ENVIRONMENTAL MANAGEMENT PROGRAMME

FOR THE PROPERTIES ASSOCIATED WITH TRIPLE A BEEF, UMSHWATHI LOCAL MUNICIPALITY, UMGUNGUNDLOVU DISTRICT, KWAZULU-NATAL

Compiled by

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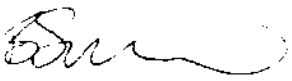
DRAFT REPORT

Specialist Details & Declaration

This report is undertaken in accordance will comply with IFC Performance Standards (PSs), Appendix 6 of the NEMA EIA Regulations (2014, as amended) and comply with the DWS WUL/GA reporting requirements in terms of the National Water Act.

The details of Specialists are as follows –

Table 1 Details of Specialist

Specialist	Task	Qualification and accreditation	Client	Signature
Dr Bruce Scott-Shaw NatureStamp	Fieldwork, Assessments & report	BSc, BSc (Hons), MSc, PhD, Hydrology	Triple A Beef	 Date:12/03/2023
Sarah Allan The Independent Environmental Advisor	Assessments & report	BSc (Zoo, Biochem) HDE	Triple A Beef	 Date:12/03/2023

Details of Authors:

Bruce is a hydrologist, whose focus is broadly on hydrological perspectives of land use management and climate change. He completed his MSc under Prof. Roland Schulze in the School of Bioresources Engineering and Environmental Hydrology (BEEH) at the University of KwaZulu-Natal, South Africa. Throughout his university career he has mastered numerous models and tools relating to hydrology, soil science and GIS. Some of these include ACRU, SWAT, ArcMap, Idrisi, SEBAL, MatLab and Loggernet. He has some basic programming skills on the Java and CR Basic platforms. He has spent most of his spare time doing field work for numerous companies and researchers. Bruce is currently finishing his PhD which focuses on rehabilitation of alien invaded riparian zones and catchments using indigenous trees. The aim is to select Working for Water (WfW) sites throughout the country and use micro-meteorological techniques to measure the water use of both the indigenous and alien tree species in the riparian areas. This research will assist in land rehabilitation and restoration in the highly sensitive riparian areas. A modelling approach has been incorporated into the research to improve the spatial resolution of the research and to work as a management tool. Bruce has worked on numerous projects for the CSIR and Ezemvelo KZN wildlife which has included micrometeorological work, EIAs and wetland mapping for KZN. Bruce has presented his research around the world, where most recently he represented South Africa at the Singapore International Water Week on water policy and implementation.

Sarah has been active in the environmental management profession for over 20 years in various spheres. She has worked both within the Governmental and the private sector undertaking a wide range of duties from providing strategic direction for the environmental component of KZN Provincial Environmental Affairs and has contributed to environmental policies, strategy and legislation provincially in KZN and nationally. Her consulting experience includes applications for environmental authorization, mining matters, and conducting external reviews. She specializes in the resolution of compliance issues between authorization holder and competent authority. Sarah is a long-standing registered member of the International Association for Impact Assessment – South Africa and the Environmental Law Association of South Africa. She is accredited *Cert.Sci.Nat* with SACNASP (South African Council for Natural Scientific Professions). She has always advocated responsible environmental management in KwaZulu-Natal and served as a member of various strategic advisory committees in provincial government. In addition to the above, Sarah has extensive knowledge and understanding the complexities of National Environmental Management Act, 1998 (Act No.107 of 1998) and EIA Regulations, 2006, 2010, 2014, 2017; National Environmental Management: Waste Management Act, 2008 (Act No. 59 of 2008) and associated Regulations National Environmental Management: Air Quality Act, 2004 (Act No. 39 of 2004) and associated Regulations; National Environmental Management: Integrated Coastal Management Act, 2008 (Act No. 24 of 2008); National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004); National Environmental Management: Protected Areas Act, 2003 (Act No. 57 of 2003).

Contents

1. INTRODUCTION

1.1 Project Background and Description of the Activity

The property Ptn 8 of Shallow Drift No. 2051 (129.1830ha) was purchased on 12 December 1980 for the purposes of commencing a cattle feedlot, by Abattoir, Auctioneers and Agents cc (AAA) from P W Swikkard. AAA became Caine Bros (Pty) Ltd thereafter, however it continued to trade and be known as Triple A Beef (TAB).

From that time on TAB expanded the feedlot operation by purchasing the following properties:

•	1991	Ptn 28 of Shallow Drift No 15565 (changed from 2051)	125.1149ha
•	1995	Ptn 1 of Binchester Grange No 14258	125.6206ha
•	2007	Ptn 25 of Shallow Drift No. 15565	55.4986ha
•	2008	Ptn 20 of Wagenbeetjies Draai No. 875	144.8455ha
•	2009	Ptn 46 of Wagenbeetjies Draai No. 875	104.4855ha
•	2009	Ptn 7 of Shallow Drift No. 15565	32.1610ha
•	2009	Ptn 1 of Linchester No. 15875	59.6988ha
•	2014	Ptn 9 of Shallow Drift No. 15565	20.4641ha
•	2014	Ptn 10 Shallow Drift No. 15565	25.5255ha
•	2014	Ptn 11 of Shallow Drift No. 15565	46.1611ha
•	2014	Ptn 12 of Shallow Drift No. 15565	20.4760ha
•	2015	Ptn 51 of Zeekoegat No. 1173 (also known as Ptn 1 (of 18) of Zeekoegat, consolidated with Ptn 8 of Shallow Drift to form Rem of Shallow Drift in 2015)	56.8348ha

The extent of the different aspects of TAB operations is as follows:

Abattoir	5.1 ha
Feedlot pens	70 ha
Admin and feed processing	5.3 ha
Farm (with irrigated pastures)	766 ha
Total area	**846,4 ha**

There is a further 99.6 ha on the steep west side of the Umngeni River that is Eastern Valley Bushveld veld and bush.

All amenities and infrastructure required by Triple A Beef are in place, including:

- Administration
- Feed production sheds
- Abattoir and associated cold and freezer rooms, processing carcasses to primal cuts with deboning facilities, hide preparation, offices, wastewater treatment ponds
- Feedlot pens with feed and water troughs
- Raw water abstraction points (x4) from the Umngeni River with pipelines to raw water storage dams (off channel) and reticulation to feedlot pens and other infrastructure
- Wastewater dams runoff from the feedlot pens and wash water from within the cattle drinking facilities (off channel).
- Housing for workers (separate for feedlot and farm staff, and for abattoir workers)
- Internal roads and farm tracks
- Manure storage area
- Hay and fodder production lands
- There is a rendering plant that was constructed in 2005 to treat bloods, tissue and paunches from the abattoir to tallow and other secondary products, however, use of the rendering plant was discontinued in late 2016 and hence the s24G assessment report only considered the construction of the plant, not the operation thereof.

Two sets of maturation ponds for runoff from the feedlot pens were designed by the Civil Engineers Academicus Society in 1987 and these are still in place today as the D73 and Triple Dams and are fully operational. In 2001 an abattoir was built on Ptn 28 of Shallow Drift. A system of 10 interconnected wastewater

maturation ponds were built over 2009-2020 as the capacity of the feedlot and abattoir increased in size. These have all been resurveyed by professional engineers and detailed plans of each are available. These ponds anaerobically treat the wastewater (feedlot runoff and abattoir wastewater) whereafter the final wastewater is pumped to various storage dams. From these storage dams this final wastewater is disposed of to land through irrigation systems. All DWS' specifications for disposal to land are met and the system is monitored on a regular basis. Crops that are used in the feedlot feeding programme are grown on all the disposal lands. As there is insufficient wastewater to satisfy the various crop's demand, irrigation with freshwater from the Umgeni River supplements their crop water requirements.

The original Water Use License was granted in terms of Section 50 and 158 of the National Water Act, 1998 (Act no. 36 of 1998) (the act), on 14 December 2020 with amendments issued on 5 and 25 October 2021 and 17 February 2023 (Licence No.: 11/U20G/BCEGHI/10207 – File No.: 27/2/1/U340/1/2/3/4/8/1). The water uses identified at the site are as follows:

- Section 21 (b) of the Act: Storage of water, subject to the conditions as set out in Appendices I and IL
- Section 21 (c) of the Act: Impeding or diverting the flow of water in a watercourse, subject to the conditions as set out in Appendices I and ill.
- Section 21(e) of the Act; Engaging in a controlled activity, subject to the conditions as set out in Appendices I and IV.
- Section 21(g) of the Act: Disposing of waste in a manner which may detrimentally impact on a water resource, subject to the conditions as set out in Appendices I and V.
- Section 21 (i) of the Act: Altering the bed, banks, course or characteristics of a watercourse, subject to the conditions as set out in Appendices I and III.

The Licensee must compile and submit an annual report including Management Plans indicating compliance with the conditions of the Water Use License, the corrective measures to address any non-compliance, as well as the results of the monitoring programmes. This report documents the recommendations from the various specialist reports undertaken for the WUL and s24G assessment.

2. STUDY SITE

The site is located 30 km east of Pietermaritzburg in the KwaZulu-Natal area. The existing development area sits within Quaternary Catchment (QC) U20G of the Mgeni River. The site is a short distance downstream of Albert Falls Dam. The surrounding area is dominated by intensive farming activities that range from forestry and crops to animal production.

According to Mucina and Rutherford (2006), the area is within the sub-escarpment savanna biome and the majority is described as KwaZulu-Natal Hinterland Thornveld which consists of patches of scattered veld immediately above Eastern Valley Bushveld, at altitudes of between 450–900 m. The KwaZulu-Natal Hinterland Thornveld is considered vulnerable and is not protected according to national conservation targets. The vegetation is largely semi deciduous savanna woodlands in a mosaic with thickets, often succulent and dominated by species of *Euphorbia* and *Aloe*. There is an area of approximately 99ha of Eastern Valley Bushveld in the east of the properties on the steeper slopes above the uMngeni River.

The property lies in a summer rainfall area, with some rain in the winter and infrequent frost. The annual average rainfall for Pietermaritzburg is about 695mm, most of which falls from early to late summer with the lowest volume usually in mid-winter (June, July) and the highest in January. The area is subject to intense storms accompanied by high winds and heavy rainfall which are predicted to become more severe and longer periods without rain between storms with climate change.

Rainfall is highly variable throughout the large catchment area (2209 km^2) with 818 mm occurring during an average year at the site. The catchment area consists of two large dams, Midmar Dam and Albert Falls Dam. These two dams have a significant impact on the flow of water through the major channels. There is a large attenuation of flood events due to these water bodies, resulting in reduced peak flows.

Table 2 Mean monthly rainfall and temperature observed at Triple A Beef (derived from historical data)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
Mean Rainfall (mm)	118	111	105	38	13	6	6	16	33	72	92	121	818
Mean Temperature (°C)	22.3	22.6	21.7	19.3	16.3	13.7	13.9	15.5	17.7	18.6	20.0	21.6	18.6

3. PURPOSE OF THE EMPr

3.1 Objectives

This EMPr is compiled in accordance with Appendix 4 of the 2014 EIA Regulations as amended. The document aims to incorporate necessary environmental criteria into the project process to enable the sustainable management of the development as well as to enhance a positive environmental impact where possible and mitigate any negative impacts.

The objectives of the EMPr are as follows –

- Provide a pro-active, feasible and practical working tool to enable the measurement and monitoring of environmental performance on site.
- Ensure that the operation of the project continues within the principles of Integrated Environmental Management.
- Detail specific actions deemed necessary to assist in mitigating the environmental impact of the project.
- Ensure that the recommendations outlined by government authorities and environmental investigations are complied with.

All citizens of South Africa are bound to Section 28 of NEMA, which places a Duty of Care directive on all parties as follows –

> Every person who causes, has caused or may cause significant pollution or degradation of the environment must take reasonable measures to prevent such pollution or degradation from occurring, continuing or recurring, or, in so far as such harm to the environment is authorized by law or cannot reasonably be avoided or stopped, to minimize and rectify such pollution or degradation of the environment.

This EMPr serves to ensure that reasonable measures are taken to prevent pollution or degradation to the environment as a result of further proposed construction and current operation of the enterprise.

3.2 Responsible parties

The Proponent must ensure that any and/or all Project Manager, contractor(s) and employees, as well as any other staff members, sub-contractors, suppliers and visitors, understand and adhere to the EMPr. The EMPr must be made binding on all contractors and sub-contractors operating on the site and be included within the contractual documents entered into between parties.

Note that the "Responsibility" column in the EMPr is merely a guide and does not relieve the proponent of their overall responsibility for compliance.

A copy of the EMPr must be kept on site and made available for inspection by visiting municipal officials or relevant environmental authorities. The Proponent must also record any complaints received regarding activities on site.

Prior to any operations commencing, all parties involved in the project must sign an acknowledgement that they are familiar with the requirements of the EMPr and agree to adhere to the stipulations thereof.

3.3 Monitoring and enforcement

TAB has appointed a person responsible for such.

Upon approval for the continued operation of the enterprise, the appointed person responsible (EO) will carry out annual audits that will be available to DWS and/or EDTEA upon request.

3.4 Communication with Interested and Affected Parties

The application for retrospective environmental authorisation and availability of the Background Information Document (BID) was advertised in the Witness and Umgungundlovu Eyethu newspapers on 13 October 2022, allowing at least a 20-day comment period until 3 November 2022.

Posters to notify the general public of the application were erected at the entrance to Triple A Beef along the D73 district road and at strategic intersections in the area.

Neighbours were informed by email with a copy of the Background Information Document (BID) attached to the email, where email addresses were available or, if email addresses were not available, the BID was attached to their gate. State entities and known Interested and Affected Parties were informed by email.

The BID was available for public scrutiny at the TAB Reception, D73. Electronic copies are also available on request.

A number of neighbours and State entities provided comment on the application and were responded to as summarised in the s24G assessment report.

The Assessment Report, including all comments and responses to those comments and this Environmental Management Programme, will be submitted to EDTEA for consideration and decision making.

The decision of EDTEA to authorise or refuse the application will be advertised and registered Interested and Affected Parties will be informed directly. Should any party be aggrieved by the decision, an appeal may be submitted within 20 days of notification of the decision.

Virtual meetings with I&APs via Zoom were available to be held on request or such other arrangements as agreed. One-on-one site meetings were held with two neighbours, Mrs Classens (Ovaflo Resort, Ptn 1 Lindlea), and Ms Nkanyiso Katleho (Dukathole Farm/Golden Valley, Ptn 39 & 45 Wagenbeetjes).

It is strongly recommended that communication with neighbours is maintained, particularly in the event of heavy rain events when there may be additional discharge from the TAB dams.

4. THE ENVIRONMENTAL MANAGEMENT PROGRAMME

The following general site protection measures apply:

Fuels, hazardous substances and other liquid pollutants

- Potentially toxic waste, such as plastics, chemicals, batteries, oils and fuels, must be removed to a recognised waste disposal facility or removed by an accredited contractor with safe disposal certificates.
- Spillage of chemicals and fuels must be avoided and, if this occurs, the contaminated soil must be moved to a recognised waste-disposal facility. Refuelling of vehicles and plant to be undertaken over a drip tray.

Construction waste

- Disposal of any building or related rubble must be done in consultation with the EO. All non-toxic rubble, such as bricks, hardened concrete, rocks and suchlike, may be buried, preferably in an area that needs to be filled or rehabilitated and not in an undisturbed site.
- Broken glass must be taken to a recycling facility.
- Iron and other metal must also be removed to a recycling facility.

Health and safety

Any construction activities must comply with the Occupational Health and Safety Act No. 85 of 1993. Notwithstanding the provisions in that Act, the following should be complied with:

- Toilet facilities must be provided for construction staff on site and no staff must be allowed to defecate in the veld. The assumption is made that existing staff toilet facilities will be used by construction staff.
- No construction staff will be allowed to enter wetland or buffer areas without prior authority.
- Contractors must ensure that at least one staff member with first aid training must be on site at all times. It is preferable that at least one member of staff gets further advanced training.
- First aid equipment must be kept up-to-date and replenished immediately after being used. At least basic first aid kits should be kept in all vehicles and plant working on site.
- Where machinery is moving in and out of the site, adequate measures should be taken to avoid collisions with passing vehicles.
- Appropriate dust suppression measures should be taken during the site levelling and foundation-digging phase.
- Earthmoving and construction activities to be constrained as permitted by municipal bylaws.

Control of fire

- No open fires are to be made by construction staff for the cooking of food, except at designated areas.
- There must be no open fires or flames within 10 m of any flammable substances.
- No construction waste to be burnt on site.
- Appropriate and adequate fire-fighting equipment should be on stand-by at all times. This equipment should be easily accessible to construction staff.

Erosion control

- No unnecessary removal of vegetation should occur during any construction process as this will increase the susceptibility to erosion.
- Continuous adaptive management measures must be made for stormwater with runoff to be directed via grassed v-drains and other measures to the stormwater attenuation structures.
- Stormwater discharge points must be provided with headwalls, velocity reduction measures and reno mattrasses as a minimum.
- Stormwater attenuation structures must provide for the gradual controlled release of stormwater.

Protection of natural resources

- Setting of snares for the capture of any animal whatsoever is expressly forbidden and individuals found doing so will be prosecuted.
- No indigenous plants of any kind may be removed, whether for muthi (medicinal) purposes or any other purpose.
- Site security are encouraged to act against trespassers and unlawful hunting.

Protection of cultural heritage resources

Should any artefacts, such as spent ammunition, stone tools, human remains, fossils, or anything else that could have historical, archaeological or cultural value, be found during construction, these must not be removed from the site. The ECO and/or AMAFA must be notified immediately to assess the historic and archaeological value of the artefacts and advise on their protection. A Chance Finds Protocol is included as Appendix 2.

	Component	Responsible party	Timing
	A: GENERAL		
1	In all instances the proponent must remain in compliance with relevant local and national legislation. The supreme law of the land is "The Constitution of the Republic of South Africa" which states: "Every person shall have the right to an environment which is not detrimental to his or her health or wellbeing". Laws applicable to protection of the environment in terms of Environmental Management include but are not restricted to those listed in the s24G assessment report.	Proponent	At all times
2	A copy of the approved EMPr must be kept on site at all times. The document must be made available to any authorized officials, contractors, employees or agents who undertake work on the site.	Proponent	At all times
3	All relevant parties, including the project managers, contractors and sub-contractors are to be made aware of their responsibility for compliance with the provisions for Duty of Care and remediation of environmental damage contained in Section 28 of the NEMA, No. 107 of 1998 – which requires the prevention of any pollution or degradation of the environment, responsibility to be accepted for preventing impacts occurring, continuing or recurring, as well as responsibility for the costs of repair of the environment.	Proponent	At all times
4	The development must not be in conflict with local municipality by-laws or other legislation, including fire safety.	Proponent	At all times
5	During both construction and operation, preference must be given to the employment of previously disadvantaged people from the local community.	Proponent	At all times
6	All construction and operational activities must take place according to the approved EMPr.	Proponent	Planning
	B: Freshwater systems (wetlands and dams)		
1	Surface stormwater infrastructure must attenuate flows to match the pre-development state.	Proponent	At all times
2	Contaminated storm water must be prevented from reaching the environment; all stormwater off contaminated surfaces must be collected in pollution control dams (PCDs), which are the wastewater dams.	Proponent	At all times
3	Slurry ponds/PCDs/wastewater dams must be able to contain a 1:50 year 30 minute storm event;	Proponent	At all times
4	Pervious areas must be promoted and maintained in order to promote infiltration and minimise stormwater runoff.	Proponent	At all times
5	Drainage must be controlled to ensure that runoff from the site will not culminate in off-site pollution further down from the site.	Proponent	At all times
6	Equipment, machinery and vehicles must be maintained in good order.	Proponent	At all times
7	Machinery and equipment maintenance must be undertaken in specially designated areas.	Proponent	At all times
8	Leaks and spillages must be promptly cleaned up and by suitably qualified personnel (Section 20 of the National Water Act).	Proponent	At all times
9	The stormwater drainage network system must separate clean and dirty water.	Proponent	At all times

	Component	Responsible party	Timing
10	Drainage must be controlled to ensure that runoff from the site will not culminate in offsite pollution or result in damage to properties downstream of any stormwater discharge.	Proponent	At all times
11	The relevant Municipality must be contacted with regard to any discharges either to the stormwater drainage system or to the municipal sewer system.	Proponent	At all times
12	Water quality samples should be taken downstream of the site annually to ensure that DWS limits are not exceeded.	ECO	Annually
	C: EFFLUENT POND AND APPLICATION OF EFFLUENT		
1	It is recommended that the effluent ponds are regularly monitored to ensure that the volume/ capacity is not decreased. The ponds should be dredged when necessary.	Proponent	As required
2	It is recommended that the pH level of the effluent pond is regularly monitored to ensure optimal bacterial action on the effluent. To maintain the pH, effluent ponds must be regularly sampled. If the pH has moved outside of the desired range, the ponds must be treated with acid or lime, as required.	Proponent	Monthly sampling
3	In order to mitigate potential spills from the effluent pond, it must be ensured that the pond is adequately bunded or attenuation structures are implemented along the natural flow route of the effluent.	Proponent	At all times
4	The resultant compost to be disposed of onto lands must be sampled to ensure that it consistently meets with DWS's standards.	Proponent/ EO	Monthly sampling
5	Department of Water and Sanitation standards must govern the treatment of wastewater and the application to lands thereof.	Proponent/ EO	As required
6	Any water containing effluent emanating from within the enterprise must not contaminate the stormwater system.	Proponent	At all times
7	Maintenance of the wastewater treatment dams must involve constant inspection to ensure that no leaks or cracks are present.	Proponent	At all times
8	Levels of the wastewater management dams must be controlled through management of irrigation (as weather permits).	Proponent	At all times
	D: STORAGE AND USE OF CHEMICALS		
1	Chemical or Hazardous Materials storage facilities must be on an impermeable bunded surface that is protected from the ingress of storm water from surrounding areas in order to ensure that accidental spillage does not pollute local soil or water resources.	Enterprise Manager	At all times
2	Material Safety Data Sheets (MSDSs) shall be readily available on site for all chemicals and hazardous substances to be used on site, this includes diesel. Where possible and available, MSDSs must additionally include information on ecological impacts and measures to minimize negative environmental impacts during accidental releases or escapes.	Enterprise Manager	At all times
3	Staff dealing with these materials / substances must be aware of their potential impacts and follow the appropriate safety measures. The Project Manager must ensure that staff are made aware of the health risks associated with any hazardous substances used and provide them with the appropriate protective clothing / equipment in case of spillages or accidents. All staff working with hazardous materials must have received the necessary training.	Enterprise Manager	At all times
4	The storage of materials, chemicals, fuels etc to be used during the construction phase must not pose a risk to the surrounding environment. Such storage areas must be located out of the 1:100 year floodline of any watercourse and unauthorised access to these areas must be controlled. Temporary bunds must be constructed around chemical or fuel storage areas to contain possible spillages.	Enterprise Manager	At all times
5	In the event of a significant spillage that cannot be contained and which poses a serious threat to the local environment, the following departments must be informed within 6 (six) hours of the incident and in accordance with the Section 30 of the National Environmental Management Act, Act 107 of 1998: • DWS • Provincial DEDTEA (Pollution and Waste Management) • The Local Fire Department	Enterprise Manager	At all times

	Component	Responsible party	Timing
	In the event of a spill, the following steps must be taken – • Stop the source of the spill • Contain the spill • All significant spills must be reported to this Department and other relevant authorities • Remove the spilled product for treatment or authorized disposal • Determine if there is any soil, groundwater or other environmental impact • If necessary, remedial action must be taken in consultation with this Department • Incident must be documented Please note that an updated list of all of the above departments contact details must be kept on site at all times.		
6	There must be a designated site for re-fuelling of earth machinery. This area is to have an impermeable lining and must be bunded, alternatively use must be made of drip trays. Fuel should be placed in a locked receptacle.	Enterprise Manager	At all times
	E: WASTE		
1	Bins should have liner bags where possible for efficient and safe disposal of waste.	Proponent/ Enterprise manager	At all times
2	Recycling and the provision of separate waste receptacles for different types of waste is encouraged. Where possible, plastics, paper, glass and cans should be separated and appropriately labelled waste receptacles must be made available.	Proponent/ Enterprise manager	At all times
3	Any potentially hazardous containers must be punctured or disabled prior to disposal.	Proponent/ Enterprise manager	At all times
4	Removal and disposal of waste to a permitted disposal site is required and this is the responsibility of the applicant.	Proponent/ Enterprise manager	At all times
5	All waste generated at the site prior to removal for safe disposal must not cause any surface and groundwater pollution of a health hazard.	Proponent/ Enterprise manager	At all times
6	All solid waste, prior to being collected for safe disposal, must be stored under cover in a designated storage / collection area. Access control to this must be properly managed.	Proponent/ Enterprise manager	At all times
	F: OTHER		
1	The facility must ensure that it remains within legislated ambient air quality levels. Any pollution problems arising from the operations must be addressed immediately.	Proponent/ Enterprise manager	At all times
2	Care must be taken to avoid the introduction of additional invasive alien plant species to the site and surrounding areas. Implement the invasive alien plant control plan (Appendix 3).	Proponent/ Enterprise manager	At all times
3	The Site Manager must compile an inventory of all hazardous substances (e.g. petrochemicals / pest control chemicals) to be used and stored on the site, and must ensure that they know the effects of these substances on their staff and the environment.	Proponent/ Enterprise manager	At all times
4	Erosion control measures to be implemented in areas sensitive to erosion such as near water supply points, edges of slopes etc. These measures could include the use of sand bags, hessian sheets, retention or replacement of vegetation.	Proponent/ Enterprise manager	At all times

5. CONCLUSION

The Triple-A Beef site is an existing operation. As such, there are no preliminary or construction recommendations only operational management.

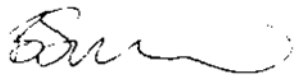
The proposed programme should be overseen by an Environmental Control Officer (ECO) and reported on in the form of a compliance audit to be submitted every six (6) months.

These mitigation measures will include the following:

- Aggressive and sustained invasive alien plant control with planting of indigenous species where there is disturbed or bare ground, to ensure that alien plants have competition and don't simply just return.
- Meet the management objective for wetland/riparian areas to maintain the current status quo without any further loss of integrity and functioning through application of the aquatic buffer zones in a phased manner.
- Taking measures to reduce and /or prevent accelerated erosion, by ensuring that water is controlled during storm events. This will include slowing water down, spreading it so that it doesn't flow in a concentrated stream and soaking it up. To achieve this will require a combination of physical structures such as contour berms or cut-off drains and berms at the downslope edge of irrigated lands to span the entire width of the irrigated surface upslope. Similar cut-off drains and berms must be implemented at the manure stockpile/s.
- The stormwater management system and wastewater treatment ponds require regular monitoring (visual inspection for surcharging, blockages, and leaking pipelines; siltation levels of treatment ponds) ongoing maintenance in the form of removal of silt, debris and/or litter to ensure the optimal functioning of such systems.
- Use of bentonite or similar substance to line the wastewater management dams directly upslope of watercourse, particularly Triple Dams, depending on the water quality results from the monitoring boreholes.
- Monthly water quality monitoring of treated wastewater used for irrigation.
- Quarterly water quality monitoring of monitoring boreholes.

Please feel free to contact me should you wish to discuss any aspects of the project.

Yours sincerely



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6. APPENDICES

Appendix 1: Maps of Triple A Beef

Appendix 2: Chance Finds Protocol

Appendix 3: Invasive Alien Plant Control Plan

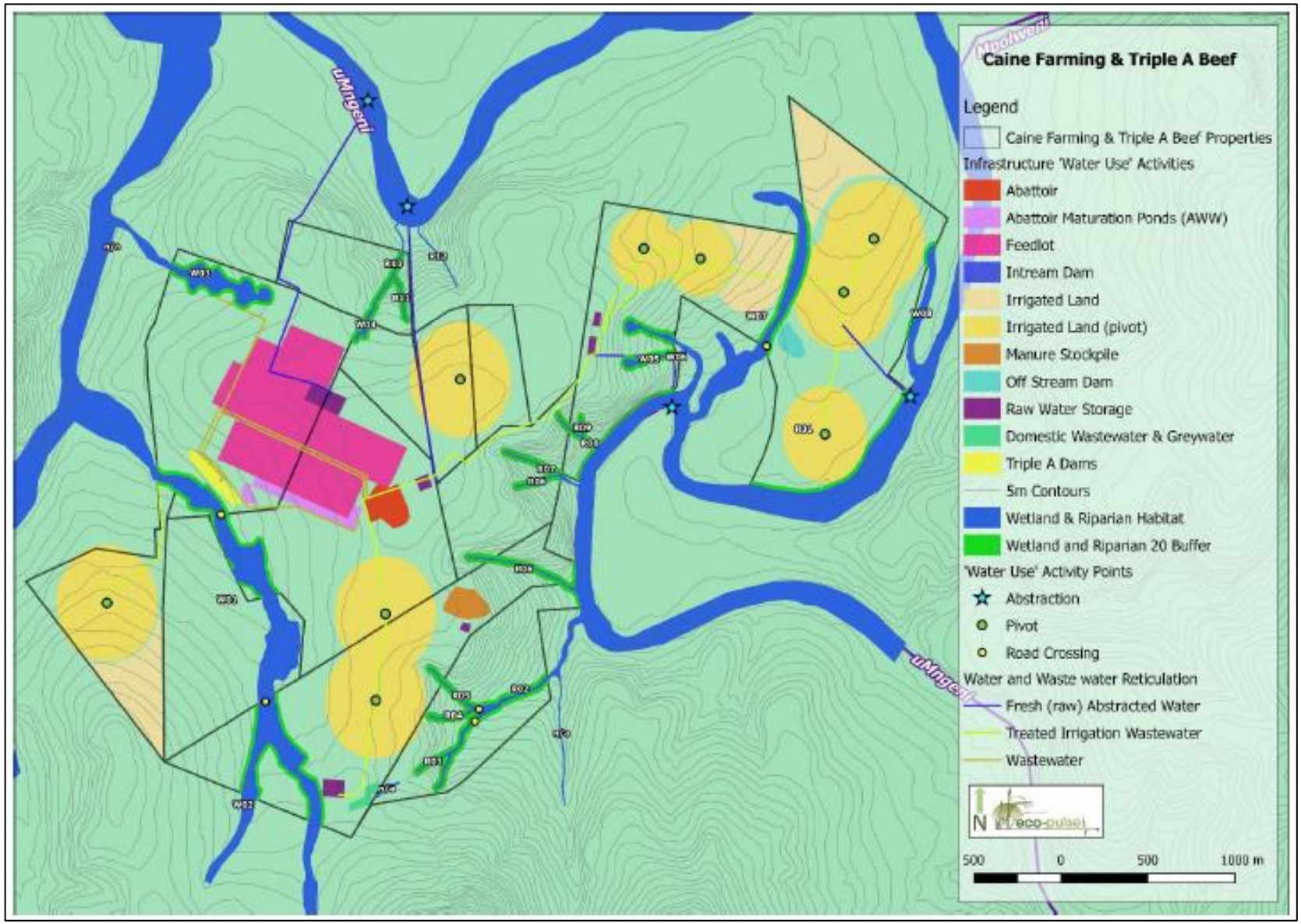
Appendix 1:

Maps of Triple A Beef

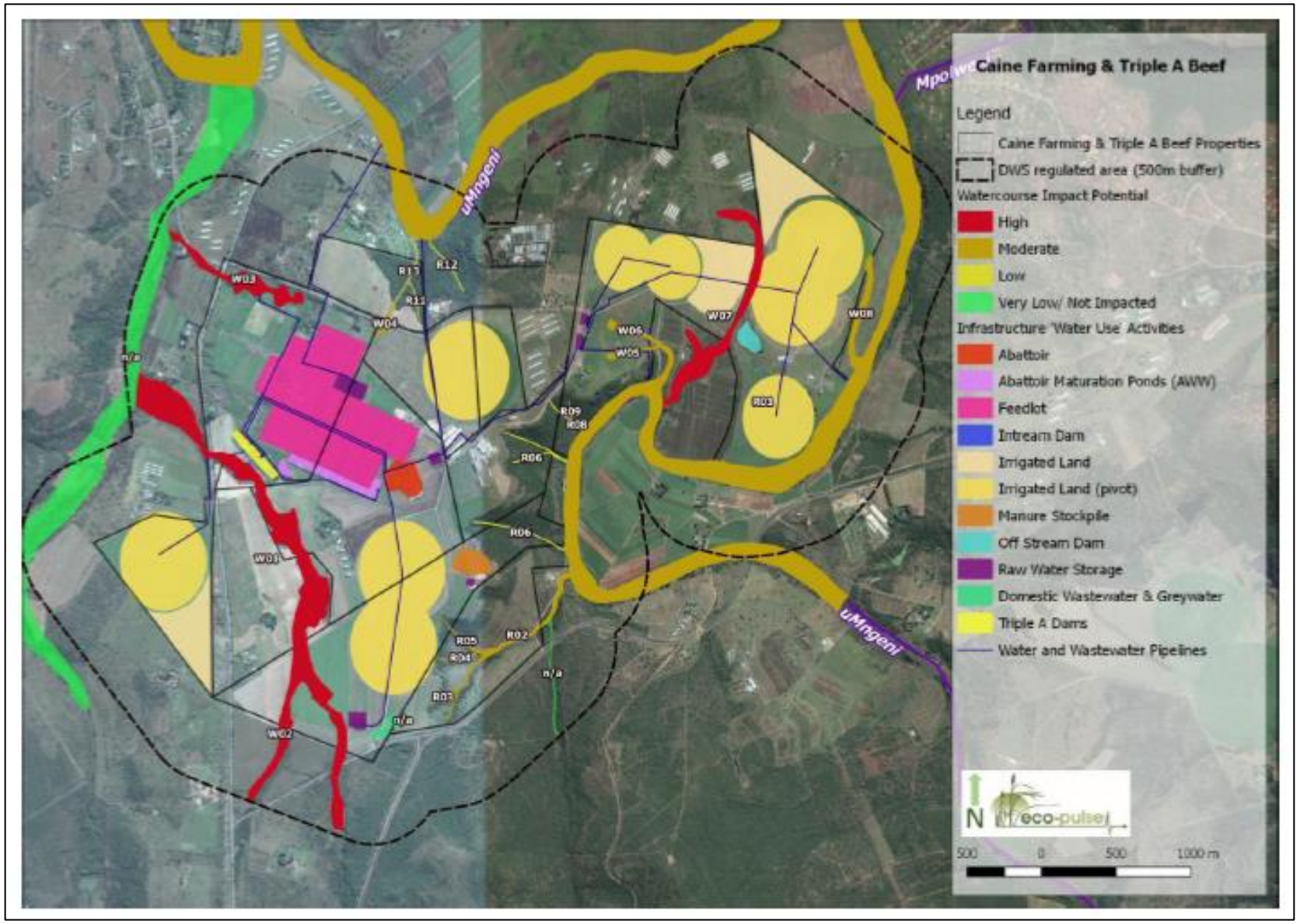
No. in figure	Description	Order of Purchase	Year of Purchase
1	Ptn 1 of 18 of the farm Zeekoegat 1173	13	2015
2	Ptn 8 of the farm Shallow Drift 15565	1	1980
3	Ptn 25 of the farm Shallow drift 15565	4	2007
4	Ptn 1 of the farm Binchester Grange 14258	3	1995
5	Ptn 28 of the farm Shallow Drift 15565	2	1991
6	Ptn 9 of the farm Shallow Drift 15565	9	2014
7	Ptn 7 of the farm Shallow Drift 15565	7	2009
8	Ptn 10 of the farm Shallow Drift 15565	10	2014
9	Ptn 12 of the farm Shallow Drift 15565	12	2014
10	Ptn 11 of the farm Shallow Drift 15565	11	2014
11	Ptn 1 of the farm Linchester 15875	8	2009
12	Ptn 46 of the farm Wagenbeetjes Draai 875	6	2009
13	Ptn 20 of the farm Wagenbeetjes Draai 875	5	2008

Map 1: Google Earth image of TAB landholdings[1]

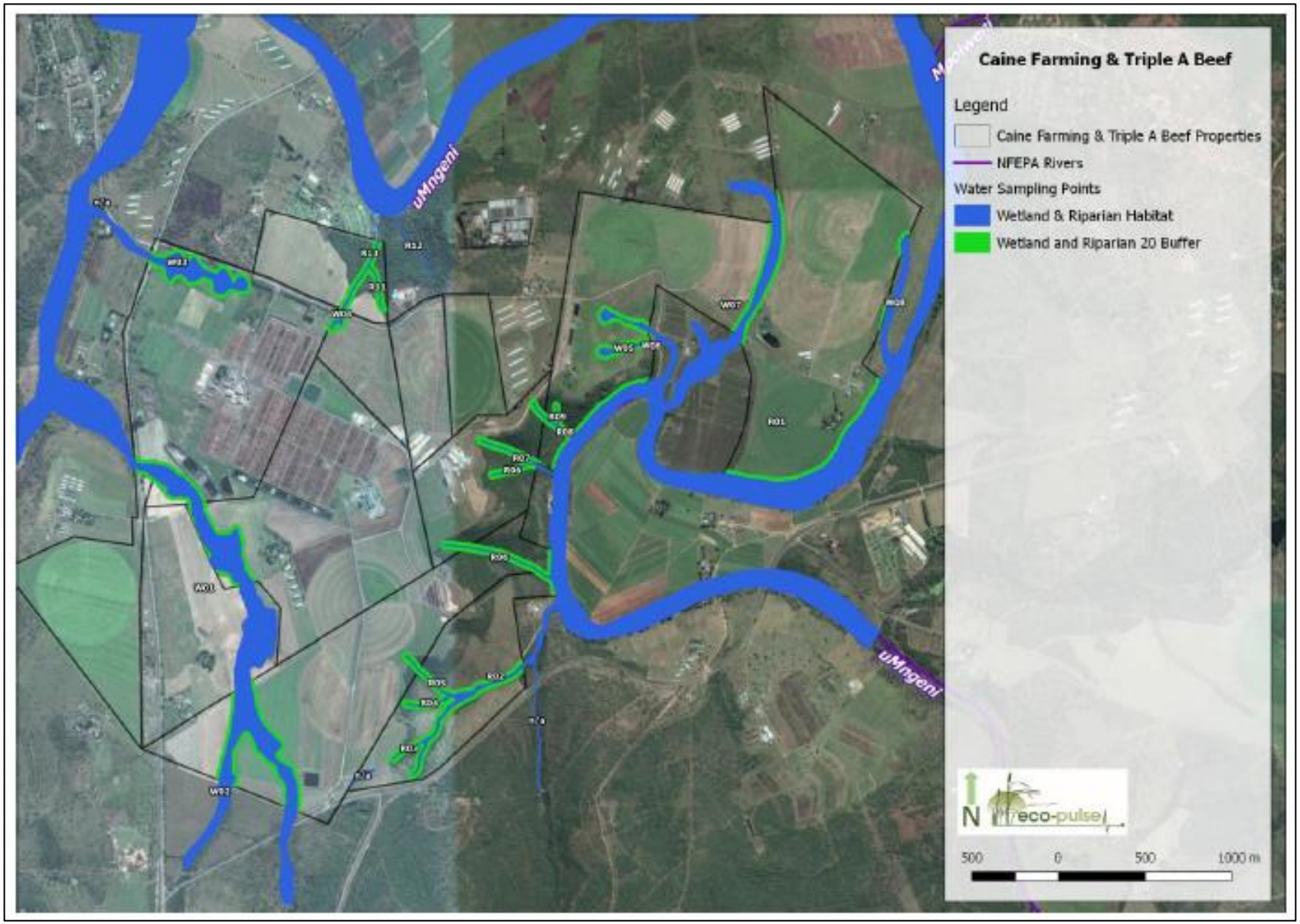
[1] Ptn 8 Shallow Drift and Ptn 51/Ptn 1 Zeekoegat (Properties 1 & 2) were consolidated in 2015 to Rem of Shallow Drift



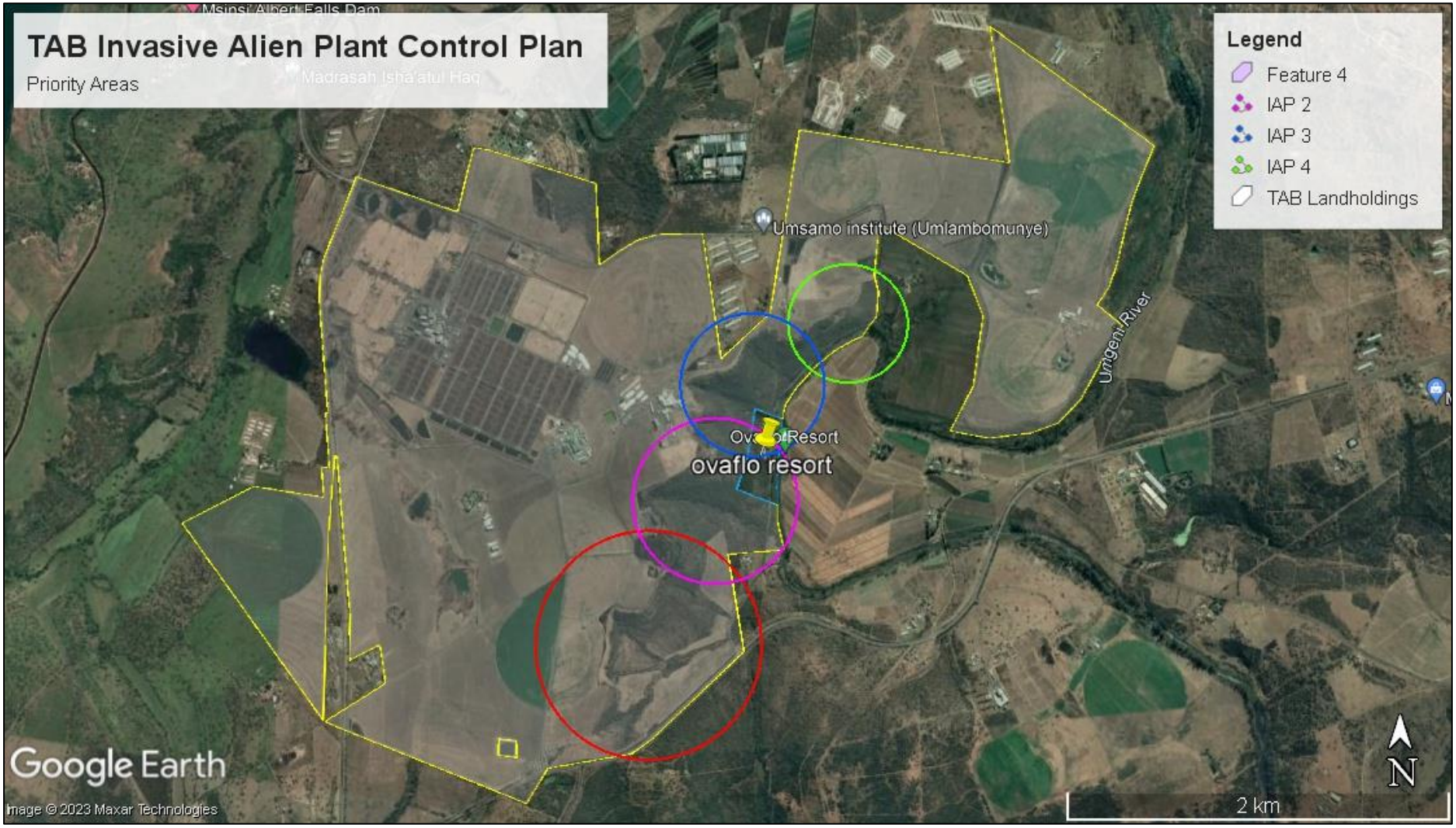
Map 2: Master water use layout plan for TAB properties, source Eco-Pulse 2017



Map 3: Location, extent and classification of watercourses potentially affected by TAB activities, source Eco-Pulse 2017



Map 4: 20m buffers to be applied to wetland and riparian areas, source Eco-Pulse 2017



Map 5: Invasive Alien Plant Control Priority Areas

Appendix 2

Chance Finds Protocol

8. CHANCE FIND PROTOCOL

This Chance Find Protocol must be included in the site EMPr.

If any fossils are found, a Palaeontologist must be notified immediately by the ECO and/or EAP and a site visit must be arranged at the earliest possible time with the Palaeontologist.

In the case of the ECO or the Site Manager becoming aware of suspicious looking palaeo-material:

- The construction must be halted in that specific area and the Palaeontologist must be given enough time to reach the site and remove the material before excavation continues.

- Mitigation will involve the attempt to capture all rare fossils and systematic collection of all fossils discovered. This will take place in conjunction with descriptive, diagrammatic and photographic recording of exposures, also involving sediment samples and samples of both representative and unusual sedimentary or biogenic features. The fossils and contextual samples will be processed (sorted, sub-sampled, labeled, and boxed) and documentation consolidated, to create an archive collection from the excavated sites for future researchers.

Functional responsibilities of the Developer

1. At full cost to the project, and guided by the appointed Palaeontological Specialist, ensure that a representative archive of palaeontological samples and other records is assembled to characterize the palaeontological occurrences affected by the excavation operation.

2. Provide field aid, if necessary, in the supply of materials, labour and machinery to excavate, load and transport sampled material from the excavation areas to the sorting areas, removal of overburden if necessary, and the return of discarded material to the disposal areas.

3. Facilitate systematic recording of the stratigraphic and palaeo-environmental features in exposures in the fossil-bearing excavations, by described and measured geological sections, and by providing aid in the surveying of positions where significant fossils are found.

4. Provide safe storage for fossil material found routinely during excavation operations by construction personnel. In this context, isolated fossil finds in disturbed material qualify as "normal" fossil finds.

5. Provide covered, dry storage for samples and facilities for a work area for sorting, labeling and boxing/bagging samples.

6. Costs of basic curation and storage until collected. Documentary record of palaeontological occurrences must be done.

7. The contractor will, in collaboration with the Palaeontologist, make the excavation plan available to the appointed specialist, in which appropriate information regarding plans for excavations and work schedules must be indicated on the plan of the excavation sites. This must be done in conjunction with the appointed specialist.

8. Initially, all known specific palaeontological information will be indicated on the plan. This will be updated throughout the excavation period.

9. Locations of samples and measured sections are to be pegged, and routinely and accurately surveyed. Sample locations, measured sections, etc., must be recorded three-dimensionally if any "significant fossils" are recorded during the time of excavation.

Appendix 3

Invasive Alien Plant Control Plan

Invasive Alien Plant Control

An ongoing management plan must be implemented for the clearing/eradication of invasive alien plant species. This requirement is in fulfilment of the terms of the National Environmental Management: Biodiversity Act (Act 10 of 2004).

Ongoing and aggressive invasive alien plant control is required for the following reasons:

1. To knock alien plants back and then to keep them back. After the initial attack, at least annual follow-ups (preferably 3x per year) are essential.
2. It is no use undertaking alien plant control if areas where they were growing are left bare and exposed, firstly because they are usually pioneer species and are the first to colonise a disturbed site and secondly, because they are poor competitors. Being poor competitors, if they are shaded out by taller indigenous plants, they will be unlikely to establish and if taller indigenous plants shade them out completely, they often die back.

Invasive alien species commonly growing in the area to be targeted for removal and control include:

- *Chromolaena odorata,*
- *Lantana camara,*
- *Melia azedarach,*
- *Eucalyptus grandis* and
- *Solanum mauritianum*.

Any control programme for invasive alien vegetation must include the following three phases:

1. Initial control: drastic reduction of existing population.
2. Follow-up control: control of seedlings, root suckers and coppice growth.
3. Maintenance control: sustain low alien plant numbers with annual control.

Options for controlling invasive alien plants include:

Mechanical & Chemical Methods

1. Basal bark

Application of suitable herbicide in diesel can be carried out to the bottom 250mm of the stem. Applications should be by means of a low pressure, coarse droplet spray from a narrow angle solid cone nozzle.

2. Hand pull

Grip the young plant low down and pull out by hand (using gloves or a tree popper, depending on size).

3. Ring-barking (girdling)

Bark must be removed from the bottom of the stem to a height of 0.75-1.0 m. All bark must be removed to below ground level for good results. Where clean debarking is not possible due to crevices in the stem or where exposed roots are present, a combination of bark removal and basal stem treatments should be carried out. Bush knives or hatchets should be used for debarking.

4. Frilling

Using an axe or bush knife, make angled cuts downward into the cambium layer through the bark in a ring. Ensure to effect the cuts around the entire stem and apply herbicide into the cuts.

Where trees can be felled and removed, use chainsaws, bowsaws, brushcutters or cane knives.

5. Cut stump treatment

Stems should be cut as low as practical, as stipulated on the label. Herbicides are immediately applied in diesel or water as recommended for the herbicide. Applications in diesel should be to the whole stump and exposed roots and in water to the cut area as recommended on the label.

6. Stem injection

Punch downward slanting holes into the main stem using a sharpened metal spike. Space holes around entire circumference of lower stems. Inject the herbicide directly into the plant – ensuring to inject around the stem. Follow label recommendations.

Priority Areas for Control

Priority area for invasive alien plant removal and control are identified in Appendix 1: Map 5 with the focus on the area of Eastern Valley Bushveld.

The programme of action is the systematic treatment of a new area per year with follow up in the areas cleared in the year/s before: Area 1 is treated in Year 1 aiming for comprehensive removal of invasive alien vegetation whilst recognising that there is a seedbank that will provide fresh recruitment. During Year 2, Area 2 will be comprehensively treated and Area 1 will be revisited for control. Similarly, in Year 3, Area 3 will be comprehensively treated and Areas 1 and 2 will be followed up, until the whole property is in maintenance from Year 5.