Draft Environmental Management Programme for Sappi's 200BDTPD (Bone Dry Tonnes per Day) Repulper and Recovered Fibre Plant at Enstra Mill

GDARD Reference Numbers: GAUT: 002/11-12/W0019

Report Prepared for

Sappi Southern Africa (Pty) Ltd

Report Number 440990

Report Prepared by

srk consulting

February 2012

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SRK Project Number 440990

February 2012

Author **Reviewed by**

Ian Minnaar **Dr Andrew Wood**

Executive Summary

Table ES 1 provides a summary of the requirements of an Environmental Management Programme (EMP) as per Section 33 of Regulation 543 of the National Environmental Management Act (Act No. 107 of 1998). The table also provides reference of the requirement as addressed in this EMP.

Table ES 1: Summary of Requirements of an EMP

Reg 543 Reference	Content	**Reference in EMP**
(a)(i)	Details of the EAP who prepared the environmental management programme	Section 1.1.1
(a)(ii)	Details of the expertise of that person to prepare an environmental management programme	Section 1.1.2
(b)	Information on any proposed management or mitigation measures that will be taken to address the environmental impacts that have been identified in a report contemplated by these Regulations including environmental impacts or objectives in respect of	
(b)(i)	Planning and design	Section 5.2
(b)(ii)	Pre-construction and construction activities	Section 5.3
(b)(iii)	Operation or undertaking of the activity	Section 5.4
(b)(iv)	Rehabilitation of the environment	Section 5.5
(b)(v)	Closure, where relevant	Section 5.5
(c)	A detailed description of the aspects of the activity that are covered by the draft environmental management programme	Section 2
(d)	An identification of the persons who will be responsible for the implementation of the measures contemplated in paragraph (b)	Table 5-1,
(e)	Proposed mechanisms for monitoring compliance with and performance assessment against the environmental management programme and reporting thereof	Table 5-1,
(f)	As far as reasonably practicable, measures to rehabilitate the environment affected by the undertaking of any listed activity or specified activity to its natural or predetermined state or to a land use which conforms to the generally accepted principle of sustainable development, including, where appropriate, concurrent or progressive rehabilitation measures	Section 5.5
(g)	A description of the manner in which it intends to	
(g)(i)	Modify, remedy, control or stop any action, activity or process which causes pollution or environmental degradation	Section 5

(g)(ii)	Remedy the cause of pollution or degradation and migration of pollutants	Section 5
(g)(iii)	Comply with any prescribed environmental management standards or practices	Section 5
(g)(iv)	Comply with any applicable provisions of the Act regarding closure, where applicable	Section 5
(g)(v)	Comply with any provisions of the Act regarding financial provisions for rehabilitation, where applicable	Section 5
(h)	Time periods within which the measures contemplated in the	Section 5
	environmental management programme must be implemented	
(i)	The process for managing any environmental damage, pollution, pumping and treatment of extraneous water or ecological degradations as a result of undertaking a listed activity	Section 5
(j)	An environmental awareness plan describing the manner in which	
(j)(i)	The applicant intends to inform his or her employees of any environmental risk which may result from their work	Section 5.6, 5.7
(j)(ii)	Risks must be dealt with in order to avoid pollution or the degradation of the environment	Section 5.6, 5.7
(k)	Where appropriate, closure plans, including closure objectives	Section 5.6

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List of Abbreviations

BA	Basic Assessment
DEA	Department of Environmental Affairs
DWA	Department of Water Affairs
EAP	Environmental Assessment Practitioner
EIA	Environmental Impact Assessment
EMP	Environmental Management Programme
EO	Environmental Control Officer
GDARD	Gauteng Department of Agriculture and Rural Development
I&APs	Interested and Affected Parties
NEMA	National Environmental Management Act
NEMWA	National Environmental Management Waste Act

1 Introduction and Scope of Report

Sappi Paper and Paper Packaging – Enstra Mill (Sappi) is situated in Gauteng, near the town of Springs. It uses an oxygen bleaching process, coupled with 'Elemental chlorine free'-bleaching (ECF), to produce bleached chemical pulp for own consumption. The oxygen bleaching process was developed at the mill in the 1970s, and which has since become the industry standard.

Sappi) intends to mothball their current pulp mill, which will make them totally reliant on bought-in pulp of various grades to ensure that sufficient pulp is supplied to the paper machines.

In order to meet the paper demands Sappi proposes to procure paper waste from local suppliers and to repulp it in order produce waste-grade recycled paper. This activity is required to keep the mill operational. By running waste based grades on the paper machines, the viability and profitability of the mill should improve significantly.

Environmental authorisation is required in terms of the National Environmental Management Waste Act (Act No. 57 of 2009) (NEMWA) and the National Environmental Management Act (Act No. 107 of 1998) (NEMA).

In terms of NEMWA Regulations, the applicant is required to undertake a Basic Assessment, comprising of an impact assessment, respective legislative controls and identification of mitigation measures. A Basic Assessment (BA) has been undertaken for the proposed Repulper and Recovered Fibre Plant by SRK Consulting, and is submitted to the decision-making authorities on behalf of Sappi Enstra Mill.

The regulating authority in terms of implementation of the EIA Regulations is the Gauteng Department of Agriculture and Rural Development (GDARD). The Basic Assessment Process followed the legal requirements and involved submitting an application to GDARD to register the project and then conducting the Assessment. During the Assessment Phase Interested and Affected Parties (I&APs) were involved in the project to identify issues and concerns related to the project. The Assessment culminated in production of this Basic Assessment Report. The GDARD will assess the report and will issue a decision on whether the project should proceed or not.

Sappi Enstra Mill is located at Enstra Township 12, on the northern outskirts of Springs in Gauteng. The new Repulper and Recovered Fibre Plant (hereafter referred to as the Recycling Plant) will be installed within the existing plant area. The regional location of the Mill is shown in Figure 1-1.

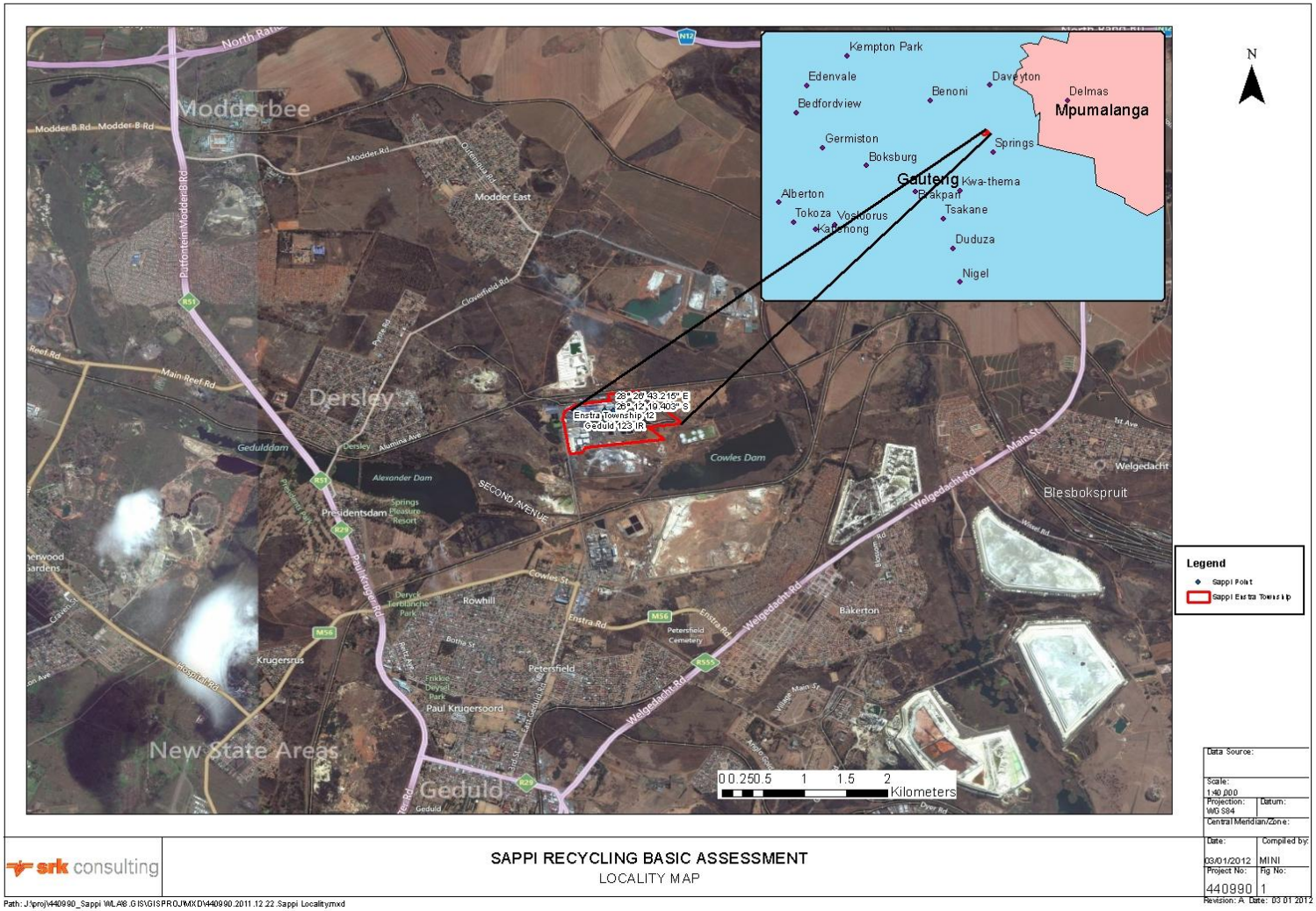


Figure 1-1: Sappi Enstra Mill Locality

1.1 Environmental Assessment Practitioner

1.1.1 Details of the EAP

Environmental Assessment Practitioner	Dr Andrew Wood
Company	SRK Consulting
Qualifications	BSc Hons Biological Sciences; PhD Pollution Control
Tel number	011 441 1237
Email address	awood@srk.co.za
Postal Address	SRK Consulting PO Box 55291 Northlands 2116 Johannesburg

1.1.2 Expertise of EAP

Dr Andrew Wood has been with SRK Consulting since 1989 and specialises in water, waste and effluent management; waste minimisation and water resources management. Dr Wood has provided specialist technical advice for numerous new water and sewage treatment plants, as well as the rehabilitation and upgrading of existing water and sewage treatment plants.

Dr Wood also provides specialist input on Environmental Impact Assessments for various development projects, as well as undertaking specialist Due Diligence and Environmental Liability Assessments; Risk Assessment of environmental issues of existing operations and historical operations and contaminated sites and remediation/risk management planning.

Prior to joining SRK Dr Wood was a Chief Research Officer in the Division of Water Technology at CSIR, responsible for: Sewage treatment and resource recovery research; Activated sludge for P and N removal; Anaerobic digestion of domestic and paper industry wastewaters; Artificial Wetlands for domestic and industrial wastewater treatment; High rate algal pond system for wastewater treatment and protein and fine chemical production; utilisation of wastewaters for aquaculture -feasibility and health impacts; Dissolved air flotation for consolidation of activated sludge, anaerobic sludge, algal laden waters, and paper effluents.

Dr Wood has authored more than 50 technical reports and scientific papers dealing with water pollution control and environmental protection, and presented at many local and international workshops, seminars and conferences.

2 Description of the Proposed Activity

The detailed process (Appendix A) to achieve the objectives stated by Sappi is as follows:

2.1 Bale Storage

Bales of waste paper will be stored in the waste bale storage area from where it will be transported via forklift to the conveyor of the Hydrapulper.

2.2 Pulping

Raw material is fed by conveyor into a Hydrapulper, working at constant level and ~4.5% consistency with the addition of water from the Pulper water tank with pump.

Large debris & bale wires are removed continuously out of the Pulper by the Ragger. The Rag Rope Cutter cuts the rag rope into smaller sections, which is more convenient to handle for disposal. The Hydrapurge keeps the Pulper clean by removing smaller debris out of the Pulper. A Junk Trap is installed before the Hydrapurge to remove heavy debris. Light debris from the Hydrapurge is dewatered in the type ZST Trommel.

2.3 HD Cleaning, one stage

The pulper dump pump also functions as feed pump to the HD Cleaner. The Cleaner's Accepts go to the Dump Chest via the Hole Screen feed, whereas the rejects are fed into the Separsand. Elutriation of the Cleaner is done by the Continuous white water pump.

2.4 Holes Screening

Stock from the Dump Chest is fed via a pump to the Hole-Screening system, comprising of stage 1 UV screen, stage 2 Floatpurger, and stage 3 Conicdrum. Stage 1 Accepts go forward into the Cleaners' Feed Chest. The Floatpurger accepts go back to Dump Chest. Conicdrum accepts go to Pulper water tank.

2.5 Fine Cleaning (Heavies)

Fine Cleaning is done by 3 stages of Cyclotech Cleaners to remove sand & heavy contaminants / debris.

2.6 Fine Screening

The Fine Cleaner's accept stock to undergo further fine slotted screening; comprising stage 1 UV screen with 0.18 mm slots; and stage 2/3 FiberNet screen, fitted with 0.18 mm slots in zone 1 and 0.2 mm slots in zone 2. UV screen accepts and FiberNet zone 1 accepts go forward into the Discs filter thickener. FiberNet zone 2 accepts go back to fine cleaning feed pump.

2.7 Stock Thickening & Water Distribution

Clean fibers, i.e., fine screening Accepts, are thickened from ~1% to ~10% consistency in the discs filter Thickener.

The thickened stock is sent to the storage tower.

Cloudy Filtrates from the discs filter thickener are collected in the Cloudy Filtrate Water Tank and Clear Filtrates from the discs filter thickener are collected in the Clear Filtrate Water Tank. Make-up water to this Tank is PM white water. Water from this tank is then pumped for the process according to requirements. A separate tank is provided for pulper water.

2.8 Storage

The Storage tower is adequately sized for smooth and continuous operation of the System.

2.9 Reject Handling

One Sand Separators, one Ecofilter, one Ecoreject & a Reject Compactor Press are provided for reject handling.

3 Legislation Guidelines

The environmental component of the project will comply with the requirements of inter alia, the following Legislation, and the Regulation promulgated hereunder:

- The Constitution of the Republic of South Africa (Act No. 108 of 1996);
- The National Environmental Management Act (Act No. 107 of 1998) and Regulation 543;
- The National Environmental Management Waste Act (Act No. 59 of 2008) and Regulation 718;
- National Environmental Management: Air Quality Act (Act No. 39 of 2004);
- The Environmental Conservation Act (Act No. 73 of 1989);
- The Hazardous Substances Act (Act No. 15 of 1973);
- The National Water Act (Act No. 36 of 1998);
- The National Heritage Resources Act (Act No. 25 of 1999);
- The Health Act (Act No. 61 of 2003);
- The Minerals and Petroleum Resources Development Act (Act No. 28 of 2002); and
- Occupational Health and Safety Act (Act No. 85 of 1993).

4 Motivation for the proposed project

Sappi) intends to mothball their current pulp mill, which will make them totally reliant on bought-in pulp of various grades to ensure that sufficient pulp is supplied to the paper machines.

In order to meet the paper demands Sappi proposes to procure paper waste from local suppliers and to repulp it in order produce waste-grade recycled paper. This activity is required to keep the mill operational. By running waste based grades on the paper machines, the viability and profitability of the mill should improve significantly.

5 Environmental Management Programme

5.1 Environmental Objectives

The Environmental Objectives for the Recycling Plant are as follows

Soils:

- Minimise loss of soil resource;
- Minimise erosion
- Minimise contamination of soil.

Biodiversity

- Minimise the disturbance of ecologically sensitive areas; and
- Prevent the spread and establishment of alien vegetation.

Surface Water

- Limit the contamination of surface water
- Optimise the re-use of water

Groundwater

- Minimise modification to groundwater flow; and

- Minimise the deterioration in groundwater quality.

Air Quality

- Minimise deterioration in air quality.

Noise

- Minimise noise disturbance.

Visual

- Minimise visual impact.

5.2 Planning and Design

No physical environmental impacts are likely to occur during this phase, therefore no management measures are deemed necessary.

5.3 Pre-construction and Construction Phase

Table 5-1 provides the management measures to be implemented during the pre-construction and construction phase of the Recycling Plant by Sappi.

5.4 Operational Phase

Table 5-1 provides the management measures to be implemented during the operational phase of the Recycling Plant by Sappi.

Table 5-1: Environmental Management Measures

Nr.	Management Measure	Responsible Person	Timeframe
	General		
1	An Environmental Officer will be appointed who will have responsibility for ensuring compliance with the EMP throughout the installation of the plant.	Sappi Enstra Management	Prior to construction
2	A step-by-step plan must be submitted by the contractor and approved by the Environmental Officer prior to the start of activities on site. It should cover all aspects of site establishment, installation and site disestablishment and describe how this EMP will be complied with.	Contractor	Prior to installation
3	Emergency action plans must be devised and approved by the Environmental Control Officer to deal with any risks identified, such as unplanned disruption of services.	Environmental Control Officer	Prior to installation
4	Internal audits (compliance to the EMP) of the site will be carried out throughout construction.	Environmental Control Officer	Annualy
5	A final audit of the site will be carried out once construction and site disestablishment are complete to ensure that all conditions of the contractor's EMP have been complied with before final sign-off is given to the contractor.	Design Engineer	Prior to installation
	Biodiversity		
6	Site clearance will be limited to the Recycling Plant footprint area.	Environmental Control Officer	Pre- installation
	Soils		
7	Contaminated soils due to spillage will be cleaned up and appropriately disposed of when and where they occur.	Environmental Control officer	Immediately after spillage occurred.
8	A spill prevention management plan will be implemented	Environmental Control	During installation

		Officer	and operation
9	Contaminated soils due to spillage will be cleaned up and appropriately disposed of when and where they occur.	Environmental Control officer	Immediately after spillage occurred.
	Surface Water		
10	Sufficient sanitation and ablution facilities are provided for construction workers and visitors.	Contractor	Prior to construction
11	Contaminated water will not be disposed of into watercourses unless treated to the satisfaction of DWA.	Environmental Control Officer	As required
12	Maintenance and/or servicing of vehicles will only take place in an area where spills and/or leaks can be contained and the material disposed of appropriately.	Contractor	As required
13	Daily monitoring of appropriate parameters in the discharge will be instituted to assess the performance of the plant. If an operational problem is identified that cannot be immediately rectified to bring the process back into compliance and an inadequately treated discharge will take place, The relevant Authorities will be informed as soon as practicable. Corrective actions will be taken immediately when monitoring results fall outside agreed limits. If the discharge is considered to pose a significant public health risk, local residents will immediately be warned not to utilise the river for any purpose.	Environmental Control Officer, Contractor	Daily
14	Inadequately treated effluent will be diverted back to the water treatment system or to containment tanks to provide emergency storage and prevent pollution of water resources. The effluent will be pumped back into the treatment process once any problems have been rectified.	Operator	As required
15	Surface water resources will be monitored at the designated sampling locations to assess if contamination is occurring. If a significant deterioration in water quality is established, this will be investigated and appropriate corrective action taken in consultation with the relevant Authorities.	Environmental Control Officer	Monthly
	Groundwater		
16	A Spill Prevention and Management Plan will be implemented	Environmental Control	Prior to installation

		Officer	and during operation
17	Ground water will be monitored at the designated boreholes to assess if contamination is occurring. If a significant deterioration in water quality is established, this will be investigated and appropriate corrective action taken in consultation with the relevant Authorities	Environmental Control Officer	Monthly for first year, then 6-monthly
18	Groundwater quality will be monitored as per the monitoring programme. If a significant deterioration in water quality is established, this will be investigated and appropriate corrective action taken in consultation with the relevant Authorities	Environmental Control Officer	As per monitoring programme
	Noise		
19	The Recycling Plant mechanical equipment will be designed to minimise noise.	Design Engineer	Prior to construction
20	Regular maintenance of construction equipment will be undertaken by the contractor to ensure it operates at its optimum to limit any unnecessary noise.	Environmental Control Officer/Contractor	Weekly
21	The construction activities will only take place during daylight working hours.	Environmental Control Officer/Contractor	Daily
22	Noise inspections will be carried out to ensure that noise levels are within acceptable levels of less than 85 dB	Environmental Control Officer	Weekly
	Air Quality		
23	Dust from areas affected by construction activities will be controlled.	Environmental Control Officer	During installation
	Waste Management		
24	No littering in the construction site, storage site or construction camp area will be allowed.	Contractor	Throughout installation and

			operation
25	Solid waste will be sorted and stored in covered bins or skips on a concrete slab in a fenced area until it is taken for disposal at a suitably permitted waste site. Proof of satisfactory disposal will be kept on-site.	Operator	Throughout installation and operation
26	Waste that cannot be recycled will be disposed of at an appropriate, registered waste site and the records will be included in the Millwide system.	Contractor	Throughout installation and operation
27	No solid waste will be burnt or buried on-site.	Contractor	Throughout installation and operation
28	Internal auditing of the EMP will be carried out throughout the life of the Recycling Plant .	Environmental Control Officer	Monthly
29	An audit of compliance with the requirements of the EMP and the RoD will be carried out by an independent auditor on an annual basis The findings of the independent auditor will be submitted to the relevant Authority	Environmental Control Officer	Annually
30	A manual will be developed for the site that specifies how the plant is to be operated, the operational monitoring programmes, as well as routine inspection and maintenance schedules for all plant, vehicles and other equipment. Records will be kept of all inspections, maintenance and monitoring and copies will be submitted to the EO on a monthly basis.	Operator	As required by manual.
31	Fencing and security control will be maintained to control unauthorised access to the site.	Site Manager	Throughout operational phase
32	Pipes and pumps will be inspected on a daily basis to check for any leaks/ malfunction and corrective action will be taken. If there is the potential for environmental impact, this will be reported to the Environmental Control Officer (EO).	Operator	Daily
33	Any flooding or leakage will be contained within concrete-lined channels and pumped into water treatment system.	Operator	As required

34	Debris and sand from the junk trap and holes screening will be removed and disposed of to an appropriate location to prevent windblown litter, odour nuisance and breeding of insects.	Operator	Daily
35	The junk trap and screens will be inspected regularly and maintenance carried out timeously to ensure optimal operation and minimum nuisance.	Operator	Daily throughout operation
36	Measures will be taken to control breeding of nuisance insects at the Recycling Plant.	Operator	Monthly
37	Personal protective equipment will be provided for all manual workers operating the Recycling Plant.	Operator	Throughout operation
38	Storm water control measures will be maintained to minimise the volumes of water entering the bale storage area.	Operator	Throughout operation
39	Recyclables including redundant piping and equipment is to be taken to the reclamation yard.	Operator	As required

5.5 Rehabilitation and Closure

The following management measures will be implemented during the closure and rehabilitation phase.

- A protocol will be developed and agreed with DEA and DWA for the disposal of any remaining contaminants (solid waste and sand, etc.) on the site;
- All buildings/ plant not required by the post-closure land owner will be demolished;
- Recycling contractors will be engaged to remove all material that can be reused. Any material that cannot be recycled will be disposed of to an appropriate registered waste site;
- Areas that have been cleared of buildings/ plant will be covered with at least 150 mm topsoil and replanted in accordance with the agreed post-closure land-use;
- Establishment of vegetation will be assisted through seeding, fertilization and watering, as necessary; and
- A programme for alien vegetation control will be developed and implemented. Once the post-closure landowner has taken control of the site, the programme will be handed over.

5.6 Emergency Procedures

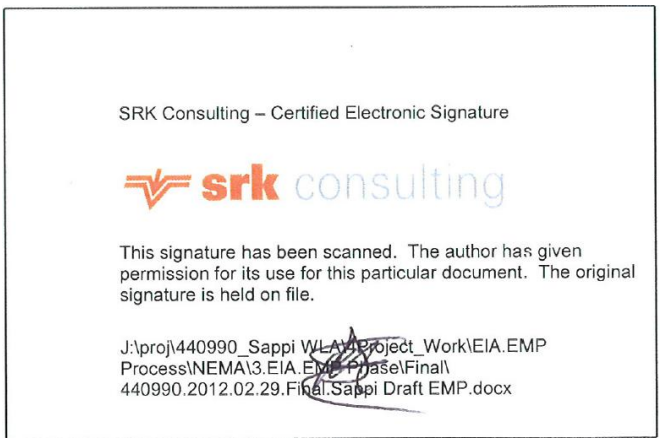
Emergency procedures will be developed to address the potential impact of unforeseen incidents at the site. These will include plans in case of:

- fire/explosion;
- spillage;
- power failure;
- flooding;
- blockages;
- toxic inflows;
- strikes; and
- vandalism.

5.7 Environmental Awareness Plan

Sappi has an existing Environmental Awareness Plan. Environmental training will be provided to all employees and sub-contractors to make them aware of the relevant sections of this specific EMP in addition to training on operation of the site and health and safety programmes.

Prepared by



Ian Minnaar

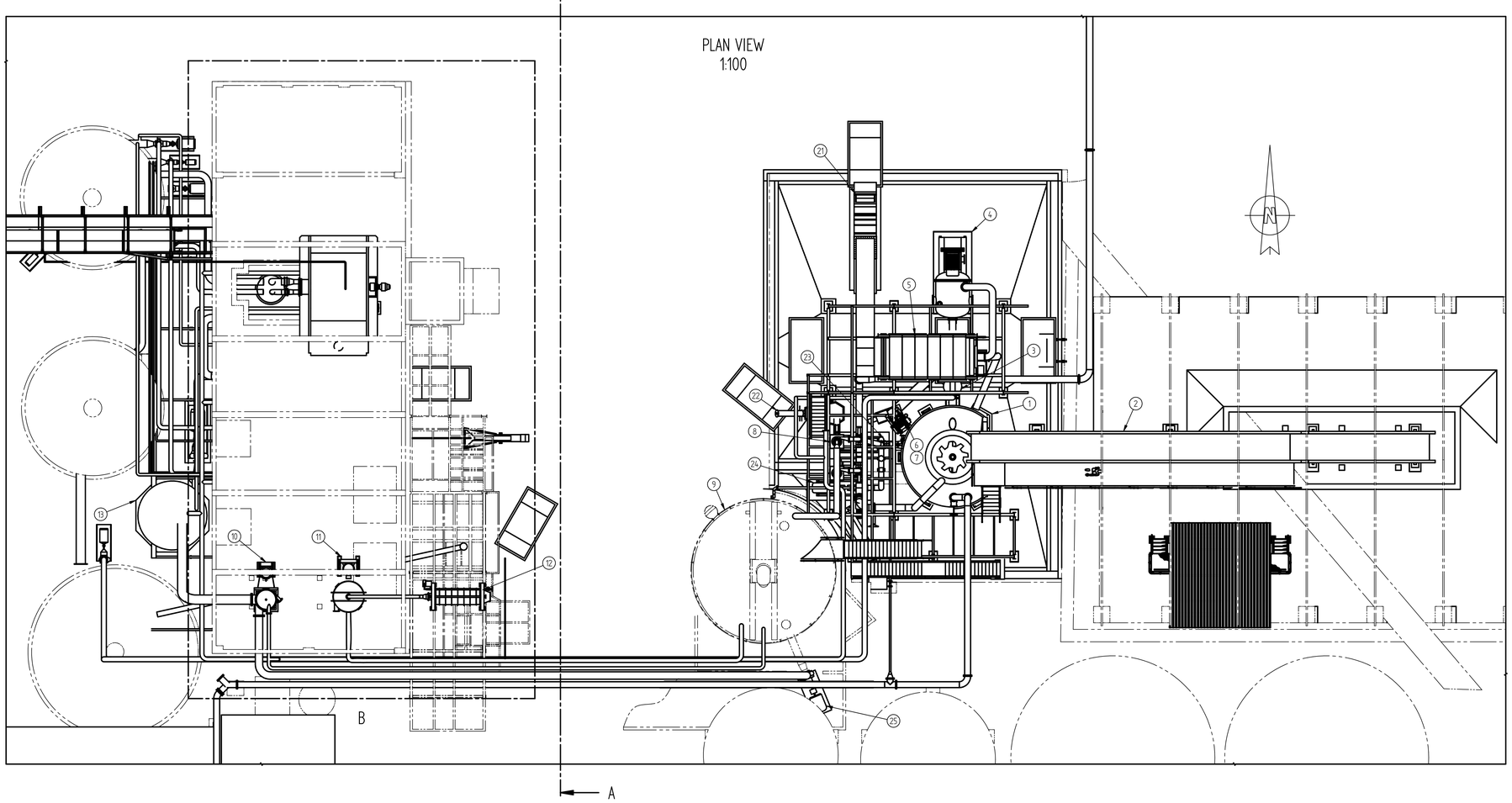
Reviewed by

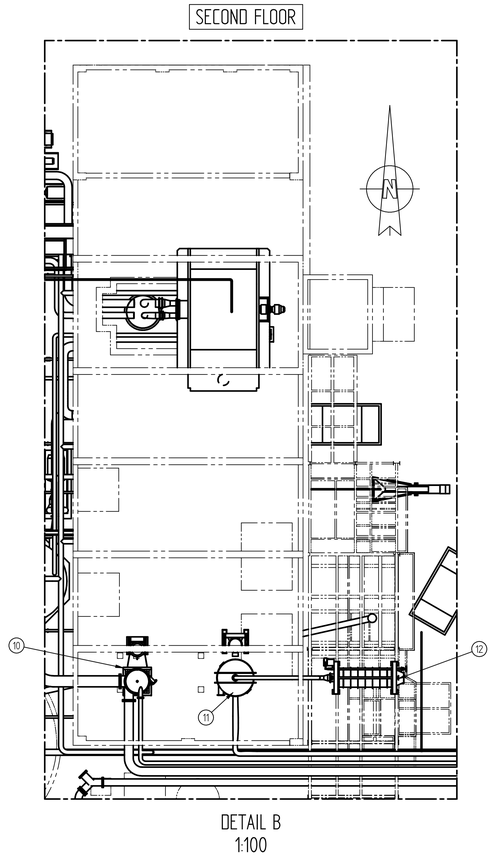
Dr Andrew Wood

All data used as source material plus the text, tables, figures, and attachments of this document have been reviewed and prepared in accordance with generally accepted professional engineering and environmental practices.

Appendices

Appendix A: Process Schematic





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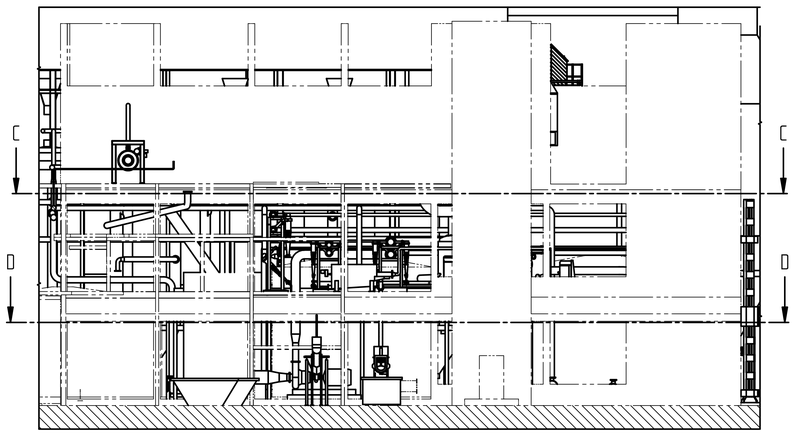

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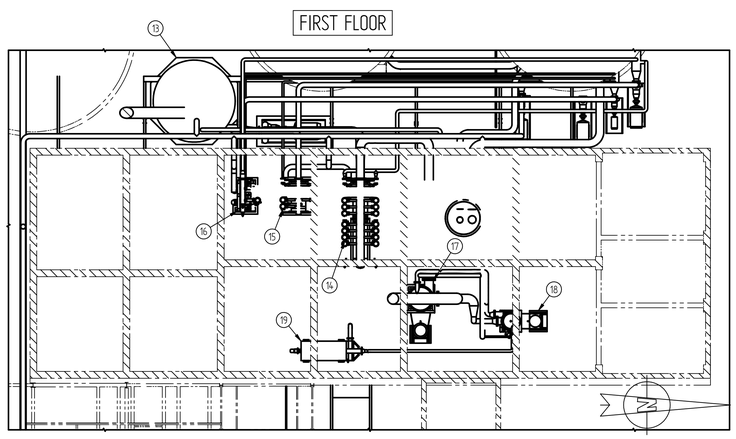

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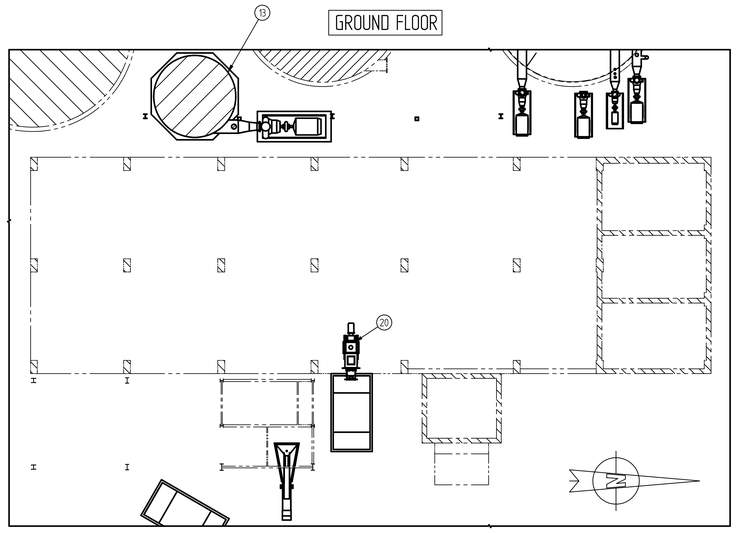

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PLANT EQUIPMENT LIST		
NR	DESCRIPTION	MODEL
1	HYDRA REPULPER	9DR
2	REPULPER CONVEYOR	
3	JUNK TRAP	JT1000
4	HYDRAPURGE	XVK42-5000
5	TROMMEL	ZST4A
6	RAGGER	M75
7	RAG ROPE CUTTER	100TC50
8	HD CLEANER	LIQUID CYCLONE - LC 14.5"
9	DUMP CHEST	
10	HOLE SCREENING - STAGE 1	UVK500
11	HOLE SCREENING - STAGE 2	FLOATPURGER - FPK150-34
12	DRUM	ZST1
13	CLEANERS FEED TANK	
14	CLEANER - STAGE 1	18CT60

PLANT EQUIPMENT LIST		
NR	DESCRIPTION	MODEL
15	CLEANER - STAGE 2	7CT60
16	CLEANER - STAGE 3	2CT108 & 2CT60DFR
17	1ST STAGE SCREEN	UVK500
18	2ND STAGE SCREEN	FNK200
19	ECOFILTER	IS2000
20	ECOREJECT	
21	COMPACTOR	IC22
22	SEPARSAND	SS600-25
23	REPULPER PUMP 1	PUMP - NPP53-250 MOTOR - 315M80 _ 95
24	REPULPER PUMP 2	PUMP - APP53-200 MOTOR - 355M100_125
25	DUMP CHEST	800M3/H
26	DISC FILTER	IDF DIA 5.2 - 7/8)

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sappi
Sappi Paper & Paper Packaging South Africa
Enstra Mill

SECTION: REPULPER & RCF

KADANT REPULPER & RCF PLANT GENERAL LAYOUT

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