

Appendix E
Environmental Management Programme

Environmental Management Programme

for

HMB SCHOOL TRUST

Prepared by:

Bucandi Environmental Solutions



Project Manager: H len Prinsloo (*Pr.Sci.Nat.*) Reg. No. 400108/11 (SACNASP)

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Table of contents

1.	Details of the EAP	1
a)	Contact details of EAP	1
b)	Expertise of the EAP	1
2.	Detailed description of aspects	1
3.	Ecological sensitivity map of preferred site	2
4.	Impacts and mitigation measures	1
a)	Impacts identified for preferred alternative	1
b)	Timeframes and management of mitigation	7
c)	Monitoring and reporting	10
d)	Environmental Awareness Plan	11

1. DETAILS OF THE EAP

a) Contact details of EAP

Name of The Practitioner: H len Prinsloo

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b) Expertise of the EAP

The qualifications of the EAP

M. Tech (Nature Conservation)

Summary of the EAP's past experience.

10 years' experience with environmental impact assessments, 3 years in the USA, 7 years in South Africa.

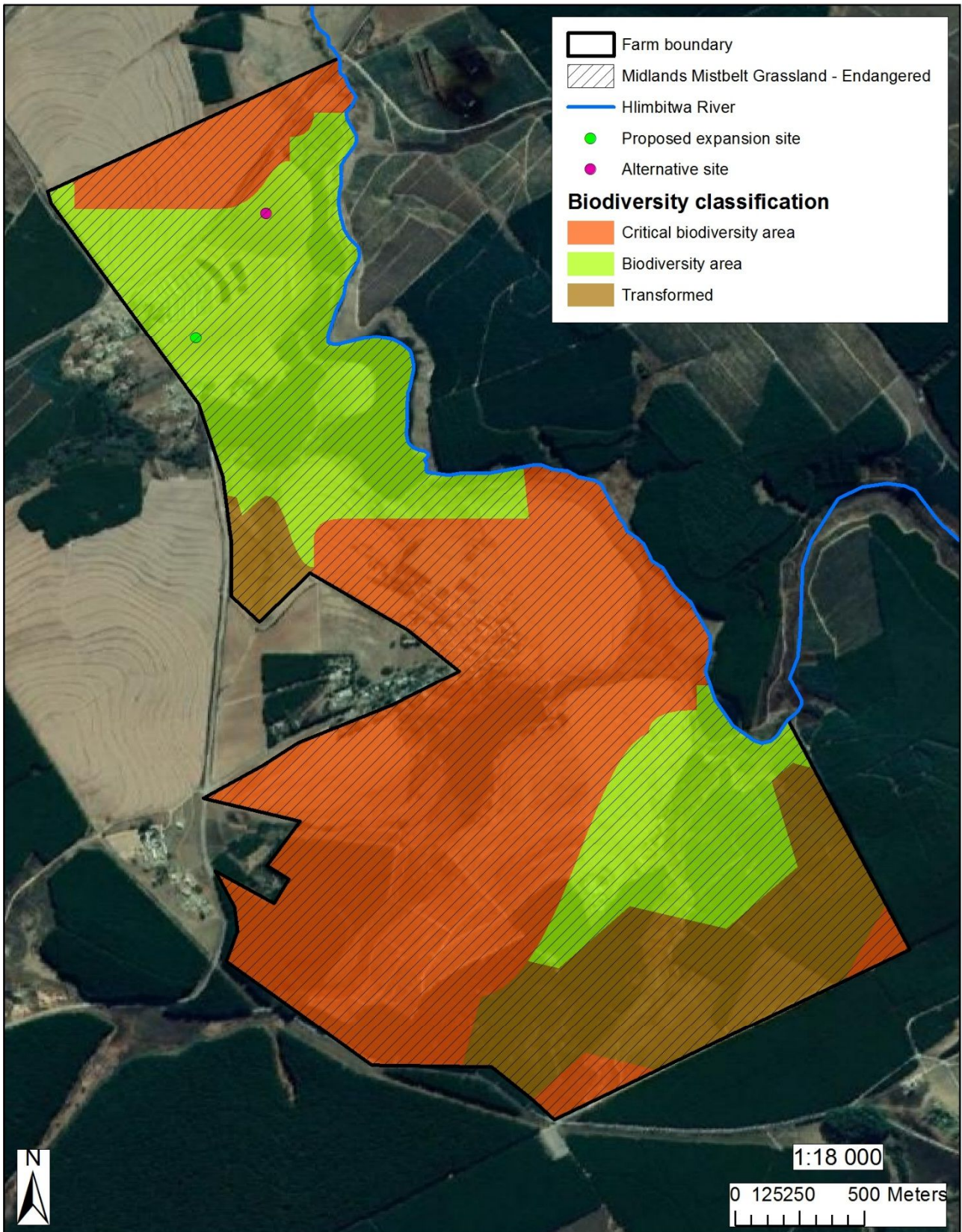
Please see CV attached as Appendix G-4 of the Basic Assessment Report.

2. DETAILED DESCRIPTION OF ASPECTS

HMB School Trust is proposing the expansion of a piggery on Portion 4 of the farm Perseverance 1324 FT situated in the Greytown District within Umvoti Local Municipal area. The need for a Basic Assessment is triggered by Listing 1; activity 28 & 39(ii) in GN R983 dated 04 December 2014 2014 as amended on 07 April 2017 namely 28: Residential, mixed, retail, commercial, industrial or institutional developments where such land was used for agriculture, game farming, equestrian purposes or afforestation on or after 1 April 1998 and where such development (ii) will occur outside an urban area, where the total land to be developed is bigger than 1 hectare, excluding where such land has already been developed for residential, mixed, retail, commercial, industrial or institutional purposes.

39 (ii): The expansion and related operation of facilities for the concentration of animals for the purpose of commercial production in densities that will exceed (ii) 8 square meters per small stock unit, where the expansion will constitute more than (b) 250 additional pigs, excluding piglets that are not yet weaned.. The activity will entail the expansion of a piggery. The site currently has about 7 500 pigs and after expansion the entire site will be able to house up to 16 000 pigs.

3. ECOLOGICAL SENSITIVITY MAP OF PREFERRED SITE



Ecological sensitivity map for the proposed piggery expansion on Portion 4 of the farm Perseverance 1324 FT.

June 2018
Created by:



4. IMPACTS AND MITIGATION MEASURES

a) Impacts identified for preferred alternative

Activity	Impact summary	Significance	Proposed mitigation
Alternative A 1 (preferred alternative)			
	<i>Direct impacts:</i>		
	Positive impacts	High	None
	Air quality and disturbance	Low	Dust control by means of watering if necessary. Vehicles to be regularly serviced and well-tuned. Operations to be undertaken during working hours only.
	Surface and groundwater pollution	Low	Machinery must be properly maintained at all times. Servicing of machinery must take place only in specific demarcated and protected areas. Measures must be taken for the proper disposal of oils, grease, oil filters, rags, etc.
	Sewage and domestic waste	Low	Proper ablution facilities must be provided i.e. chemical toilets at appropriate locations on site if necessary or existing facilities must be used. Workers must be made aware of the risk of soil water contamination. Domestic waste must be disposed of in appropriate containers, and removed to the Nearest municipal waste-disposal site as part of existing waste management system.
	Soil compaction, loss of fertility and increased erosion	Low	Appropriate measures must be taken to reduce the risk of erosion from unprotected slopes i.e. Diversion berms, ponding pools, and not exceeding angles of repose of stockpiled material. All unprotected slopes must be Rehabilitated concurrent with construction.
	Fires	Low	Cooking and heating fires permitted only in designated areas with appropriate safety measures.

Activity	Impact summary	Significance	Proposed mitigation
			Adequate firefighting equipment must be available, as prescribed by the relevant safety standards and legislation.
	Disturbance of fauna	Low	Only small animals occur in this area e.g. small rodents and reptiles. The area is surrounded by similar habitat and fauna is expected to move voluntarily to surrounding areas. No fauna found on the site will be killed
	Safety	Low	Access to the construction site to be controlled at all times.
	Aesthetics	Low	If needed, an additional line of trees will be planted to minimise visual impact.
	Indirect impacts: None		
	Cumulative impacts: None		
Operational Phase			
	Manure	Low	All pig units are washed with water daily. The water is drained and directed through cement drainage pipes to the three existing lagoons. The first two lagoons are used to allow for adequate sedimentation before water is pumped to the third lagoon from where it is used to irrigate agricultural fields. The sedimentation ponds are cleaned regularly and the sediment is also used as fertiliser on agricultural fields.
	Carcasses	Low	The carcasses are removed on a daily basis and collected by a contractor.
	Indirect impacts: None		
	Cumulative impacts: None		

Activity	Impact summary	Significance	Proposed mitigation
Alternative S1			
	Direct impacts:		
	Positive impacts	High	None
	Air quality and disturbance	Low	Dust control by means of watering if necessary. Vehicles to be regularly serviced and well-tuned. Operations to be undertaken during working hours only.
	Surface and groundwater pollution	Low	Machinery must be properly maintained at all times. Servicing of machinery must take place only in specific demarcated and protected areas. Measures must be taken for the proper disposal of oils, grease, oil filters, rags, etc.
	Sewage and domestic waste	Low	Proper ablution facilities must be provided i.e. chemical toilets at appropriate locations on site if necessary or existing facilities must be used. Workers must be made aware of the risk of soil water contamination. Domestic waste must be disposed of in appropriate containers, and removed to the Nearest municipal waste-disposal site as part of existing waste management system.
	Soil compaction, loss of fertility and increased erosion	Low	Appropriate measures must be taken to reduce the risk of erosion from unprotected slopes i.e. Diversion berms, ponding pools, and not exceeding angles of repose of stockpiled material. All unprotected slopes must be Rehabilitated concurrent with construction.
	Fires	Low	Cooking and heating fires permitted only in designated areas with appropriate safety measures. Adequate firefighting equipment must be available, as prescribed by the relevant safety standards and legislation.

Activity	Impact summary	Significance	Proposed mitigation
	Disturbance of fauna	Low	Only small animals occur in this area e.g. small rodents and reptiles. The area is surrounded by similar habitat and fauna is expected to move voluntarily to surrounding areas. No fauna found on the site will be killed
	Safety	Low	Access to the construction site to be controlled at all times.
	Aesthetics	Low	If needed, an additional line of trees will be planted to minimise visual impact.
	Indirect impacts: None		
	Cumulative impacts: None		
Operational Phase			
	Manure	Low	All pig units are washed with water daily. The water is drained and directed through cement drainage pipes to the three existing lagoons. The first two lagoons are used to allow for adequate sedimentation before water is pumped to the third lagoon from where it is used to irrigate agricultural fields. The sedimentation ponds are cleaned regularly and the sediment is also used as fertiliser on agricultural fields.
	Carcasses	Low	The carcasses are removed on a daily basis and collected by a contractor.
	Indirect impacts: None		
	Cumulative impacts: None		

Alternative: S2			
	Direct impacts:		
	Positive impacts	High	None

	Air quality and disturbance	Low	Dust control by means of watering if necessary. Vehicles to be regularly serviced and well-tuned. Operations to be undertaken during working hours only.
	Surface and groundwater pollution	Low	Machinery must be properly maintained at all times. Servicing of machinery must take place only in specific demarcated and of oils, grease, oil filters, rags, etc.
	Sewage and domestic waste	Low	Proper ablution facilities must be provided i.e. chemical toilets at appropriate locations on site if necessary or existing facilities must be used. Workers must be made aware of the risk of soil water contamination. Domestic waste must be disposed of in appropriate containers, and removed to the Nearest municipal waste-disposal site as part of existing waste management system.
	Soil compaction, loss of fertility and increased erosion	Low	Appropriate measures must be taken to reduce the risk of erosion from unprotected slopes i.e. diversion berms, ponding pools, and not exceeding angles of repose of stockpiled material. All unprotected slopes must be rehabilitated concurrent with construction.
	Fires	Low	Cooking and heating fires permitted only in designated areas with appropriate safety measures. Adequate firefighting equipment must be available, as prescribed by the relevant safety standards and legislation.
	Disturbance of fauna	Low	Only small animals occur in this area e.g. small rodents and reptiles. The area is surrounded by similar habitat and fauna is expected to move voluntarily to surrounding areas. No fauna found on the site will be killed

	Safety	Low	Access to the construction site to be controlled at all times.
	Aesthetics	Low	If needed, an additional line of trees will be planted to minimise visual impact.
	Manure	Low	All pig units are washed with water daily. The water is drained and directed through cement drainage pipes to the three existing lagoons. The first two lagoons are used to allow for adequate sedimentation before water is pumped to the third lagoon from where it is used to irrigate agricultural fields. The sedimentation ponds are cleaned regularly and the sediment is also used as fertiliser on agricultural fields.
	Carcasses	Low	The carcasses are removed on a daily basis and collected by a contractor.
	Indirect impacts: None		
	Cumulative impacts: None		

No-go option			
	Direct impacts:		
	Positive impacts	Low	None
	Air quality and disturbance	Low	None
	Surface and groundwater pollution	Low	None
	Sewage and domestic waste	Low	None
	Soil compaction, loss of fertility and increased erosion	Low	None
	Fires	Low	None
	Disturbance of fauna	Low	None
	Safety	Low	None
	Aesthetics	Low	None
	Manure	Low	None
	Carcasses	Low	None
	Indirect impacts: None		
	Cumulative impacts: None		

b) Timeframes and management of mitigation

The table below lists the activities identified, mitigation measures proposed, the person responsible for the management actions, timing of actions and objectives to be reached.

Activities	Environmental Objectives	Auditable Management and Mitigation Measures	√	Person Responsible	Timing	Requirement for “sign-off” report
Planning and Design Phase						
No environmental activity will take place during this phase.						
Construction Phase						
1. Removal of vegetation and preparing site for construction.	Maintaining air quality and minimising disturbance caused by noise, dust and emissions.	Dust control by means of watering if necessary.		Mr. Rolf Gevers	Ongoing	Confirm compliance and justify emissions
		Vehicles to be regularly serviced and well tuned.			Ongoing	
		Operations to be undertaken during working hours only.			Ongoing	
2. Construction of infrastructure.	Protecting the quality of surface and ground water.	Machinery should be properly maintained at all times.		Mr. Rolf Gevers	Ongoing	Initialise water monitoring to take place at least quarterly.
		Servicing of machinery should take place only in specific demarcated and protected areas.			Ongoing	
		Measures should be taken for the proper disposal of oils, grease, oil filters, rags, etc.			Ongoing	
Controlling sewage and domestic waste disposal by workers.		Proper ablution facilities should be provided i.e. chemical toilets at appropriate locations on site if necessary; else existing facilities must be used.		Mr. Rolf Gevers	Before onset of construction	Confirm compliance and monitor site to ensure that domestic waste and construction rubble has been removed.
		Workers should be made aware of the risk of soil water contamination.			Before onset of construction	
		Domestic waste should be disposed of in appropriate containers, and removed to the nearest municipal waste-disposal site.			Weekly	

Activities	Environmental Objectives	Auditable Management and Mitigation Measures	√	Person Responsible	Timing	Requirement for “sign-off” report
	Preventing fires.	Cooking and heating fires permitted only in designated areas with appropriate safety measures.		Mr. Rolf Gevers	Ongoing	Initialise and monitor a fire prevention and response plan.
		Adequate fire fighting equipment should be available, as prescribed by the relevant safety standards and legislation.			Ongoing	
	Minimising soil compaction, loss of fertility and erosion.	Appropriate measures should be taken to reduce the risk of erosion from unprotected slopes i.e. diversion berms, ponding pools, and not exceeding angles of repose of stockpiled material.		Mr. Rolf Gevers	Ongoing	Confirm compliance.
		All unprotected slopes should be rehabilitated concurrent with construction.			Ongoing	
	Controlling the temporary disturbance of fauna.	The area is surrounded by similar habitat and fauna is expected to move voluntarily to surrounding areas.		Mr. Rolf Gevers	Ongoing	Confirm compliance.
		No fauna found on the site will be killed.			Ongoing	
	Ensuring the safety of workers and the public.	Access to the construction site to be controlled at all times.		Mr. Rolf Gevers	Ongoing	Erection of safety fence and controlled entry points to the site.
	Minimising visual and audible impacts that may occur as a result of vehicle exhausts, dust and noise from machinery.	If needed, an additional line of trees will be planted to minimise visual impact.		Mr. Rolf Gevers	Before onset of construction	Establishment of a tree line.
Operational Phase						
1. Utilisation of infrastructure.	Managing the disposal of sewage, waste and litter.	Sewage from flush-toilets flows to a french drain.		Mr. Rolf Gevers	Ongoing	Confirm compliance with good practice.
		Household waste is removed to the nearest authorised municipal landfill site.			Weekly	
		Litter is controlled by good practice.			Ongoing	

Activities	Environmental Objectives	Auditable Management and Mitigation Measures	√	Person Responsible	Timing	Requirement for “sign-off” report
	Disposal of manure.	All pig units are washed with water daily. The water is drained and directed through cement drainage pipes to the three existing lagoons. The first two lagoons are used to allow for adequate sedimentation before water is pumped to the third lagoon from where it is used to irrigate agricultural fields. The sedimentation ponds are cleaned regularly and the sediment is also used as fertiliser on agricultural fields.		Mr. Rolf Gevers	After each cycle	Confirm compliance after each cycle.
	Preventing wash water from contaminating surface and ground water.	Houses are washed after each cycle only after the removal of manure and carcasses.		Mr. Rolf Gevers	After each cycle	Water quality to be tested quarterly.
		The houses are washed using a high pressure (16bar) sprayer, minimising the amount of water used.			After each cycle	
		Equipment is not washed with water, but rather using a foam sanitizer (F29) which is applied as dry foam and allowed to evaporate.			After each cycle	
	Disposal of carcasses.	The carcasses are removed on a daily basis and collected by a contractor.		Mr. Rolf Gevers	Daily	Confirm compliance.
	Minimising air pollution.	Manure in houses and in manure pile should be treated regularly to prevent excessive odours and flies. Fly control should include measures for control of adults as well as larvae.		Mr. Rolf Gevers	Ongoing	Confirm compliance.
Decommissioning and Closure Phase						
This phase is not foreseen for this project.						

c) Monitoring and reporting

All activities identified and proposed mitigation measures should be monitored according to the following programme:

- Regular monitoring of all the environmental management measures and components must be carried out by the holder of the ROD in order to ensure that the provisions of this programme are adhered to.
- On-going and regular reporting of the progress of implementation of this programme will be done by the ECO.
- An ECO should be appointed to conduct external environmental audits every two month as long as construction is taking place and every six months once construction has been completed.

Roles and responsibilities for the execution of monitoring programmes

It is the responsibility of the holder of the ROD to appoint an ECO before any construction takes place. The ECO will then be responsible for environmental training of the contractors and employees, as well as the external environmental auditing according to the timeframe stipulated above.

Environmental Monitoring

Environmental Monitoring is the continuous evaluation of the status and condition of environmental elements. Its purpose is to detect change that takes place in the environment over time and involves the measuring and recording of physical, social and economic variables associated with development impacts. The purpose of the monitoring programme is not only to ensure conformance with the EMP through the contract/work instruction specifications but also to monitor environmental issues and impacts that have not been accounted for in the EMP that are, or could result in significant environmental impacts for which corrective action is required. Monitoring shall form part of the contract or work instruction.

Internal performance audits

It is recommended that the site manager undertake regular performance audits in accordance with the approved EMPr in which each environmental management specification will be rated in terms of the following criteria:

- Full Compliance (no action required)
- Satisfactory Performance (Some remedial/preventative actions required)
- Unsatisfactory performance (Remedial actions required)

The performance monitoring report must incorporate all compliance issues as well as corrective actions taken, permits, licenses and all contract documentation's conditions. These reports must be made available to the appointed Environmental Control Officer (ECO).

External Compliance Audits

An independent qualified ECO must be appointed to monitor the site and operations for compliance in accordance with the approved EMPr. The external compliance audits must be conducted on a two monthly basis during construction and a six monthly basis during operation.

The ultimate aim is that each environmental management specification be checked by means of a system in which a score may be allocated for:

- Full compliance
- Satisfactory performance
- Unsatisfactory performance
- No action

d) Environmental Awareness Plan

Environmental awareness training

Environmental awareness should be done as part of the induction training completed by all personnel working on the site. To ensure the training is always updated, placards containing information about environmental aspects will regularly be updated and distributed. If the ECO in his own discretion or the discretion of the site manager decide to update any environmental awareness training, he/ she will be able to do so at their own discretion.

It is recommended that the environmental awareness training be presented at least every 6 months to ensure the update of environmental goals in relation to current activities is communicated to the personnel.

The ability of the team to contain any environmental incidents is dependent on the management efficiency of the manager on site, and his ability to train and ensure his employees are knowledgeable about environmental impacts.

The contractors and applicant must ensure that adequate environmental training takes place. All employees shall have been given an induction presentation on environmental awareness. Where possible, the presentation needs to be conducted in the language of the employees. The environmental training should, as a minimum, include the following:

- Explanation of the importance of complying with the EMP;
- The construction must take place in ecological sound manner, taking due cognisance of the sensitive ecological areas in close vicinity of the site (i.e. drainage channel/streams).
- The need to protect and preserve the historical and archaeological heritage of the site.
- The importance of conformance with all environmental policies and procedures;
- The significant environmental impacts, actual or potential, as a result of their activities;
- The environmental benefits of improved personal performance;

Dealing with risks and accidents

The solution to the risks involved with prospecting operations is to have all the appropriate information and planning in place before the incident occurs. This is important to ensure the correct procedures and reporting structures are followed, and the appropriate remediation steps are followed. The approved EMP shall be available on site. This EMP contains all the management plans necessary to prevent or mitigate pollution or degradation of the environment. An Incident Register and a Complaints Register should be kept on site and completed in the case of any environmentally detrimental incident happening or complaints are received. These registers should be kept and included in the internal and external reports.