR 3 = AVERAGE 4 = GOOD 5 = EXCELLENT		
1. **DEMARCATION** Boundaries of "no go" areas, construction sites, -offices, temporary storage areas as well as labourer's facilities must be demarcated (EMP and ECO requirements) and maintained for the length of the construction period.	4	Construction site was demarcated as per the method statement. Demarcation to be removed and land to be used for agriculture. No-go areas are being maintained.
2. **NO-GO AREAS** Identified "No-Go Areas", must be demarcated for protection from construction damage (including secondary impact). • All areas outside of the demarcated construction site(s) and access road(s) to be regarded as NO-GO areas, including remaining natural veld identified trees. • Special attention to identified areas with significant vegetation.	4	No-go areas are maintained as no-go areas. No incidents in this regard.
3. **SEARCH & RESCUE** All flora identified for search & rescue must be removed before any construction take place and re-used in pre-approved way.	5	Search and rescue was conducted by VULA Environmental 15 & 16 August 2018 before excavations commenced. Rescued plants were replanted in the No-go area.
4. **VEGETATION & TOPSOIL REMOVAL** Before any construction or earthworks, topsoil must be stripped (>150mm) and stockpiled for rehabilitation/ landscaping. Stockpiles: • must be protected (erosion) and stored separately. • may not be moved further than 50m or mixed with any other soil. • must be convex and should not exceed 2m in height. In addition: • Cleared areas must be stabilized.	3	During the first site visit, 22 August 2018, it was clear that the entire dam footprint has been ripped. Plant material in the stream was stripped and stockpiled by means by means of bulldozing and dumped outside west of the dam wall footprint in heaps and rows of 1-2 metres high. During the second site visit, 28 August 2018, it was agreed upon that this plant material and topsoil should be used for rehabilitation where necessary and the rest to be disposed of as instructed by the engineer and ECO. It was agreed upon on the second site visit, 28 August 2018, that due to the high clay content in the topsoil and plant material to be stripped from the dam basin is to be used in the construction of the dam wall. No

ENVIRONMENTAL ASPECT	RATING	FINDINGS & RECOMMENDATIONS
RATING: 1 = EXTREMELY POOR 2 = POOR 3 = AVERAGE 4 = GOOD 5 = EXCELLENT		
• Burning or burying of cleared vegetation is prohibited (may be used for mulch or slope stabilisation on site).		stockpiling to be done. It should be kept in mind that the site is also considered previously ploughed, thus no natural vegetation is present on the site. During the last site visit on 21 January 2019 the Applicant pointed out that these stockpiles were spread out on site after completion of the dam.
5. **CONSTRUCTION CAMP & SITE OFFICES** Must be organised and free of day-to-day litter (good housekeeping standards).	5	Construction camp and site office was very tidy. No litter or cigarette buds were observed on site. Construction camp site camp was rehabilitated as per the agreed upon method statement. Offices were removed and the area was graded and levelled to be used for agricultural purposes again.
6. **LABOURER'S FACILITIES** Facilities must be of acceptable standards suitably demarcated, well maintained, neat and tidy and with adequate ablution facilities.	5	Labourers camp was rehabilitated as per the agreed upon method statement. The area was graded and reshaped and to be for agricultural land. No litter or cigarette buds observed. Dust bins were removed from site. Ablution facilities were removed from site. Trench drains were filled as per the method statement.
7. **ENTRANCE AND HAUL ROADS** Only approved entrance and haul roads may be used. No new roads or parking areas may be developed without written approval from the ECO.	4	Two entrance points to the site is being used. The entire area was ripped, land to be used for agricultural purposed. No haul roads needed.
8. **MANDATORY SITE EQUIPMENT** Mandatory site equipment must be in place, well maintained and in accordance with EMP and ECO requirements. • Sufficient refuse bins, well placed and cleaned regularly. • Sufficient fire extinguishers, readily available, maintained and functional. • Drip trays must be used at all fuel and oil storage and refuelling sites. • Toilets and sanitation facilities must be kept clean neat and hygienic.	4	All equipment was removed from site.
9. **FUEL AND OIL STORAGE HANDLING** Fuel storage areas must be situated within the demarcated construction camp site (or an area approved by the ECO). • Larger containers must be bunded (containment of accidental spillages).	3	All construction equipment was removed form site. The refuelling area was ripped and reshaped to be used for agricultural land as per the method statement. No fuel/ oil spills were observed on site. No drip trays were observed with the excavator on site used for the construction of the pipeline from the dam to the pumphouse.

ENVIRONMENTAL ASPECT	RATING	FINDINGS & RECOMMENDATIONS
RATING: 1 = EXTREMELY POOR 2 = POOR 3 = AVERAGE 4 = GOOD 5 = EXCELLENT		
• Drip trays must be used during refuelling or under stationary refuelling vehicles. • Fuel and oil storage and refuelling sites must be maintained.		
10. **STOCKPILING & TEMPORARY STORAGE** May only be placed on pre-approved sites, demarcated, stabilised or organised and neat.	4	The only stockpiling that was done was the stockpiling of the plant material that was removed in the stream. No other stockpiling required. The stockpiles material was spread out on site to help with levelling of land. Land to be used for agriculture.
11. **WASTE CONTROL** The contractor is expected to control all construction related waste material and general litter on actual construction sites and its immediate surroundings. • Waste management must be in accordance with the EMP, of acceptable standards, with regular removal of general waste, hazardous waste as well as construction waste (e.g. concrete waste and spoil).	3	General waste and Hazardous was disposed of by the responsible persons at the registered landfill sites. No oil/ fuel spills were observed.
12. **CEMENT MIXING & BATCHING AREAS** Mixing areas must be approved by the ECO, suitably demarcated and may not result in pollution. • Polluted cement water may only be released into sedimentation ponds. • Sedimentation ponds must be maintained and cleaned regularly (and reinstated after use).	4	Cement mixing for construction of the valve chamber as per agreed upon method statement. Cement mixing at the pump station site as per the agreed upon method statement.
13. **CONSTRUCTION VEHICLE MAINTENANCE** Construction vehicles must be in good working order and well maintained to prevent oil and fuel leakages and to reduce noise levels.	3	No spills observed. However, a drip tray was not observed with the one excavator that was used for construction of the pipeline.
14. **HEAVY EARTHMOVING EQUIPMENT** Construction vehicles and equipment may only operate <u>within</u> the demarcated site boundaries (and approved access roads), especially heavy earthmoving vehicles.	4	All in order.
15. **DUST CONTROL** Adequate control measures must be in place to prevent dust nuisance or pollution (entrance-, haul roads and exposed surfaces). • Areas of concern must be watered regularly during construction AND periods of strong winds, BUT must take water saving into account.	4	Dust is not an issue on site.
16. **EROSION CONTROL** Erosion resulting from works must be controlled.	N/A	Erosion is not considered an issue on this site. Erosion of discharge areas to be monitored.

ENVIRONMENTAL ASPECT	RATING	FINDINGS & RECOMMENDATIONS
RATING: 1 = EXTREMELY POOR 2 = POOR 3 = AVERAGE 4 = GOOD 5 = EXCELLENT		
• Temporary and permanent drainage areas must be maintained. • Erosion damage and damage in drainage courses must be reinstated.		
17. **NOISE CONTROL** Effective noise control measures must be in place and acceptable working hours must be kept (deviations must be approval by the ECO).	N/A	Noise control not an issue on this site.
18. **ARCHAEOLOGICAL & HERITAGE FINDS** Should any archaeological or heritage remains be exposed during excavations or any activity on site, these must immediately reported to The site agent/engineer, the ECO HWC or SAHRA.	N/A	No archaeological or heritage finds.
19. **METHOD STATEMENTS** Method statements must be submitted and approved before commencement of the works. **Possibly Required:** 1. Demarcation & No-Go Areas (Map) 2. Personnel living-in quarters 3. Road and Traffic Management Plan 4. Clearing of Vegetation and Topsoil 5. Fuel and oil storage and handling 6. Cement mixing 7. Domestic and Hazardous waste plan 8. Rehabilitation **Additional Method Statements** 9. Construction of Dasberg Clay source 2 10. Water supply pond 11. Spillway 12. Pump House 13. Valve chamber construction 14. Dasberg / pumphouse pipe connection 15. Rehabilitation	3	1. In place 2. In place 3. In place 4. In place 5. In place 6. In place 7. In place 8. In place 9. In Place 10. In Place 11. In place 12. In place 13. In place 14. In place 15. In place
20. **ENVIRONMENTAL CONDUCT** Environmental conduct of construction personnel must be acceptable (e.g. no burning or burying of refuse; no littering and no cement bags or other construction waste material lying around).	4	During the first site visit, an environmental education meeting was held.
21. **ENVIRONMENTAL CHECKLIST**	4	In order

ENVIRONMENTAL ASPECT	RATING	FINDINGS & RECOMMENDATIONS
RATING: 1 = EXTREMELY POOR 2 = POOR 3 = AVERAGE 4 = GOOD 5 = EXCELLENT		
The contractor must ensure that the weekly environmental checklist is completed at the end of each week and it must be available at the site offices.		
22. **REHABILITATION** On completion of the project or phase, all areas impacted by the construction activities must be reinstated and/or rehabilitated to the satisfaction of the ECO with emphasis on the following: • Site offices must be removed and the areas rehabilitated or reinstated to the satisfaction of the ECO. • Labourer's facilities must be removed and the areas rehabilitated or reinstated to the satisfaction of the ECO. • All construction site areas must be rehabilitated or reinstated to the satisfaction of the ECO. • All temporary fencing and demarcation must be removed and the areas reinstated to the satisfaction of the ECO. • Temporary storage areas must be rehabilitated or reinstated to the satisfaction of the ECO. • All remaining construction material must be removed and the areas rehabilitated or reinstated to the satisfaction of the ECO. • Any additional disturbed areas must be rehabilitated or reinstated to the satisfaction of the ECO.	4	Rehabilitation conducted as per the method statement.
23. **SPOT FINES & PENALTIES** Spot fines and penalties must be recorded and documented by the ECO (in accordance with the EMP).	N/A	Not necessary to date
24. **FIXED POINT PHOTOS** Photographs must be taken by the ECO, Site Engineer and or Site Manager, prior to, during and immediately after construction as visual reference. These photographs must be stored with other records relating to the EMP.	Yes	The ECO is taking site photos with every site visit. Please refer to photo records in die bi-weekly reports conducted, Appendix A Please also refer to updated progress photographs during construction, Appendix B Progress photos for all site visits are kept electronically and is available on request.

ECO COMMENTS

The area was rehabilitated as per the agreed upon method statement. Please refer to photo records.

The Spillway was constructed as per the agreed upon method statements. Please refer to Appendix B for photos and layout.

The valve chamber was constructed as per the agreed upon method statement. Please refer to Appendix B for photos and layout of the pipeline from the valve chamber to the pumphouse.

The discharge pipe (as seen in the photo records) must be monitored for erosion in the unlikely event that water is discharged from the dam into the natural stream.

End of report

ECO

Appendix A:

Bi-weekly checklists

ECO: ENVIRONMENTAL WEEKLY CHECKLIST/ BIWEEKLY CHECKLIST

SITE: Dasberg Dam Site 21 Jan 2019

PHASE OF WORK AND % OF COMPLETION: 100%.

ENVIRONMENTAL ASPECT	YES/ NO (✓ or X)	COMMENTS
How many workers are on site	0	0
All new personnel on site are aware of the contents of the EMP and have been through the environmental awareness course.	NA	No workers on site
Contractor's camp is neat and tidy and the labourers' facilities are of an acceptable standard.	✓	Contractors camp rehabilitated
Sufficient and appropriate firefighting equipment is visible and readily available.	NA	Fire fighting equipment removed with site rehab
Waste control and removal system is being maintained.	✓	No waste on site
Refuse bins in place and maintained	NA	Refuse bins removed with rehab
Toilets are in place and clean	NA	Toilets removed with rehab
Demarcation and other fences are being maintained.	✓	No-go area still fenced off.
What machinery are on site	NA	All machinery removed except for a excavator used for construction of spillway
Drip trays are being utilised where there is a risk of incidental spillage	X	All drip trays removed with rehab. No drip trays with one excavator on site
Bunds/ drip trays are being emptied on a regular basis (especially after rain).	NA	NA
No leakages (oil & fuel) are visible from construction vehicles	✓	No leakages visible after rehab
No go areas, remaining natural features and trees have not been damaged.	✓	No-go area still fenced off
Dust control measures (if necessary) are in place and are effectively controlling dust.	✓	Dust not an issue
Noise Control measures (if necessary) is in place and is working effectively.	✓	Noise not an issue
Erosion control measures (if necessary) are in place and are effective in controlling erosion. (Access road, site areas etc.)	✓	Erosion not an issue Monitoring of discharge areas required
Stockpiles are located within the boundary of the site, do not exceed 2 m in height and are protected from erosion.	✓	No stockpiles on site one stockpile with natural soil from stream was just spread out on site

Completed by: Inge Sign: Date: 21 Jan 2019

To be submitted at the end of each week to the Environmental Site Officer (ESO)

Received by:

Environmental Site Officer: :..... Sign: Date:.....

Dasberg dam_ Photo record_ 21 January 2019

Figure 1: Dasberg Valve Chamber

Figure 2: Excavator in site for construction of the pipeline

Figure 3: Discharge pipeline, no- go area still being maintained as no-go area

Figure 4: Demarcated no-go area with Dasberg dam pumphouse in the background

Figure 5: Photo indicating the culvert constructed for seepage water

Figure 6: Culvert for seepage water to flow into the natural stream

Figure 7: Photo taken from the north eastern boundary of the site, showing that the maintenance yard, construction camp and labourers facility was rehabilitated as per the method statement.

Figure 8: Photo taken from the north western boundary of the site, showing that the maintenance yard, construction camp and labourers facility was rehabilitated as per the method statement

Figure 9: Photo indicating that the labours' facility area was rehabilitated

Figure 10: Dam overflow

ECO: ENVIRONMENTAL WEEKLY CHECKLIST/ BIWEEKLY CHECKLIST

SITE: Dasbey Pump house

PHASE OF WORK AND % OF COMPLETION: 75%

ENVIRONMENTAL ASPECT	YES/ NO (✓ or X)	COMMENTS
How many workers are on site	✓	10
All new personnel on site are aware of the contents of the EMP and have been through the environmental awareness course.	✓	Yes
Contractor's camp is neat and tidy and the labourers' facilities are of an acceptable standard.	✓	
Sufficient and appropriate firefighting equipment is visible and readily available.	✓	
Waste control and removal system is being maintained.	✓	
Refuse bins in place and maintained	✓	
Toilets are in place and clean		
Demarcation and other fences are being maintained.	✓	
What machinery are on site	X	No machinery
Drip trays are being utilised where there is a risk of incidental spillage	✓	
Bunds/ drip trays are being emptied on a regular basis (especially after rain).	✓	
No leakages (oil & fuel) are visible from construction vehicles	✓	No oil/fuel on site
No go areas, remaining natural features and trees have not been damaged.	✓	No-go area still maintained
Dust control measures (if necessary) are in place and are effectively controlling dust.	✓	
Noise Control measures (if necessary) is in place and is working effectively.	✓	
Erosion control measures (if necessary) are in place and are effective in controlling erosion. (Access road, site areas etc.)	✓	
Stockpiles are located within the boundary of the site, do not exceed 2 m in height and are protected from erosion.	✓ N/A	~~No stockpiles~~ Stockpiles do building material maintained as per method statement

Completed by: Inge Sign: ..... Date: 4 Jan 2019

To be submitted at the end of each week to the Environmental Site Officer (ESO)

Received by:

Environmental Site Officer: :..... Sign: Date:.....

Dasberg dam Pump house_ Photo record_ 21 January 2019

Figure 1: Dasberg Pumphouse

Figure 2: Stockpiles at the Dasberg Pumphouse being maintained

Figure 3: Contractors camp at Dasberg Pumphouse

Appendix B:

Photo record

Photo Record Summary & Layout

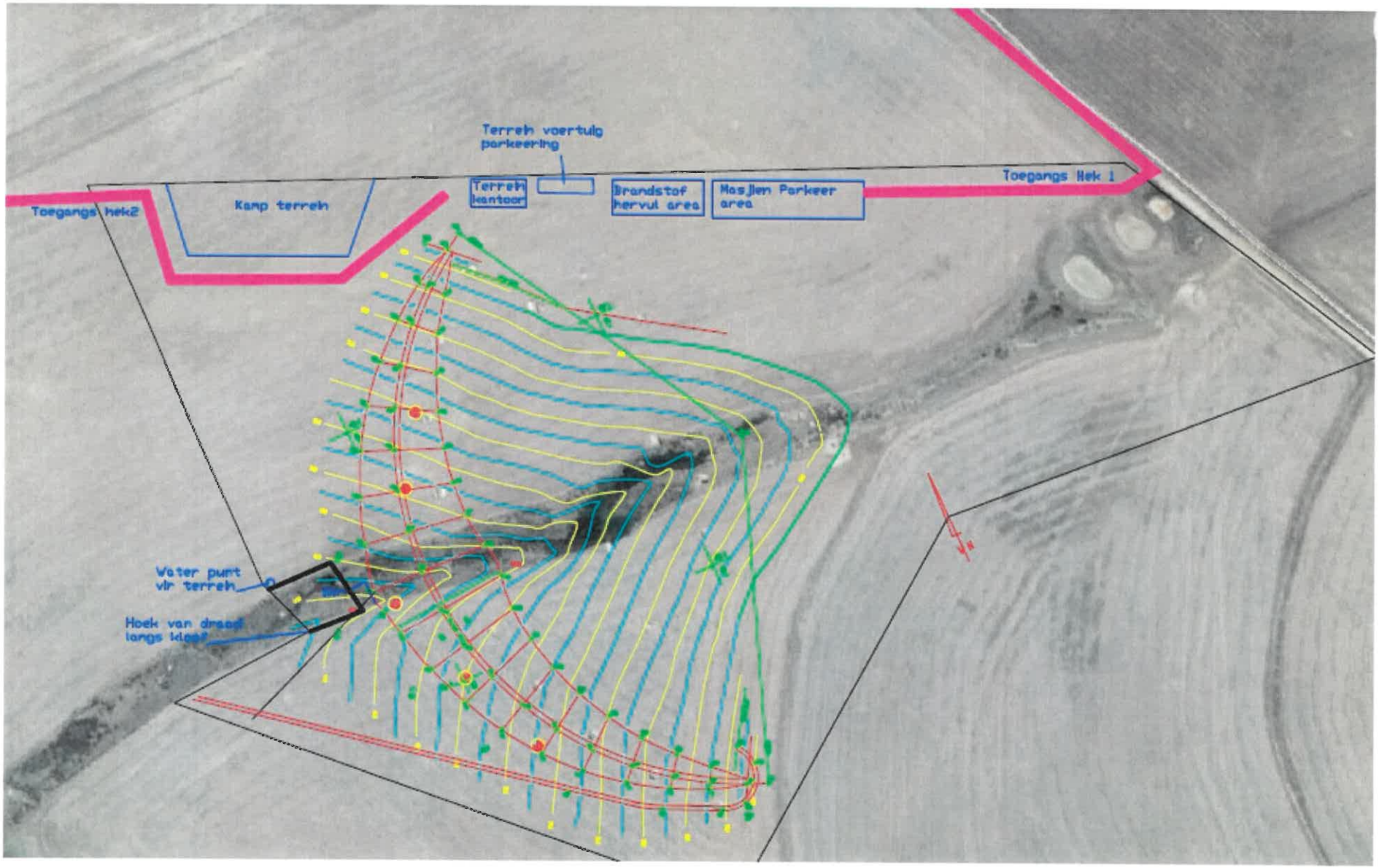

Figure 1: Image indicating site layout

Photo Record Summary & Layout

Figure 2: Dasberg Dam spillway layout

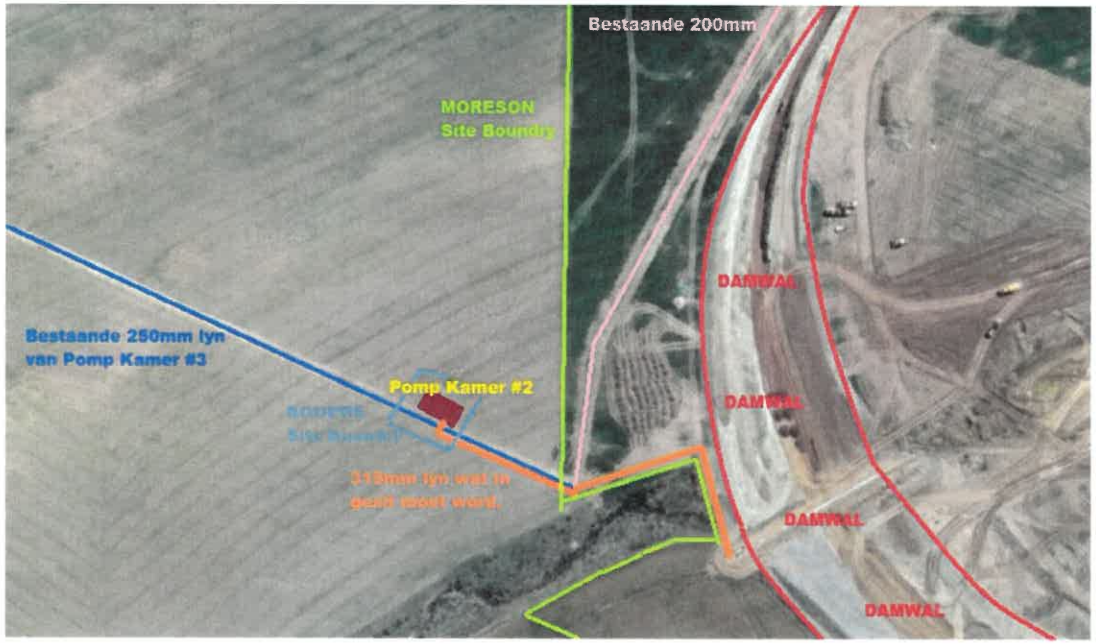

Figure 3: Pipeline layout from dam to pumphouse

Photo Record Summary & Layout

Figure 4: Site visit 22 August 2018, standing at the construction camp, facing SW. Site ripped

Figure 5: Site visit 22 August 2018, standing at the construction camp, facing S. Site ripped

Figure 6: Site visit 6 September 2018, standing at the construction camp, facing SW towards the dam wall

Figure 7: Site visit 6 September 2018, standing at the construction camp, facing S towards the dam wall

Figure 8: Site visit 26 September 2018, standing at the construction camp, facing SW towards the dam wall

Figure 9: Site visit 26 September 2018, standing at the construction camp, facing S

Photo Record Summary & Layout

Figure 10: Site visit 12 October 2018, standing at the construction camp, facing SW towards the dam wall

Figure 11: Site visit 12 October 2018 standing at the construction camp, facing S

Figure 12: Site visit 31 October 2018, standing at the construction camp, facing SW toward the dam wall

Figure 13: Site visit 31 October 2018, standing at the construction camp, facing S

Photo Record Summary & Layout

Figure 14: Site visit 31 October 2018, standing at the construction site facing SW towards the dam wall

Figure 15: Site visit 31 October 2018, standing at the construction camp, facing S

Figure 16: Site visit 4 December 2018, standing in the construction site facing SW towards the dam wall

Figure 17: Site visit 4 December 2018, completed dam wall

Photo Record Summary & Layout

Figure 18: Site visit 21 January 2019, standing in the construction site area facing SW towards the dam wall

Figure 19: Site visit 21 January 2019, standing in the construction site area facing SW towards the dam wall

Figure 20: Site visit 21 January 2019, standing in the construction site area facing SW towards the dam wall

Figure 21: Site visti 21 January 2019, standing on the dam wall, facing East

Photo Record Summary & Layout

Figure 22: Site visit, 21 January 2019, standing on the western boundary of the site facing north

Figure 23: Site visit 21 January 2019, Dasberg dam spillway as per the agreed upon method statement

Figure 24: Photo taken from the north eastern boundary of the site, during 21 January 2019, showing that the maintenance yard, construction camp and labourers facility was rehabilitated as per the method statement.

Figure 25: Photo taken from the north western boundary of the site, showing that the maintenance yard, construction camp and labourers facility was rehabilitated as per the method statement

Photo Record Summary & Layout

Figure 26: Photo indicating that the labours' facility area was rehabilitated

Figure 27: Dasberg Valve Chamber

Figure 28: Discharge pipeline, no-go area still being maintained as no-go area

Figure 29: : Culvert for seepage water to flow into the natural stream

Photo Record Summary & Layout

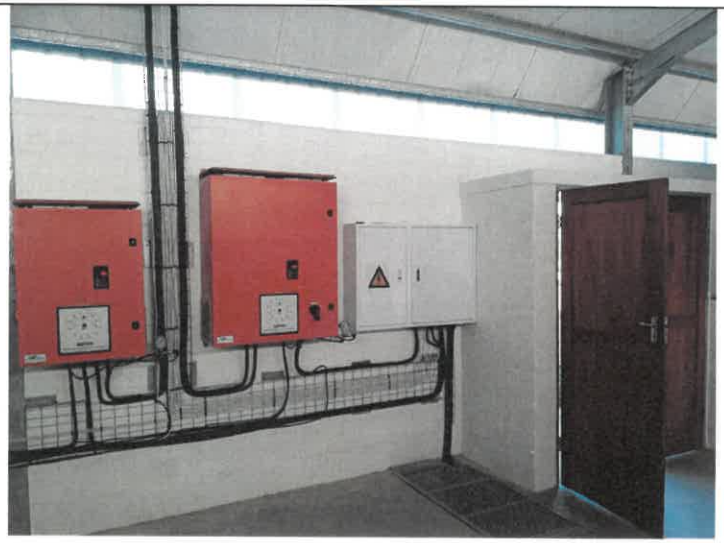

Figure 30: Inside of Dasberg Dam Pumphouse

Figure 31: Inside of Dasberg Dam Pumphouse

Figure 32: Warning signs on the door of Dasrberg Dam Pumphouse

Figure 33: Completed Dasberg Dam Pumphouse

Photo Record Summary & Layout

Figure 34: Completed Dasberg Dam Pumphouse