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# Waste Management Licence for the Proposed Expansion to the Enstra Paper (Pty) Ltd Recycled Cellulose Fibre Plant Capacity

Report Prepared for

**Enstra Paper (Pty) Ltd**



**DFFE Reference Number: 12/9/11/L221121105326/3/N**

**Report Number 593224/Draft Basic Assessment Report**



Report Prepared by

 **srk** consulting

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**SRK Project Number 593224/Draft Basic Assessment Report**

**January 2023**

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# Executive Summary

## Introduction

Enstra Paper (Pty) Ltd (Enstra) recently acquired the Enstra Mill from Sappi and commenced operation at the Mill on 1 November 2015. The original Enstra Mill was commissioned in 1938 and became the first fully integrated pulp plant in a paper mill in South Africa.

Enstra Paper currently receives varying grade waste paper from a variety of waste paper suppliers, namely:

- K3 Waste Paper - Corrugated Kraft Waste consisting of new corrugated cuttings, sheets and unused boxes generated by corrugating convertors having liners of kraft or test liner; and,
- K4 Waste Paper - Kraft Grade Corrugated Containers consisting of corrugated containers having liners of kraft or test liner.

Waste paper is processed at the Enstra site through the Recovered Fibre Plant, referred to as the RCF Plant, to produce containerboard, kraft papers, printing and writing grades. Small quantities of bleached hardwood and softwood are bought in from various suppliers both local and international.

With three uniquely capable paper mills on site, Enstra is positioned to address the growing waste paper problem of the country and to respond to the growing consumer market demand for recycled waste. From the waste paper received Enstra produces high quality printing paper, security paper and packaging paper products for use throughout industry.

Enstra Paper were issued a Waste Management License (WML) in September 2021 (12/9/11/L21096110402/3/R) and now intends to expand the capacity of the waste paper recycling operations by a design basis of the order of 1000 bdt/day, for which they need to expand the current RCF capacity. The purpose of this application.

Enstra Paper continues to preferentially utilize treated sewage effluent from Ancor WaterCare Works, as alternative to potable water from Rand Water system, and has authorization to obtain treated sewage effluent from the Welgedatch WaterCare Works.

The proposed expansion of waste paper recycling capacity aligns with the National Waste Strategy of DFFE and the continued reuse of treated sewage effluent aligns with the National Water Strategy of DWS, and aligns with the National Energy Efficiency Campaign of DMRE, in being more energy efficient than the older waste paper recycling operations, and reducing electricity demand on Eskom.

The proposed expansion will include additional opportunities during the project execution and subsequent operation, both on-site and within the up-stream waste paper supply chain.

## Who is conducting the impact assessment and compiling the EMPr?

SRK Consulting South Africa (Pty) Ltd (SRK) has been appointed by Enstra to conduct the Basic Assessment Process (BAP) and compile the Basic Assessment Report (BAR) for the proposed expansion of Recycled Cellulose Fibre (RCF) Plant capacity in terms of Sections 21 – 25 and 59 of the National Environmental Management Act (Act No 107 of 1998) (NEMA), and the Stakeholder Engagement Process in accordance with General Notice Regulations (GNR) 982 printed in terms of the NEMA.

This BAR is provided for comment to registered Interested and Affected Parties (I&AP) prior to submission to the Competent Authorities for assessment and authorisation decision making.

## Who will evaluate the impact assessment and EMPr

The Department of Forestry, Fisheries and Environment (DFFE) have been identified as the Competent Authority for the Environmental Authorisation (EA).

Approval of the BAR and Environmental Management Programme (EMPr) is being sought from the DFFE prior to the implementation of the proposed RCF Plant capacity expansion. Following public involvement and inputs on the BAR, the BAR will be submitted to the DFFE, who will decide whether to authorise the listed activities associated with the proposed RCF Plant capacity expansion based on the final findings of the BAR and EMPr.

Various Organs of States will be consulted and taken into consideration, as appropriate, during the decision making process. Other legislation, guidelines and policies pertaining to the proposed RCF Plant capacity expansion whereby activities have been regulated, have been considered and taken into account. These include the National Water Act (Act No. 36 of 1998) (NWA), National Environmental Management: Waste Act (Act No. 59 of 2008) (NEM:WA), National Heritage Resources Act (Act No. 25 of 1999), and others.

## Description of the Proposed Development

In 2015 Sappi sold the Enstra Mill to the Corruseal Group and Enstra Paper Proprietary Limited has continued with the recycling of waste paper and is considered a leading producer of recycled wastepaper grades in the country. With two uniquely capable paper mills on site, Enstra is positioned to address the growing waste paper problem of the country and to respond to the growing consumer market demand for recycled waste. From the waste paper received Enstra produces high quality printing paper, security paper and packaging paper products for use throughout industry.

Enstra Paper were issued a Waste Licence in September 2021 (12/9/11/L210906110402/3/R) and now intends to increase the capacity of the waste paper recycling operations to a design basis of 1000 bdt/day.

Enstra Paper continues to preferentially utilize treated sewage effluent from Ancor Water Care Works, as alternative to potable water from Rand Water system, and has authorization to obtain treated sewage effluent from the Welgedacht Water Care Works.

The proposed expansion of waste paper recycling capacity aligns with the National Waste Strategy of DFFE and the continued reuse of treated sewage effluent aligns with the National Water Strategy of the Department of Water and Sanitation (DWS), and aligns with the National Energy Efficiency Campaign of the Department of Mineral Resource and Energy (DMRE), in being more energy efficient than the older waste paper recycling operations, and reducing electricity demand on Eskom.

The proposed expansion will include additional opportunities during the project execution and subsequent operation, both on-site and within the up-stream waste paper supply chain.

## Project Need and Desirability

The proposed expansion of waste paper recycling capacity aligns with the National Waste Strategy of DFFE through the increased recycling of waste. The continued reuse of treated sewage effluent aligns with the National Water Strategy of DWS, and aligns with the National Energy Efficiency Campaign of DMRE, in being more energy efficient than the older waste paper recycling operations, and reducing electricity demand on Eskom. The proposed project also supports the Strategic Development Plan of Ekurhuleni Municipality and the Springs Strategic Economic Zone.

The proposed expansion will include additional employment opportunities during the project execution and subsequent operation, both on-site and within the up-stream waste paper supply chain.

The National Waste Management Strategy has the concept of the “circular economy” at its centre. The circular economy is an approach to minimising the environmental impact of economic activity by reusing and recycling processed materials to minimise:

- (a) the need to extract raw materials from the environment; and
- (b) the need to dispose of waste.

The circular economy is built on innovation and the adoption of new approaches and techniques in product design, production, packaging and use – industrial symbiosis, for instance, is a way of preventing waste in industrial production by redirecting waste from one production process to serve as raw materials for another production process.

The National Strategy has made mention that diverting waste from landfill is a key imperative for the country’s waste strategy. South Africa’s strategy for diversion of waste from landfill is based on building a secondary resources economy around the beneficiation of waste as part of the circular economy. This is through among others, the recycling of paper, glass, plastics, metals, tyres, power generation waste, waste oils, pesticides, batteries, lighting equipment, and recovery of construction and demolition waste to substitute recycled content for virgin materials (DFFE, 2020).

While South Africa has made progress in relation to recycling paper, plastic, glass and metals there is still substantial scope to increase recycling rates. The strategy has identified the lack of recycling infrastructure as a challenge in reducing waste sent to landfill (DFFE, 2020).

The proposed RCF plant plans to aim to address these challenges and outcomes identified in the National Waste Management Strategy.

## **Alternatives Considered**

The proposed project has a large positive impact on affected communities and the water and forest resources by increasing the recycling of waste paper rather than the use of trees, improving the efficiency of water use in the operations, and by continuing to utilize treated sewage effluent as the primary raw water source rather than fresh water resources.

Enstra Paper has investigated alternative technologies to increase the waste paper recycling capacity and efficiency and has selected the option offered by VOITH a leading Global Paper Recycling technology supplier.

Enstra Paper has investigated alternative locations for the Recycled Fibre Plant within the footprint area of the existing Enstra Paper site and has confirmed that the best location is within an existing hard-standing paper storage area, immediately adjacent to the bulk waste paper storage area and feed to the paper machines and aligned with the current RCF Plant.

Location alternatives have been considered, but the location of the RCF Plant is determined by existing infrastructure, and ease of feed to the paper machines.

As the Enstra operations are established, and operate two paper machines, external locations are deemed unfeasible. Enstra does not have alternative external property available for the establishment of a new RCF Plant elsewhere off-site.

## **Environmental Assessment Process**

The Environmental Impact Assessment (EIA) seeks to identify the potential impacts of the proposed expansion of the RCF Plant capacity from the planning phase and helps to ensure that the project, over its life cycle, will be environmentally sustainable. Activities undertaken during the Basic Assessment Process (BAP) are detailed in this report and the findings and recommendations for mitigation and management of identified impacts incorporated into the EMPr.

Two parallel processes were followed during the BAR and EMPr Phase of this project. These include an EIA and the Stakeholder Engagement Process.

## Environmental Technical Process

Activities undertaken during the BAR Phase as part of the environmental technical process included:

- Project meetings between the client and SRK;
- Identification of information needs in respect to the proposed expansion of the RCF Plant capacity and assessment of potential environmental impacts;
- Collation of technical information in respect to the proposed expansion of the RCF Plant capacity and assessment of potential environmental impacts;
- Review of background information for the proposed expansion of the RCF Plant capacity;
- Consultation with the DFFE;
- Assessment of potential environmental impacts and review of proposed mitigation and management measures to prevent or minimise potential impacts;
- Preparation of the BAR and EMPr.

## Stakeholder Engagement Process

Stakeholder Engagement was undertaken as part of this process, as per the requirements of the Authorities and EIA regulations. The proposed expansion of the RCF Plant capacity was advertised in the Springs Advertiser newspaper during the BAP review period of the project on 12 January 2023. The public was invited to comment on the proposed expansion of the RCF Plant capacity through the placement of site notices as listed in Table ES-1. The public was invited to register as I&APs.

**Table ES-1: Location of site notices**

No	Description	Coordinates	
		Longitude	Latitude
1	Entrance to Enstra		
2	Springs Public Library		

The BAR has been made available for public review for a period of thirty days (30) from 13 January to 13 February 2023, for I&APs and Organs of State. Hard copies of the BAR have been placed in the Springs Public Library, Enstra Security entrance, and on the SRK website (<http://www.srk.co.za/en/library/za-public-documents>).

Following the 30 day commenting period, all comments received from registered I&APs will be collated into a BAR prior to submission to the DFFE for a decision.

## Process for the Remainder of the Study

The following activities will still be undertaken during finalisation of the application for authorisation:

- Incorporation of comments received from the public and other stakeholders and commenting authorities into the BAR;
- Submission of the BAR to the DFFE; and
- Authorities' decision about the project. After review of the BAR, the DFFE will issue a decision. The decision will be communicated to stakeholders in writing and through advertisements in one local newspaper, and will be notified on the timeframes and process to appeal the decision.

The project decision-making process should ensure that affected parties' inputs are being considered.

## Summary of Key Environmental Impacts

Concerns and issues regarding the expansion of the RCF Plant capacity were assessed based upon information provided by the client, specialist reports, previous applications submitted for Enstra. and specialists consulted for information clarification and guidance. Table ES–2 illustrates the environmental impacts that have been identified during the Impact Assessment Phase of the proposed expansion of the RCF Plant capacity.

The proposed expansion of the RCF Plant capacity has been assessed. Greater benefits are identified and limited negative environmental impacts have been identified. The identified negative impacts can be mitigated and managed to an acceptable level. The identified positive impacts identified are long term and in alignment with the National Waste Management Strategy of South Africa.

**Table ES–2: Potential environmental impacts and ratings associated with the proposed expansion of the RCF Plant capacity**

Phase	Potential Impact	Significance Rating	
		Before Mitigation	After Mitigation
Construction	Positive impact on the possible temporary job opportunities during expansion of the RCF plant capacity	Low	Medium Low
	Localized and temporary negative impact of safety of contractors and Enstra Employees as a result of construction activities	Medium Low	Low
	Contamination of surface water, groundwater and land resources due to the incorrect storage/leakage/spillage of chemicals, hydrocarbons or any other hazardous substances/materials used during the expansion of the RCF plant capacity.	Medium Low	Low
	Impact on surface water, groundwater and land quality as a result of accidental spillages of hazardous substances from construction vehicles used during project activities , as well as from hazardous storage areas	Medium Low	Low
	Contamination of surface water, groundwater and land resources due to polluted runoff due to poor materials/waste handling practices during the expansion of the RCF Plant capacity.	Medium Low	Low

Phase	Potential Impact	Significance Rating	
		Before Mitigation	After Mitigation
	Possible impact on the surrounding environment as a result of waste generation, incorrect waste disposal (general and hazardous), and housekeeping on the site requiring care and attention.	Medium Low	Low
	Increased employment opportunities for local residents and service providers.	Medium Low	Low
<b>Operation</b>	Positive impact of recycling additional waste paper otherwise destined for landfill disposal and littering	Medium Low	Medium Low
	Positive impact of increased permanent employment at Enstra and secondary economic benefits to the local communities and supporting businesses	Medium Low	Medium Low
	Positive impact in preserving forests otherwise destined for paper production	Low	Medium High
	Positive impact on reduced importation of paper products and beneficial use of national resources	Low	Medium High
	Impact on surface water resources as a result of increased wash water and dirty stormwater runoff from the site.	Medium High	Low
	Impact on surface water resources as a result of inefficient operation and operation over designed capacity of the WWTP	Medium Low	Low
	Positive impacts as a result of increased waste paper recycling, ultimately reducing waste sent to landfills	Medium Low	Medium High
	Negative impact as a result of insufficient landfill capacity to receive the increase in waste generated.	Medium High	Medium Low
	Positive impact on waste minimisation in the country.	Low	Medium High
	<b>Decommissioning</b>	Positive impact on the possible temporary increase in job opportunities during decommissioning phase of the RCF plant.	Low
Localized and temporary negative impact of safety as a result of decommissioning activities		Medium Low	Low
Possible impact on the surrounding environment as a result of waste generation, incorrect waste disposal (general and hazardous), and housekeeping on the construction site requiring care and attention		Medium Low	Low
Collection of waste from redundant material disposed of to landfill. This will ultimately result in the reduced air space of licenced landfill sited with material that can possible be reused or recycled		Medium Low	Low



## Environmental Management Program

SRK has compiled an EMPr for the proposed expansion of the RCF Plant capacity. The EMPr specifies the control and mitigation measures that are recommended in order to effectively manage the identified biophysical and social impacts resulting from the proposed expansion of the RCF Plant capacity.

Monitoring and assigned responsibilities are also stipulated in the EMPr for environmental aspects that could possibly give rise to environmental impacts. The EMPr together with the BAR has been made available for public comment and will subsequently be amended to incorporate any issues identified by I&APs or stakeholders.

## No – Go Alternative

The No-Go alternative would negatively affect the sustainability of the Enstra operations and would negatively inhibit the ability to recycle waste paper in South Africa, negatively affecting the supply-chain employment and economic opportunities and increase the least preferred option of on-going waste disposal to landfill.

## Authorisation Opinion

The implementation of the RCF Plant will increase the waste paper recycling capabilities of Enstra. This is ultimately in line with the National Waste Management Strategy of South Africa. The National Waste Management Strategy has recognised the lack of recycling infrastructure as a challenge to recycling, what the RCF Plant plans to address locally.

Environmental impacts arising from the expansion of the RCF Plant capacity are primarily positive, and where negative impacts are identified, these have very low significance and can be effectively managed and mitigated subject to the effective implementation of the EMPr.

The impacts identified are mainly related to the construction phase, which are temporary in nature. Once operation has commenced, the plant will operate as per the existing philosophy. Any impacts identified during this phase are of limited significance and can be managed.

It can be concluded that the proposed expansion of RCF Plant capacity will comply with the principles of the NEMA, which embraces sustainability. The Stakeholder Engagement will be undertaken as per NEMA and the EIA Regulations of 2014 and it is believed that stakeholders will be provided with sufficient time to raise any comments or concerns, and those that have been raised will be adequately addressed. It is the opinion of the EAP that the proposed RCF Plant is the Best Practical Environmental Option to reach the objectives of the project.

Department. It is thus the opinion of the EAP that the project should be authorised with no specific additional conditions, apart from the adherence to the EMPr.

## Recommendations

Once DFFE has reviewed the BAR, they will need to determine whether the proposed expansion of the RCF Plant capacity may be undertaken and whether there is sufficient knowledge and information pertaining to the proposed expansion of the RCF Plant capacity available so that a decision can be made. Following the decision made by the Competent Authorities, a positive or negative EA will be issued detailing the reason therefor and any conditions applicable to the proposed expansion of the RCF Plant capacity. This decision will be communicated to the I&APs, stipulating the period available to appeal the decision in terms of the NEMA.

Should the BAR and EMPr be approved, SRK advocate that the following recommendations summarised below be considered and adhered to:

- Where relevant, the mitigation measures as suggested in the EMPr should be implemented during all phases of the proposed expansion of the RCF Plant capacity;
- The approved EMPr should be implemented and audited by Enstra to ensure compliance. This may be incorporated into Enstra's existing auditing and monitoring procedures.

## Way Forward

The BAR (this document) is available for viewing at the following venues from 13 January to 13 February 2023:

- Enstra Paper Security Entrance;
- Springs Municipal Library;
- SRK Website (<http://www.srk.co.za/en/library/za-public-documents>) .

In addition, digital copies of the report without appendices may be emailed to I&APs on request.

# Table of Contents

Executive Summary .....	ii
Disclaimer.....	xvi
List of Abbreviations.....	xvii
<b>1 Introduction .....</b>	<b>1</b>
1.1 Background.....	1
1.2 Purpose of this Study.....	2
1.3 The Objectives of this Report.....	2
1.4 Report Index in Relation to the NEMA Regulations.....	3
1.5 Contact Details.....	6
1.5.1 Applicant.....	6
1.5.2 Environmental Assessment Practitioner .....	6
1.5.3 Competent Authority Details .....	7
1.5.4 Municipality and Ward Details.....	7
1.6 Waste Management Licence Application Process.....	1
<b>2 Project Description.....</b>	<b>1</b>
2.1 RCF Plant Operation.....	2
2.1.1 Coarse Screening.....	2
2.1.2 Holes Screening .....	3
2.1.3 Fractionating and Cleaning .....	3
2.1.4 Slotted Screens .....	3
2.1.5 Thickening, Storage and Transfer.....	3
<b>3 Alternatives Considered .....</b>	<b>5</b>
3.1 No – Go Alternative.....	5
<b>4 Location of the Proposed Activity .....</b>	<b>5</b>
<b>5 Legal and Policy Framework .....</b>	<b>8</b>
5.1 The Constitution of the Republic of South Africa .....	8
5.2 National Environmental Management Act (107 of 1998).....	8
5.2.1 EIA Regulations (GNR 982).....	9
5.3 National Environmental Management: Waste Act (Act No. 59 of 2008).....	9
5.4 National Environmental Management: Air Quality Act (Act No. 39 of 2004) .....	10
5.5 National Heritage Resources Act (Act No. 25 of 1999) .....	10
5.6 National Water Act (Act No. 36 of 1998).....	11
5.7 National Environmental Management: Biodiversity Act (Act No. 10 of 2004) .....	11
5.8 Promotion of Access to Information Act (Act No. 2 of 2000) .....	12
5.9 Conservation of Agricultural Resources Act (Act No. 43 of 1983).....	12
5.10 Provincial and Municipal Bylaws.....	12
5.11 Guidelines .....	12

<b>6 Stakeholder Engagement Process.....</b>	<b>13</b>
6.1 Stakeholder Identification: Interested and Affected Parties.....	15
6.2 Confirmation of Land Claims.....	17
6.3 Project Announcement.....	17
6.3.1 Distribution of Notification Letters .....	17
6.3.2 Site Notice Placements .....	17
6.3.3 Newspaper Advertisements .....	17
6.4 Public Review of the Draft Basic Assessment Report .....	17
6.5 Key Comments Received .....	18
6.6 Comments and Response Report.....	18
<b>7 Need and Desirability of the Proposed Project.....</b>	<b>18</b>
<b>8 Description of the Baseline Environment .....</b>	<b>19</b>
8.1 Climate .....	19
8.1.1 Regional Climate Rainfall.....	19
8.1.2 Evaporation .....	20
8.2 Topography .....	21
8.3 Soils and Land-Use.....	21
8.4 Land Capability .....	21
8.5 Air Quality.....	21
8.6 Surface Water .....	21
8.6.1 Water Management Area .....	21
8.6.2 Surface Water Hydrology .....	21
8.6.3 Flood Risk .....	25
8.6.4 Surface Water Quality .....	25
8.6.5 Mean Annual Runoff.....	25
8.6.6 Resource Class and River Health receiving Water Quality Objectives and Reserve .....	26
Groundwater Resource Class and the Reserve .....	26
Surface Resource Quality Objectives .....	28
8.7 Surface Water User Survey .....	29
8.8 Wetlands .....	29
8.9 Biodiversity.....	32
8.10 Geohydrology.....	34
8.10.1 Regional Groundwater .....	34
8.10.2 Local Groundwater Quality.....	35
8.10.3 Aquifer Characterisation.....	36
8.10.4 Hydrocensus .....	37
8.11 Potential Pollution Source Identification .....	39
8.12 Archaeological Status of the Site .....	39
8.13 Visual	39
8.14 Noise	39
8.15 Socio – Economical Environment .....	39

8.15.1 Regional Context.....	39
8.15.2 Local Context .....	40
<b>9 Specialist Studies.....</b>	<b>41</b>
<b>10 Environmental Impact Assessment.....</b>	<b>41</b>
10.1 Impact Assessment Methodology .....	41
10.1.1 Baseline Characterisation of the Environment.....	41
10.1.2 Identification of Key Issues .....	42
10.1.3 Quantitative Impact Rating (Significance).....	42
10.2 Summary of Identified Possible Impacts.....	44
<b>11 Assessment of Environmental Impacts.....</b>	<b>44</b>
11.1 Potential Environmental Issues Identified for the Project .....	45
11.2 Pre Construction and Construction Phase.....	45
11.2.1 Socio Economic.....	46
11.2.2 Groundwater.....	46
11.2.3 Surface Water and Wetlands .....	47
11.2.4 Air Quality and Climate Change.....	47
11.2.5 Noise .....	47
11.2.6 Visual.....	47
11.2.7 Soils, Land Use and Land Capability .....	47
11.2.8 Biodiversity .....	48
11.2.9 Heritage.....	48
11.2.10 Traffic .....	48
11.2.11 Waste .....	48
11.3 Operational Phase .....	53
11.3.1 Socio Economic.....	53
11.3.2 Groundwater.....	53
11.3.3 Surface Water and Wetlands .....	53
11.3.4 Biodiversity .....	53
11.3.5 Soils Land Use and Land Capability .....	54
11.3.6 Noise .....	54
11.3.7 Waste Management .....	54
11.4 Decommissioning Phase .....	57
11.4.1 Socio Economic.....	57
11.4.2 Groundwater.....	57
11.4.3 Surface Water .....	57
11.4.4 Air Quality.....	57
11.4.5 Noise .....	57
11.4.6 Soils Land Use and Land Capability .....	57
11.4.7 Waste .....	58
11.5 Cumulative Impacts.....	63

<b>12 Summary of the Findings of the Specialist Studies .....</b>	<b>63</b>
<b>13 Opinion and Conditions on Authorisation .....</b>	<b>63</b>
<b>14 Environmental Impact Statement.....</b>	<b>63</b>
<b>15 Assumptions, uncertainties and gaps in knowledge .....</b>	<b>64</b>
<b>16 Environmental Objectives of the Proposed RCF Plant .....</b>	<b>65</b>
<b>17 Undertaking of Oath by the EAP .....</b>	<b>65</b>
<b>18 Conclusion and Recommendations.....</b>	<b>66</b>
<b>19 Way Forward.....</b>	<b>66</b>
<b>21 Bibliography .....</b>	<b>68</b>
<b>Appendices .....</b>	<b>69</b>
<b>Appendix A: Project Team CV and Registrations.....</b>	<b>70</b>
<b>Appendix B: Environmental Management Programme .....</b>	<b>71</b>
<b>Appendix C: Stakeholder Engagement Documentation .....</b>	<b>72</b>
<b>Appendix D: Facility Illustration and Photographs .....</b>	<b>73</b>
<b>Appendix E: DFFE Acceptance Letter .....</b>	<b>74</b>
<b>Appendix F: Land Claims Letter.....</b>	<b>75</b>

## List of Tables

Table 1-1: Requirements of Appendix 1 of GNR 982.....	3
Table 1-2: Applicant Contact Details .....	6
Table 1-3: Details of the Project Team .....	6
Table 1-4: Competent Authority Details.....	7
Table 1-5: Local and District Municipality Details .....	7
Table 4-1: List of Affected Farms and Farm Portions Illustrating the Relevant Activities .....	5
Table 4-2: Farm portion and site coordinates.....	5
Table 5-1: NEM: WA Listed Activities Triggered by the proposed project .....	10
Table 6-1: List of Affected Farm and Farm Portions .....	15
Table 6-2: List of Adjacent Farms and Farm Portions.....	15
Table 6-3: Site Notice Location and Coordinates .....	17
Table 6-4: Newspaper Advertisements .....	17
Table 6-5: List of places the Draft BAR will be placed for public review .....	18
Table 8-1: Climatic Information – Quarterly Catchment C21D (WRC, 2012).....	19
Table 8-2: Monthly rainfall distribution.....	19
Table 8-3: Monthly Averages of S-Pan Evaporation (WRC, 2012) .....	20
Table 8-4: Surface monitoring points and frequency.....	25
Table 8-5: Resource Quality Objectives (GN 610, 2015).....	26
Table 8-6: Resource Unit 62 Quality Objectives (GN 610, 2015) .....	28
Table 8-7: Upstream and Downstream Key Water Users (WARMS, 2016).....	29
Table 8-8: Description of Map Categories .....	32
Table 8-9: Quantity component of the Reserve.....	34
Table 8-10: Quantity Component of the Groundwater Reserve for C21 (DWA/WRC, 2013) .....	34
Table 8-11: Quantity Component of the Groundwater Reserve for all C21 Quaternaries .....	37
Table 8-12: Summary of Groundwater Use in the C21 Tertiary.....	37
Table 8-13: Hydrocensus Borehole Sampling (Golder 2013).....	38
Table 8-14: Key Population Statistics for Gauteng.....	40
Table 8-15: Population groups of the Ekurhuleni Metropolitan Municipality .....	40
Table 8-16: Household Services for the Ekurhuleni Metropolitan Municipality .....	41
Table 10-1: Criteria for Assessing Significance of Impacts .....	43
Table 10-2: Interpretation of Impact Rating .....	44
Table 10-3: Summary of Potential Environmental Impacts Associated with the Proposed Development .....	44
Table 11-1: Impact assessment of the identified impacts arising during the construction phase .....	49
Table 11-2: Impact assessment of the identified impacts arising during the operational phase.....	55
Table 11-3: : Impact assessment of the identified impacts arising during the decommissioning phase.....	59

## List of Figures

Figure 1-1: Relevant District Municipalities relevant to the proposed project .....	8
Figure 1-2: Overview the Basic Assessment Process.....	1
Figure 2-1: Schematic of the RCF plant operation .....	4
Figure 4-1: Layout Plan and Affected Farm Portion .....	7
Figure 6-1: Summary of the Stakeholder Engagement Process followed.....	14
Figure 6-2: Adjacent farm portions .....	16
Figure 8-1: Average Monthly Rainfall (WRC, 2012) (mm).....	20
Figure 8-2: Average Monthly Evaporation (WRC, 2012) (mm) .....	20
Figure 8-3: Quaternary Catchments .....	23
Figure 8-4: Enstra Water Balance .....	24
Figure 8-5: Average Naturalised Runoff (mcm).....	25
Figure 8-6: Groundwater Resource Units in the Upper Vaal WMA.....	27
Figure 8-7: NEFAPA Wetlands in relation to the Enstra operations.....	31
Figure 8-8: ESA and CBA.....	33



## Disclaimer

The opinions expressed in this Report have been based on the information supplied to SRK Consulting (South Africa) (Pty) Ltd (SRK) by Enstra Paper (Pty) Ltd (Enstra). The opinions in this Report are provided in response to a specific request from Enstra to do so. SRK has exercised all due care in reviewing the supplied information. Whilst SRK has compared key supplied data with expected values, the accuracy of the results and conclusions from the review are entirely reliant on the accuracy and completeness of the supplied data. SRK does not accept responsibility for any errors or omissions in the supplied information and does not accept any consequential liability arising from commercial decisions or actions resulting from them. Opinions presented in this report apply to the site conditions and features as they existed at the time of SRK's investigations, and those reasonably foreseeable. These opinions do not necessarily apply to conditions and features that may arise after the date of this Report, about which SRK had no prior knowledge nor had the opportunity to evaluate.

## List of Abbreviations

amsl	Above Mean Sea Level
BAP	Basic Assessment Process
BAR	Basic Assessment Report
CARA	Conservation of Agricultural Resources Act (No. 43 of 1983)
CRR	Comments and Response Report
DEAT	Department of Environmental Affairs and Tourism
DFFE	Department of Forestry, Fisheries and Environment
DMRE	Department of Mineral Resource and Energy
DWS	Department of Water and Sanitation
EA	Environmental Authorisation
EAP	Environmental Assessment Practitioner
EIA	Environmental Impact Assessment
EMPr	Environmental Management Programme
Enstra	Enstra Paper (Pty) Ltd
GBCP	Gauteng Biodiversity Conservation Plan
GDP	Gross Domestic Product
GIS	Geographic Information System
GRU	Groundwater Resource Units
GWRD	Groundwater Reserve Determination
HI	Habitat Integrity
HIA	Heritage Impact Assessment
I&AP	Interested and Affected Parties
IDP	Integrated Development Plan
IWWMP	Integrated Water and Waste Management Plan
MAE	Mean Annual Evaporation
MAP	Mean Annual Precipitation
MAR	Mean Annual Runoff
NEM:AQA	National Environmental Management: Air Quality Act (Act No. 39 of 2004)
NEM:BA	National Environmental Management: Biodiversity Act (Act No. 10 of 2004)
NEM:WA	National Environmental Management: Waste Act (Act No. 59 of 2008)
NEMA	National Environmental Management Act (Act No 107 of 1998)
NFEPA	National Freshwater Ecosystem Priority Areas
NGA	National Groundwater Archive
NHRA	National Heritage Resources Act (Act No. 25 of 1999)
NWA	National Water Act (Act No. 36 of 1998)
PAIA	Promotion of Access to Information Act (Act No. 2 of 2000)
PES	Present Ecological State
PPP	Public Participation Process
RCF	Recycled Cellulose Fibre
RQO	Resource Quality Objectives
SAHRA	South African National Heritage Resources Agency
SANBI	South African National Biodiversity Institute
SRK	SRK Consulting South Africa (Pty) Ltd
VOC	Volatile Organic Compounds

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WARMS	Water Use Authorisation and Registration Management System
WMA	Water Management Area
WML	Waste Management License
WUL	Water Use Licence
WWTP	Waste Water Treatment Plant

# 1 Introduction

The Enstra Mill was commissioned in 1938 and became the first fully integrated pulp plant in a paper mill in South Africa. In 1970 the Mill gained an international reputation for the development and patenting of the oxygen bleaching process, a world first which is not an industry standard. This process laid the foundation for the development of elemental chlorine-free pulp used in making white paper. In 1975 an expansion to machine pulping and bleaching occurred. In 1996 there was a major expansion of Paper Machine 6 to increase the annual paper production capacity from 73 000 tons to 118 000 tons. This expansion enhanced the paper quality by improving fibre alignment and in turn increasing paper stability.

Enstra Paper receives varying grade waste paper from a variety of waste paper recyclers, namely:

- K3 Waste Paper - New Corrugated Kraft Waste consisting of new corrugated cuttings, sheets and unused boxes generated by corrugating convertors having liners of kraft or test liner; and,
- K4 Waste Paper - Kraft Grade Corrugated Containers consisting of corrugated containers having liners of kraft or test liner.

Waste paper is processed at the Mill through the Recovered Fibre Plant to produce containerboard, kraft papers, printing and writing grades. Bleached hardwood and softwood are bought in from various suppliers both local and international. Enstra Paper (Pty) Ltd (Enstra) recently acquired the Enstra Mill from Sappi and commenced operation at the Mill on 1 November 2015. The Enstra Mill will continue to manufacture recycled and lightweight packaging paper.

## 1.1 Background

Enstra Paper currently has one Water Use Licence (WULs) Licence Number 08/C21D/CGIBF/8710 (issued on 17 July 2019) and an Integrated Water and Waste Management Plan (IWWMP) update of 2021 that describes the water uses by Enstra Paper and the IWWMP for the site.

Enstra dates back to 1936 when both straw and wood arrived at the mill site by rail and were stored in a special park beyond the pulping section. Water was supplied to the mill with water pumped from Geduld mine.

The Enstra Paper Mill continued in operation, becoming one of The Sappi Paper and Paper Packaging (Sappi) operations until 2012 when Sappi chose to mothball the pulp mill and to revert to only undertaking the Recycling of Waste Paper, reliant on bought-in pulp of various grades to ensure that sufficient pulp was supplied to the paper machines.

In 2012 Sappi undertook a Basic Assessment Process (BAP) and were issued with a Waste Management Licence (WML) for the storage and recycling waste through procuring paper waste from local suppliers and repulping it in order produce waste-grade recycled paper.

In 2015 Sappi sold the Enstra Mill to the Corroseal Group and Enstra has continued with the recycling of waste paper and is considered a leading producer of recycled wastepaper grades in the country.

With uniquely capable paper mills on site, Enstra is positioned to address the growing waste paper problem of the country and to respond to the growing consumer market demand for recycled waste. From the waste paper received Enstra produces high quality printing paper, security paper and packaging paper products for use throughout industry.

Enstra Paper were issued a WML in September 2021 (12/9/11/L21096110402/3/R) and now intends to expand the capacity of the waste paper recycling operations by a design basis of 1000 bdt/day (30 000 bdt/month).

Enstra Paper continues to preferentially utilize treated sewage effluent from Ancor WaterCare Works, as alternative to potable water from Rand Water system, and has authorization to obtain treated sewage effluent from the Welgedatcht WaterCare Works.

The proposed expansion of waste paper recycling capacity aligns with the National Waste Management Strategy of the Department of Forestry and Fisheries (DFFE) and the continued reuse of treated sewage effluent aligns with the National Water Strategy of the Department of Water and Sanitation (DWS), and aligns with the National Energy Efficiency Campaign of the Department of Mineral Resources and Energy (DMRE), in being more energy efficient than the older waste paper recycling operations, and reducing electricity demand on Eskom. The proposed project also supports the Strategic Development Plan of Ekurhuleni Municipality and the Springs Strategic Economic Zone.

The proposed expansion will include additional opportunities during the project execution and subsequent operation, both on-site and within the up-stream waste paper supply chain.

## 1.2 Purpose of this Study

An Environmental Impact Assessment (EIA) is defined as the process of identifying, predicting, evaluating and mitigating the biophysical, social, and other relevant effects of development proposals prior to major decisions being taken and commitments made. The aim of an EIA is to prevent substantial damage to the environment. The objectives of this study are:

- To comply with the requirements of the National Environmental Management Act (Act No 107 of 1998) (NEMA) and the National Environmental Management: Waste Act (Act No 59 of 2008) (NEM: WA) and associated Regulations;
- Identify and assess the environmental (biophysical, socio-economic, and cultural) impacts of activities associated with decommissioning and closure of the cement-ash mixing plant. The cumulative impacts of the proposed development will also be identified and evaluated;
- Identify and evaluate potential management and mitigation measures that will reduce the possible negative impacts of the proposed development and enhance the positive impacts;
- Compile monitoring, management, mitigation and training needs in the Environmental Management Programme (EMPr); and
- Provide the decision-making authorities with sufficient and accurate information in order to make a sound decision on the proposed development and set conditions that must be adhered to.

Since the proposed project triggers activities listed in Category A of the NEM: WA, a BAP will be required.

## 1.3 The Objectives of this Report

This Basic Assessment Report (BAR) was compiled with the aim to document the BAP that was conducted for the project. The Draft BAR will be made available to stakeholders for their comments. All comments received will be considered and incorporated into a Final BAR that will be submitted to the DFFE for decision making.

## 1.4 Report Index in Relation to the NEMA Regulations

Regulation 2, Appendix 1 of General Notice Regulation (GNR) 982 published in terms of NEMA stipulates the minimal requirements and issues that need to be addressed in the BAR. This report strives to address all these requirements as per regulations. Table 1-1 indicates the regulations that have been addressed and the section of the BAR where these requirements can be found.

**Table 1-1: Requirements of Appendix 1 of GNR 982**

Section of the EIA Regulations, 2014	Description of EIA Regulations Requirements for Basic Assessment Reports	Section
Appendix 1: 3 (1) (a)	Details of – the EAP who prepared the report; and the expertise of the EAP, including a curriculum vitae	Section 1.5.2
Appendix 1: 3 (1) (b)	The location of the activity, including – The 21 digit Surveyor General code of each cadastral land parcel; Where available, the physical address and farm name; Where the required information in items (i) and (ii) is not available, coordinates of the boundary of the property or properties.	Section 4
Appendix 1: 3 (1) (c)	A plan which locates the proposed activity or activities applied for at an appropriate scale, or, if it is – A linear activity, a description and coordinates of the corridor in which the proposed activity or activities is to be undertaken; or On land where the property has not been defined, the coordinates within which the activity is to be undertaken; or.	Section 4 Figure 4-1
Appendix 1: 3 (1) (d)	A description of the scope of the proposed activity, including – All listed and specified activities triggered and being applied for; A description of the activities to be undertaken, including associated structures and infrastructure.	Section 5.3 Section 2
Appendix 1: 3 (1) (e)	A description of the policy and legislative context within which the development is proposed including- an identification of all legislation, policies, plans, guidelines, spatial tools, municipal development planning frameworks and instruments that are applicable to this activity and have been considered in the preparation of the report; and how the proposed activity complies with and responds to the legislation and policy context, plans, guidelines, tools frameworks, and instruments;	Section 5
Appendix 1: 3 (1) (f)	A motivation for the need and desirability for the proposed development including the need and desirability of the activity in the context of the preferred location.	Section 7
Appendix 1: 3 (1) (g)	A motivation for the preferred site, activity and technology alternative.	Section 3
Appendix 1: 3 (1) (h)	A full description of the process followed to reach the proposed preferred activity, site and location within the site, including-	Section 3
	Details of all alternatives considered;	Section 3
	Details of the public participation process undertaken in terms of regulation 41 of the Regulations, including copies of the supporting documents and inputs;	Section 6

Section of the EIA Regulations, 2014	Description of EIA Regulations Requirements for Basic Assessment Reports	Section
	A summary of the issues raised by interested and affected parties, and an indication of the manner in which the issues were incorporated, or the reasons for not including them;	Section 6.5
	The environmental attributes associated with the alternatives focusing on the geographical, physical, biological, social, economic, heritage and cultural aspects;	Section 8
	The impacts and risks identified for each alternative, including the nature, significance, consequence, extent, duration, and probability of the impacts, including the degree to which the impacts- (aa) can be reversed; (bb) may cause irreplaceable loss of resources; and (cc) can be avoided, managed, or mitigated.	Section 10
	The methodology used in deterring and ranking the nature, significance, consequences, extent, duration and probability of potential environmental impacts and risks associated with the alternatives;	Section 10
	Positive and negative impacts that the proposed activity and alternatives will have on the environment and on the community that may be affected focusing on the geographic, physical, biological, social, economic, heritage and cultural aspects;	Section 10
	The possible mitigation measures that could be applied and level of residual risk;	Section 10
	The outcome of the site selection matrix;	N/A
	If no alternatives, including alternative locations for the activity were investigated, the motivation for not considering such and;	Section 3
	A concluding statement indicating the preferred alternatives, including preferred location of the activity.	Section 3
Appendix 1: 3 (1) (i)	a full description of the process undertaken to identify, assess and rank the impacts the activity will impose on the preferred location through the life of the activity, including— a description of all environmental issues and risks that were identified during the environmental impact assessment process; and an assessment of the significance of each issue and risk and an indication of the extent to which the issue and risk could be avoided or addressed by the adoption of mitigation measures;	Section 10
Appendix 1: 3 (1) (j)	An assessment of each identified potentially significant impact and risk, including— cumulative impacts; the nature, significance and consequences of the impact and risk; the extent and duration of the impact and risk; the probability of the impact and risk occurring; the degree to which the impact and risk can be reversed; the degree to which the impact and risk may cause irreplaceable loss of resources; and the degree to which the impact and risk can be avoided, managed or mitigated;	Section 10

Section of the EIA Regulations, 2014	Description of EIA Regulations Requirements for Basic Assessment Reports	Section
Appendix 1: 3 (1) (k)	where applicable, a summary of the findings and impact management measures identified in any specialist report complying with Appendix 6 to these Regulations and an indication as to how these findings and recommendations have been included in the final report;	Section 9
Appendix 1: 3 (1) (l)	an environmental impact statement which contains— a summary of the key findings of the environmental impact assessment; a map at an appropriate scale which superimposes the proposed activity and its associated structures and infrastructure on the environmental sensitivities of the preferred site indicating any areas that should be avoided, including buffers; and a summary of the positive and negative impacts and risks of the proposed activity and identified alternatives;	Section 14
Appendix 1: 3 (1) (m)	based on the assessment, and where applicable, impact management measures from specialist reports, the recording of the proposed [impact management objectives and the impact management outcomes for the development for inclusion in the EMPr;	Section 16
Appendix 1: 3 (1) (n)	any aspects which were conditional to the findings of the assessment either by the EAP or specialist which are to be included as conditions of authorisation;	Section 13
Appendix 1: 3 (1) (o)	a description of any assumptions, uncertainties, and gaps in knowledge which relate to the assessment and mitigation measures proposed;	Section 15
Appendix 1: 3 (1) (p)	a reasoned opinion as to whether the proposed activity should or should not be authorised, and if the opinion is that it should be authorised, any conditions that should be made in respect of that authorisation;	Section 13
Appendix 1: 3 (1) (q)	where the proposed activity does not include operational aspects, the period for which the environmental authorisation is required, the date on which the activity will be concluded, and the post construction monitoring requirements finalised;	N/A
Appendix 1: 3 (1) (r)	An undertaking under oath or affirmation by the EAP in relation to- The correctness of the information provided in the report; The inclusion of the comments and inputs from stakeholders and interested and affected parties; The inclusion of inputs and recommendations from the specialist reports where relevant; and Any information provided by the EAP to interested and affected parties and any responses by the EAP to comments or inputs made by interested and affected parties.	Section 17
Appendix 1: 3 (1) (s)	where applicable, details of any financial provision for the rehabilitation, closure, and ongoing post decommissioning management of negative environmental impacts;	Not Applicable
Appendix 1: 3 (1) (t)	Any specific information required by the competent authority.	Not Applicable



Section of the EIA Regulations, 2014	Description of EIA Regulations Requirements for Basic Assessment Reports	Section
Appendix 1: 3 (1) (u)	Any other matter in terms of Section 24(4)(a) and (b) of the NEMA	Not Applicable

## 1.5 Contact Details

### 1.5.1 Applicant

Table 1-2 presents the details of the applicant and facility owner.

**Table 1-2: Applicant Contact Details**

Contact details of the Applicant:
Enstra Paper (Pt)y Ltd Physical Address: East Geduld Road, Springs, 1559 Postal Address: P.O. Box 3246, Sprigs, 1559 Contact Person: Nicolaas Jacobus Campher Tel: +27 87 286 6006 Mobile: +27 81 423 2562 E mail: <a href="mailto:nic.campher@enstrpaper.co.za">nic.campher@enstrpaper.co.za</a>

### 1.5.2 Environmental Assessment Practitioner

SRK was established in 1974 and has since undertaken a large variety of environmental studies. SRK Consulting South Africa (Pty) Ltd (SRK) is a South African founded international organisation of professionals providing a comprehensive range of consulting services to natural resource industries and organisations. South African offices are staffed with over 350 professional consultants in nine offices, operating in a range of disciplines, mainly related to the environment, water, social and mining sectors. Back-up and peripheral expertise is available within these offices for all environmental projects. SRK has been appointed by Enstra as the independent Environmental Assessment Practitioner (EAP). The project team members as stipulated in Table 1-3 can be contacted for the purposes of this project.

**Table 1-3: Details of the Project Team**

Details	Names	
	Dr. Andrew Wood	Andrew Caddick
Designation	Project Manager	Registered EAP (2019/1540)
Address	SRK House, 265 Oxford Road, Illovo 2196, Johannesburg, South Africa	SRK House, 265 Oxford Road, Illovo 2196, Johannesburg, South Africa
Telephone	(011) 441 1111	(011) 441 1111
E Mail	<a href="mailto:awood@srk.co.za">awood@srk.co.za</a>	<a href="mailto:acaddick@srk.co.za">acaddick@srk.co.za</a>

Dr Andrew Wood (Partner) will provide technical direction on the project. He has been with SRK for 33 years and was previously with the CSIR for 5 years. His areas of expertise include: specialist advice to Environmental Compliance Audits, Due Diligence, EIAs and for a wide variety of industrial, mining and governmental clients. Andrew has worked with the various industries on environmental and waste management issues for greater than 20 years, and has a sound understanding of the waste streams generated by the various business units and the appropriate handling, transportation,

treatment and disposal of the waste streams in terms of the National and International waste management regulations and requirements.

Mr. Andrew Caddick (Project Manager) holds a Master's degree in Geography and Environmental Science. He is an environmental scientist at SRK with 13 years' experience in the environmental field. His experience lies in the management of EIA and EMPr processes, coordination and execution of stakeholder engagement, and management of multi-disciplinary project teams, mainly for mining related projects. He is also involved in conducting EMPr audits, site assessments, Waste Management Licenses and plans, and closure liability assessment. Mr Andrew Caddick is appropriately qualified and registered with the relevant professional bodies as a Professional Natural Scientists (Pr.Sci.Nat. 400021/156) with the South African Council of Natural Scientific Professions, as well as a Professional Environmental Assessment Practitioner with the Environmental Assessment Practitioner Association of South Africa (2019/1540).

### 1.5.3 Competent Authority Details

Environmental authorisation for the proposed project is required from the DFFE. Details of the competent authority is provided in Table 1-4 .

**Table 1-4: Competent Authority Details**

Department	Contact Person	Contact Details	
DEFF	Ms Mahlaheng Ramaila	Tel	012 399 9910
		Email	<a href="mailto:MPRamaila@dffe.gov.za">MPRamaila@dffe.gov.za</a>

### 1.5.4 Municipality and Ward Details

The project area is located within the jurisdiction of the Ekurhuleni Metropolitan Municipality. Dersley Park, Springs is the closest residential area, approximately 1.5 km West of Enstra. Details of the relevant municipality are provided in Table 1-5.

**Table 1-5: Local and District Municipality Details**

Department	Contact Person	Contact Details	
Ekurhuleni Metropolitan Municipality	Mr Daniel Masemola	Tel	011 999 3136
		Email	<a href="mailto:Daniel.Masemola@ekurhuleni.gov.za">Daniel.Masemola@ekurhuleni.gov.za</a>

Figure 1-1 provides an illustration of the relevant district municipalities surrounding the proposed project.

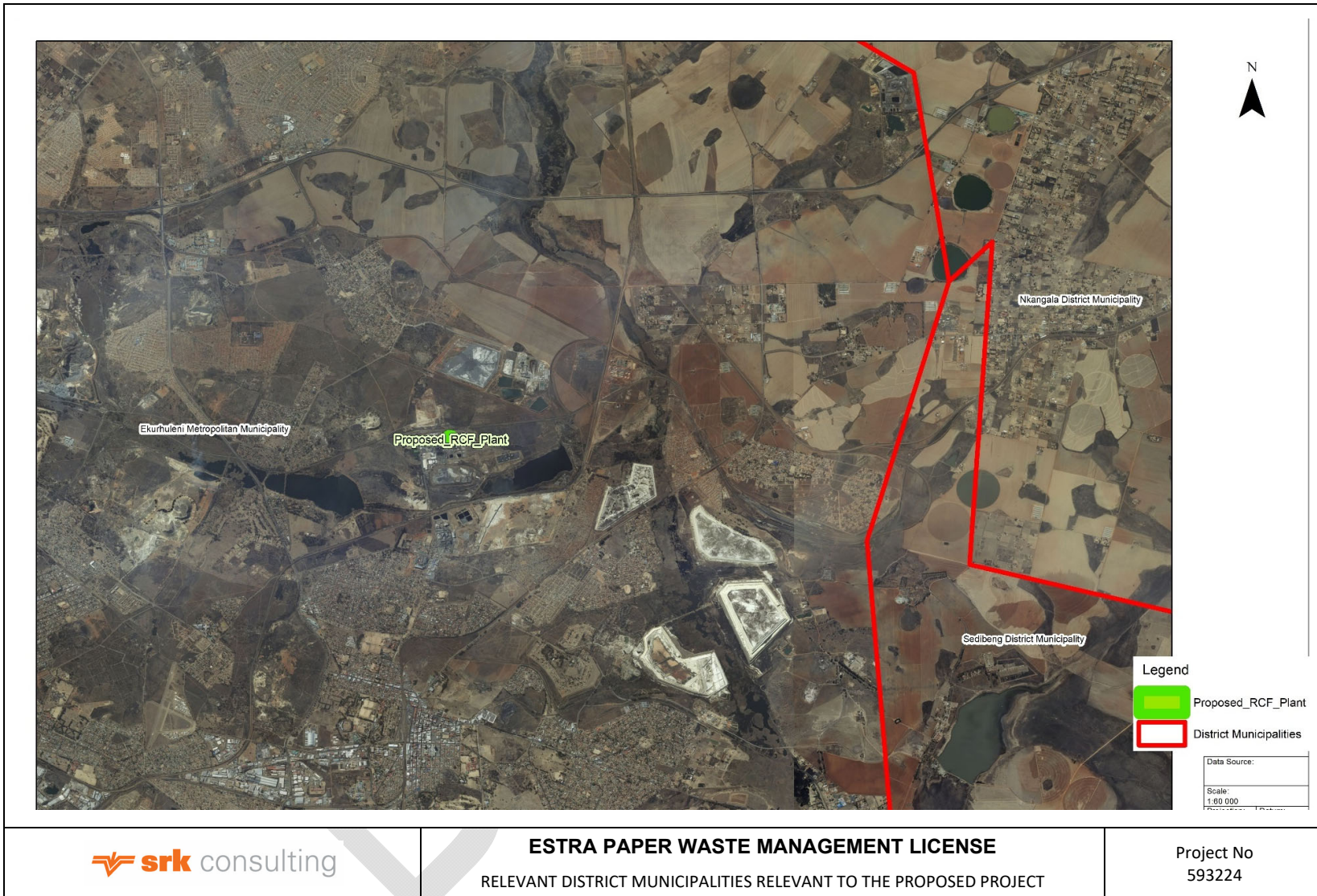


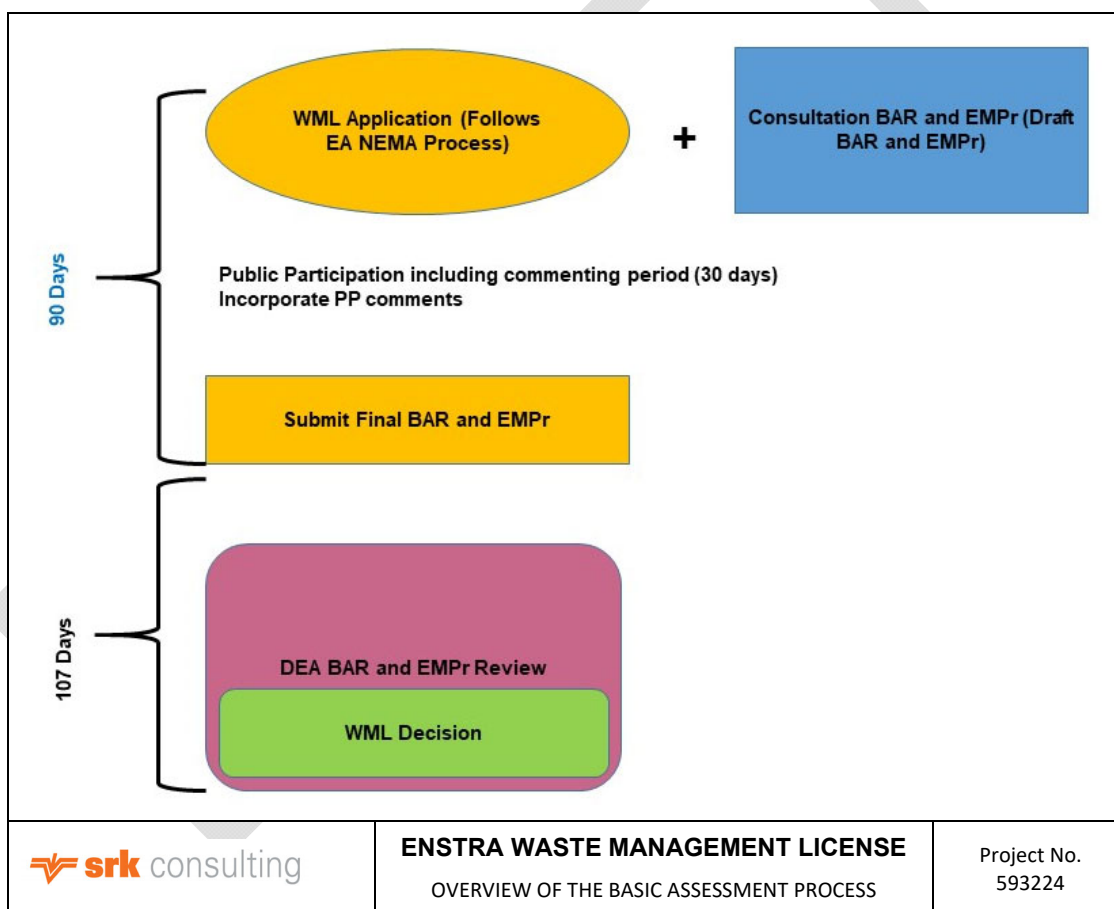
Figure 1-1: Relevant District Municipalities relevant to the proposed project

## 1.6 Waste Management Licence Application Process

All activities that trigger activities listed in GNR 921, Category A, require that a BAP be followed. The BAP will entail:

- Submission of the Environmental Authorisation (EA) Application to the DFFE.
- Compilation of an Initial Draft BAR and draft EMPr for the public to comment on before the submission of the application to DFFE.
- Finalisation of the Draft BAR and EMPr for the official public participation comment period of 30 days.
- Incorporation of stakeholder comments into the final BAR and EMPr.
- Public Participation Process (PPP).

The BA process will follow the procedure as prescribed in Regulations 19 to 20 and is summarised in Figure 1-2.



**Figure 1-2: Overview the Basic Assessment Process**

The DFFE will have a maximum of 107 days to review and make a decision on the application.

## 2 Project Description

Enterprise Straw (Enstra) Paper Mill, in Springs, Ekurhuleni, Gauteng, dates back to 1936 when both straw and wood arrived at the mill site by rail and were stored in a special park beyond the pulping section. Water was supplied to the mill with water pumped from Geduld mine.

The Enstra Paper Mill continued in operation, becoming one of The Sappi Paper and Paper Packaging (Sappi) operations until 2012 when Sappi chose to mothball the pulp mill and to revert to only undertaking the Recycling of Waste Paper, reliant on bought-in pulp of various grades to ensure that sufficient pulp was supplied to the paper machines.

Sappi undertook a BAP process and were issued with a WML in 2012 for the storage and recycling waste through procuring paper waste from local suppliers and repulping it in order produce waste-grade recycled paper.

In 2015 Sappi sold the Enstra Mill to the Coruseal Group and Enstra Paper Proprietary Limited has continued with the recycling of waste paper and is considered a leading producer of recycled wastepaper grades in the country. With three uniquely capable paper mills on site, Enstra is positioned to address the growing waste paper problem of the country and to respond to the growing consumer market demand for recycled waste. From the waste paper received Enstra produces high quality printing paper, security paper and packaging paper products for use throughout industry.

Enstra were issued a WML in September 2021 (12/9/11/L210906110402/3/R) and now intends to increase the capacity of the waste paper recycling operations to a design basis of 1000 bdt/day, through the expansion of the current RCF plant.

Enstra continues to preferentially utilize treated sewage effluent from Ancor Water Care Works, as alternative to potable water from Rand Water system, and has authorization to obtain treated sewage effluent from the Welgedatcht Water Care Works.

The proposed expansion of waste paper recycling capacity aligns with the National Waste Strategy of DFFE and the continued reuse of treated sewage effluent aligns with the National Water Strategy of DWS, and aligns with the National Energy Efficiency Campaign of DMRE, in being more energy efficient than the older waste paper recycling operations, and reducing electricity demand on Eskom.

The proposed expansion will include additional opportunities during the project execution and subsequent operation, both on-site and within the up-stream waste paper supply chain.

## **2.1 RCF Plant Operation**

This section provides a brief overview of the operation of the RCF Plant.

### **2.1.1 Coarse Screening**

Waste fibre bales are received from external service providers and sent to the RCF Plant where the fibre is sent through a coarse screening process. The repulper and Coarse Screening system consists of a Repulping system and a Detrashing system. The Repulping system comprises the Pulp Conveyor, Repulper, Ragger and Rag Rope Cutter. The Detrashing system includes the Junk Trap, Hydrapurge and Trommel.

The repulper is used to repulp unbleached recovered fibre. Bales are fed into the Repulper via the Pulper Conveyor. From the Repulper, the pulp is transferred to the dump container, from where it is transferred to the Ragger. The Ragger removes large debris and bale wires are removed continuously out of the Repulper. Pulp is then transferred to the Hoist which removes the wires that have separated from the Ragger Rope in the Repulper. The Rag Rope Cutter cuts the rag rope into smaller sections which are more convenient to handle for disposal. A Junk Trap is installed before the Hydrapurge to automatically remove heavy contaminants exiting the Repulper. The Hydrapurge keeps the Repulper clean by removing smaller debris. Light debris from the Hydrapurge is dewatered in the Trommel.

The repulper sump collects the discharges around the repulper, i.e. from the hydropurge heavy rejects valve, the junk trap reject valve, the sepsand overflow and the compactor filtraterepulped, and rejects removed from the waste through a hydropurge, trommel and compactor.

### 2.1.2 Holes Screening

Holes Screening System consists of the UVK1, the Floatpurger, and the Drum. Pulp stock is fed to the UVK1 by means of the UVK Feed Pump. Pulp from the UVK1 is flow controlled to the Cleaner Feed Tank. Rejects from the UVK1 are split into two streams: a recirculation line to the Fibre Recovery Tank and a line to the Floatpurger Feed Pump. The floatpurger concentrates light contaminants, and eliminates heavy particles.

Pulp from the Floatpurger is sent to the Fibre Recovery Tank for recycling purposes, while the rejects are sent to the Drum for de-watering.

### 2.1.3 Fractionating and Cleaning

The purpose of the Fractionator System is to separate the pulp into short fibre and long fibre fractions. The long fibre is sent to the cleaners, for further cleaning, while the short fibre is thickened. Pulp from the UVK1 is sent to the fractionator feed tank. The pulp stock is fed to the Fractionator by means of the Fractionator Feed Pump. Rejects pulp from the Fractionator, consisting of long fibre and contaminants, is flow controlled to the Cleaner Feed Tank, while cleaner pulp, consisting of short fibres, is flow controlled to the short fibre tank.

### 2.1.4 Slotted Screens

The Slotted Screening System consists of two main pieces of equipment namely the UVK2 and the FibreNet FNK200 screen. These screens separate pulp from contaminants. Pulp is fed into the UVK2 screen from the Primary Stage Cleaners then sent directly to the Disc Filter. The UVK2 rejects stream is split into two lines: a recirculation line back to the Cleaner Feed Tank and a feed line to the FNK200's inlet.

### 2.1.5 Thickening, Storage and Transfer

The RCF treats the pulp to remove plastics, stickies, and other contaminants. The cleaned pulp product is thickened before being conveyed to the East High Density container. The East High Density container is divided into a storage zone and a dilution zone. The storage zone stores pulp. The dilution zone consists of a central cone, two off-centre agitators and two dilution cones (dilcos). Dilution water enters through the dilcos and is mixed with the pulp by the agitators. This prevents build-ups by directing the pulp around the chest in a circular fashion. It also helps to keep the storage and dilution zones separate. The pumps supply either paper machine 2 or paper machine 3, depending on which machine requires brown pulp.

Figure 2-1 provides a schematic of the RCF operation process.

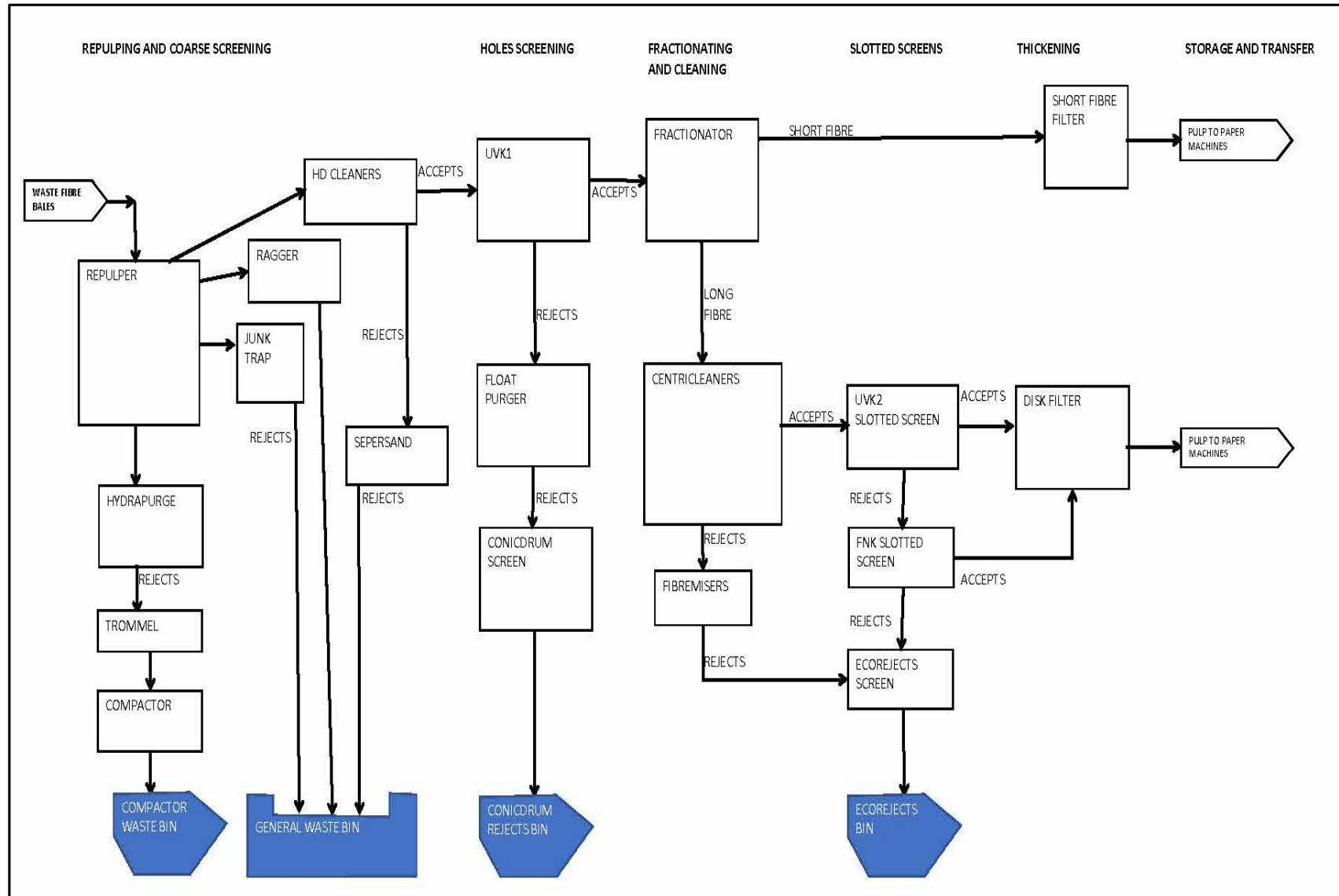


Figure 2-1: Schematic of the RCF plant operation

### 3 Alternatives Considered

The proposed project has a large positive impact on affected communities and the water and forest resources by increasing the recycling of waste paper rather than the use of trees, improving the efficiency of water use in the operations, and by continuing to utilize treated sewage effluent as the primary raw water source rather than fresh water resources.

Enstra Paper has investigated alternative technologies to increase the waste paper recycling capacity and efficiency and has selected the option offered by VOITH a leading Global Paper Recycling technology supplier.

Enstra Paper has investigated alternative locations for the Recycled Fibre Plant within the footprint area of the existing Enstra Paper site and has confirmed that the best location is within an existing hard-standing paper storage area, immediately adjacent to the bulk waste paper storage area and feed to the paper machines and aligned with the current RCF Plant. Limited location alternatives have been considered, as the location of the RCF Plant is determined by existing infrastructure, and ease of feed to the paper machines. As the Enstra operations are established, and operate two paper machines, external locations are deemed unfeasible. Enstra does not have alternative external property available for the establishment of a new RCF Plant.

#### 3.1 No – Go Alternative

The No-Go alternative would negatively affect the sustainability of the Enstra operations and would negatively inhibit the ability to recycle waste paper in South Africa, negatively affecting the supply-chain employment and economic opportunities.

### 4 Location of the Proposed Activity

The proposed project falls within the Ekurhuleni Metropolitan Municipality in the Gauteng Province. The proposed project is located on the farm portion as illustrated in Figure 4-1. Table 4-1 provides a description of the proposed activities located on the property.

**Table 4-1: List of Affected Farms and Farm Portions Illustrating the Relevant Activities**

Farm and 21 Digit Survey General Code	Portions	Owner	Proposed Activities
Geduld 123 IR	18	Enstra Paper	Proposed expansion of waste paper recycling capacity

The proposed farm portion and site coordinates are indicated in Table 4-2.

**Table 4-2: Farm portion and site coordinates**

Site Coordinates	
Point 1	28°26' 24.071"E ; 26°12' 18.494"E
Point 2	28°26' 28.825"E ; 26°12' 15.796"E
Point 3	28°26' 42.573"E ; 26°12' 14.511"E
Point 4	28°26' 41.674"E ; 26°12' 11.556"E
Point 5	28°26' 53.624"E ; 26°12' 10.528"E
Point 6	28°27' 9.685"E ; 26°12' 22.477"E
Point 7	28°26' 57.221"E ; 26°12' 24.790"E
Point 8	28°27' 3.132"E ; 26°12' 29.288"E
Point 9	28°26' 32.808"E ; 26°12' 32.628"E
Point 10	28°26' 31.009"E ; 26°12' 34.813"E



<b>Site Coordinates</b>		
Point 11	28°26' 26.641"E ;	26°12' 34.941"E
<b>New RCF Plant Approximate Location</b>		
Point 1	28°26' 41.160"E ;	26°12'14.682"E
Point 2	28°26' 43.344"E ;	26°12'14.811"E
Point 3	28°26' 43.944"E ;	26°12'15.625"E
Point 4	28°26' 44.244"E ;	26°12'17.038"E
Point 5	28°26' 41.246"E ;	26°12'17.167"E

DRAFT



Figure 4-1: Layout Plan and Affected Farm Portion

## 5 Legal and Policy Framework

The following Acts and regulations are considered to be applicable for the improvements of the RCF Plant at Enstra. Environmental legislation applicable to the proposed project operation includes, but is not limited to, the following:

- The Constitution of the Republic of South Africa (Act No. 108 of 1996);
- NEMA (Act No. 107 of 1998, as amended);
- National Environmental Management: Protected Areas Act (Act No. 57 of 2003);
- National Environmental Management: Air Quality Act (Act No. 39 of 2004) (NEM: AQA);
- National Environmental Management: Biodiversity Act (Act No. 10 of 2004) (NEM: BA);
- National Environmental Management: Waste Act (Act No. 59 of 2008) (NEM: WA);
- Conservation of Agricultural Resources Act (No. 43 of 1983) (CARA);
- Promotion of Access to Information Act (Act No. 2 of 2000) (PAIA);
- The NWA (Act No. 36 of 1998); and
- The National Heritage Resources Act (Act No. 25 of 1999) (NHRA).

Legislation most applicable to the proposed project has been described in detail in Section 5.1 to Section 2.11.

### 5.1 The Constitution of the Republic of South Africa

In terms of Section 24 of the Constitution of the Republic of South Africa (108 of 1996), everyone has the right to an environment that is not harmful to their health or well-being and to have the environment protected, for the benefit of present and future generations, through reasonable legislation and other measures that prevent pollution and ecological degradation, promote conservation and secure ecologically sustainable development and use of natural resources while promoting justifiable economic and social development. The needs of the environment, as well as affected parties, should thus be integrated into overall project management in order to fulfil the requirements of Section 24 of the Constitution.

### 5.2 National Environmental Management Act (107 of 1998)

The NEMA provides the overarching legislation for environmental governance in South Africa, giving effect to Section 24 of the Constitution of the Republic of South Africa. NEMA sets out the fundamental principles of Integrated Environmental Management that must be adhered to in order to ensure sustainable development. These principles should apply to environmental decision making. Of particular importance is NEMA's ruling that the interpretation of any law concerning the protection and management of the environment must be guided by the principles of NEMA. The core nature of the NEMA principles is the principle on sustainable development. This principle strives towards promoting development that is simultaneously meeting the needs of the present generations without compromising the needs of future generations to come.

Section 4(b) of the NEMA states that environmental management must be integrated, acknowledging that all elements of the environment are linked and interrelated, and it must take into account the effects of decisions on all aspects of the environment and all people in the environment by pursuing the selection of the best practicable environmental option. According to the NEMA, the best practicable environmental option or most preferred option, means the option that provides the

most benefit or causes the least damage to the environment as a whole, at a cost acceptable to society in the long term as well as in the short term.

Section 28 of the NEMA includes a far-reaching general “Duty of Care” whereby care must be taken to prevent, control and rehabilitate the effect of significant pollution and environmental degradation. This section stipulates the necessity to protect the environment from degradation and pollution, irrespective of the operations taking place or activities triggered/not triggered under GNR 983, GNR 984 and GNR 985 printed in terms of NEMA. This section places emphasis on the fact that it is a criminal offense to cause significant pollution or environmental degradation and is punishable by this legislative framework.

### 5.2.1 EIA Regulations (GNR 982)

The EIA Regulations (GNR 982) were promulgated in terms of Sections 24 of the NEMA, to manage the process, methodologies and requirements for the undertaking of an EIA. The current EIA regulations were published on 4 December 2014 and came into effect on 8 December 2014. Subsequent amendments to the EIA regulations on the date of publication of this report will be taken into account during the EIA process. The GNR 982 stipulates that the applicant for a development listed under GNR 983, 984 or 985 must appoint an independent EAP to manage the EIA process. It defines two broad categories of EIA, namely a basic assessment and a full EIA.

The process for a basic assessment is described in Appendix 1 of GNR 982. The environmental consultant must conduct a basic impact assessment, with stakeholder engagement, as set out in Regulation 39 to 44 of GNR 982. The proposed project does not trigger any activities listed in Listing Notices 1, 2 and 3 of the NEMA and will therefore not require an EA in terms of NEMA.

## 5.3 National Environmental Management: Waste Act (Act No. 59 of 2008)

The NEM: WA was implemented on 1 July 2009 and Section 20 of the Environment Conservation Act (Act No. 73 of 1989), under which waste management was previously governed, was repealed. The main objectives of the NEM: WA is to:

*Reform the law regulating waste management in order to protect health and the environment by providing reasonable measures for the prevention of pollution and ecological degradation and for securing ecologically sustainable development; and to provide for:*

- *National norms and standards for regulating the management of waste by all spheres of government;*
- *Specific waste management measures;*
- *The licensing and control of waste management activities;*
- *The remediation of contaminated land; to provide for the national waste information system;*  
*and*
- *Compliance and enforcement.*

The objectives of NEM: WA involve the protection of health, wellbeing and the environment by providing reasonable measures for the minimisation of natural resource consumption, avoiding and minimising the generation of waste, reducing, recycling and recovering waste, and treating and safely disposing of waste as a last resort.

In terms of the NEM: WA, all waste management activities must be licenced. According to Section 44 of the Act, the licensing procedure must be integrated with an EIA process in accordance with the Regulations GNR 982 published in terms of the NEMA. Government Notice 719, which was

implemented on 3 July 2009, removed all waste management activities from the EIA regulations GNR 386 and GNR 387, resulting in new NEMA listed activities namely GNR 544 and GNR 545 which were further amended to form GNR 983, 984, and 985. GNR 718 listed the waste management activities that require licensing. On 29 November 2013, GNR 718 was repealed and replaced by a new list of waste activities under GNR 921. A distinction is made between Category A waste management activities, which require a basic assessment, Category B activities, which require a full EIA, and Category C waste management activities which do not require a waste management licence but compliance with relevant requirements or standards.

The project will trigger the following NEM: WA listed activities:

**Table 5-1: NEM: WA Listed Activities Triggered by the proposed project**

Number and Date of Relevant Notice	Activity Number	Description
GNR 921	13	The expansion of a waste management activity listed in Category A or B of this Schedule which does not trigger an additional waste management activity in terms of this Schedule.

#### 5.4 National Environmental Management: Air Quality Act (Act No. 39 of 2004)

The NEM: AQA was implemented on 24 February 2005 and reforms the law regulating air quality in order to protect the environment by providing reasonable measures for the prevention of pollution and ecological degradation and for securing ecologically sustainable development while promoting justifiable economic and social development; to provide for national norms and standards regulating air quality monitoring, management and control by all spheres of government; for specific air quality measures; and for matters incidental thereto.

On 22 November 2013 the list of activities which result in atmospheric emissions which have or may have a significant detrimental effect on the environment, including health, social conditions, economic conditions, ecological conditions or cultural heritage was published under GNR 893 in Governmental Gazette 37054, in terms of section 21(1)(b) of the NEM: AQA thereby repealing the previous list of activities which were promulgated on 31 March 2010.

No NEM: AQA listed activities will be triggered as a result of the proposed project, however the principles of the act focusing on minimisation of pollutant emissions will be taken cognisance of in the development of the EMPr.

#### 5.5 National Heritage Resources Act (Act No. 25 of 1999)

The protection and management of South Africa's heritage resources are controlled by the NHRA. The enforcing authority for this act is the South African National Heritage Resources Agency (SAHRA). In terms of the Act, historically important features such as graves, trees, archaeology and fossil beds are protected. Similarly, culturally significant symbols, spaces and landscapes are also afforded protection. In terms of Section 38 of the NHRA, SAHRA can call for a Heritage Impact Assessment (HIA) where certain categories of development are proposed. The Act also makes provision for the assessment of heritage impacts as part of an EIA process and indicates that if such an assessment is deemed adequate, a separate HIA is not required. Should a permit be required for the damage or removal of specific heritage resources, Enstra will submit a separate application for these activities to the SAHRA for approval, should these resources be found in the project area. The activities identified in the Act requiring a notification from SAHRA include:

### Section 38

(1) (c): *Any development or other activity which will change the character of a site*

- i. exceeding 5 000 m<sup>2</sup> in extent ; or*
- ii. involving three or more existing erven or subdivisions thereof; or*
- iii. involving three or more erven or divisions thereof which have been consolidated within the past 5 years; or*
- iv. the costs of which will exceed a sum in terms of regulations by SAHRA or a provincial heritage resource authority.*

Since the proposed project will be located within the Enstra Footprint, it is expected that no additional heritage resources and/or resources of archaeological importance will be affected by the improvements to the RCF Plant.

## 5.6 National Water Act (Act No. 36 of 1998)

The NWA is the primary regulatory legislation controlling and managing the use of water resources as well as the pollution thereof. This act provides for fundamental reformation of legislation relating to water resource use. The preamble to the NWA recognises that the ultimate aim of water resource management is to achieve sustainable use of water for the benefit of all users and that the protection of the quality of water resources is necessary to ensure sustainability of the nation's water resources in the interests of all water users. The purpose of the Act is stated in Section 2 and enforced by the DWS.

The Act presents strategies to facilitate sound management of water resources, provides for the protection of water resources, and regulates use of water by means of Catchment Management Agencies, Water User Associations, Advisory Committees and International Water Management.

As this Act is founded on the principle that the government has overall responsibility for and authority over water resource management, including the equitable allocation and beneficial use of water in the public interest, an industry (including mines) can only be entitled to use water if the use is permissible under the NWA.

No additional water uses will be triggered as part of this project, therefore no Water Use License Application will be made to the DWS.

## 5.7 National Environmental Management: Biodiversity Act (Act No. 10 of 2004)

The NEM: BA provides for listing of threatened or protected ecosystems, in one of four categories: critically endangered, endangered, vulnerable or protected. Threatened ecosystems are listed in order to reduce the rate of ecosystem and species extinction by preventing further degradation and loss of structure, function and composition of threatened ecosystems. The purpose of listing protected ecosystems is primarily to conserve sites of exceptionally high conservation value.

In line with the Convention on Biological Diversity, the NEM: BA aims to legally provide for biodiversity conservation, sustainable use and equitable access and benefit sharing. The NEM: BA established the South African National Biodiversity Institute (SANBI). The NEM: BA creates a basic legal framework for the formation of a national biodiversity strategy and action plan and the identification of biodiversity hotspots and bio-regions, which will then be given legal recognition. It imposes obligations on landowners (state or private) governing alien invasive species as well as regulates the introduction of genetically modified organisms. Furthermore, the NEM: BA serves to

regulate bio-prospecting, making provision for communities to share the profits of any exploitation of natural materials involving indigenous knowledge.

The NEM: BA ensures that provision is made by the site developer to remove any aliens, which have been introduced to the site or are present on the site. Protection and conservation of indigenous species will be taken into consideration as part of the EIA and EMPr process.

## **5.8 Promotion of Access to Information Act (Act No. 2 of 2000)**

The PAIA recognises that everyone has a right of access to any information held by the state and by another person when that information is required to exercise or protect any right. The purpose of the Act is to promote transparency and accountability in public and private bodies and to promote a society in which people have access to information that enables them to exercise and protect their right. The EIA/EMPr process to be undertaken in terms of the NEMA, with the associated stakeholder consultation process, will be aligned with the PAIA in the sense that all I&APs will be given an opportunity to register as an I&AP prior to the initiation of the project and all registered stakeholders will in turn be provided a fair opportunity to review and comment on any reports submitted to the competent authorities for decision making.

## **5.9 Conservation of Agricultural Resources Act (Act No. 43 of 1983)**

The CARA aims to provide for control over the utilisation of natural agricultural resources in order to promote the conservation of soil, water resources and vegetation and to combat weeds and invader plants. The Act makes provision for control measures to be applied in order to achieve the objectives of the Act, these measures relate to inter alia:

- Cultivation of virgin soil;
- Utilisation/protection of wetlands, marshes, water sponges, water courses/sources;
- The regulating of the flow pattern of run-off water;
- The utilisation and protection of vegetation;
- The grazing capacity of veld and the number and type of animals;
- The control of weeds and invader plants; and
- The restoration or reclamation of eroded land or land, which is disturbed or denuded.

## **5.10 Provincial and Municipal Bylaws**

The Ekurhuleni Metropolitan Municipality and the Gauteng Province have developed local bylaws and various policies relating to waste disposal, water, economic development, air quality, etc. The proposed project must ensure that such policies and bylaws are adhered to as far as possible during the construction of the proposed project.

## **5.11 Guidelines**

The following documents will be taken into account during the impact assessment process and compilation of the EMPr of the proposed project:

- Gauteng Biodiversity Conservation Plan (GBCP);
- Ekurhuleni Metropolitan Municipality Integrated Development Plan (IDP) (2021-2022);
- Ekurhuleni Metropolitan Municipality Spatial Development Framework (SDF) (2015);

- DWS, 2010. Operational Guideline: Integrated Water and Waste Management Plan. Resource Protection and Waste;
- Department of Water Affairs and Forestry, 2008. Best Practice Guideline A6: Water Management for Underground Mines.
- Department of Water Affairs and Forestry, 2006. Best Practice Guideline G1 Storm Water Management;
- Department of Water Affairs and Forestry, 2006. Best Practice Guideline G3. Water Monitoring Systems;
- Department of Water Affairs and Forestry, 2008. Best Practice Guideline G4: Impact Prediction;
- DEAT. 2002. Integrated Environmental Management, Information series 2: Scoping. Department of Environmental Affairs and Tourism (DEAT. 2002);
- DEAT. 2002. Integrated Environmental Management, Information series 3: Stakeholder Engagement. Department of Environmental Affairs and Tourism (DEAT. 2002);
- DEAT. 2002. Integrated Environmental Management, Information series 4: Specialist Studies. Department of Environmental Affairs and Tourism (DEAT. 2002);
- DEAT. 2002. Integrated Environmental Management, Information series 12: Environmental Management Programmes. Department of Environmental Affairs and Tourism (DEAT. 2002);
- DEA. 2010. Companion to the EIA Regulations 2010 for Comment, Integrated Environmental Management Guideline Series 5, Department of Environmental Affairs;
- DEA. 2010. Companion to the EIA Regulations 2010 for Comment, Integrated Environmental Management Guideline Series 7, Department of Environmental Affairs;
- DEA. 2012. Companion to the EIA Regulations 2010, Integrated Environmental Management Guideline Series 5, Department of Environmental Affairs;
- DEA. 2012. Companion to the EIA Regulations 2010, Integrated Environmental Management Guideline Series 7, Department of Environmental Affairs;
- DFFE. 2017. Public Participation guideline in terms of NEMA EIA Regulations, Department of Environmental Affairs, Pretoria, South Africa; and
- Western Cape Department of Environmental Affairs and Tourism. 2010. EIA Guideline and Information Document Series: Guideline on Need and Desirability.

## 6 Stakeholder Engagement Process

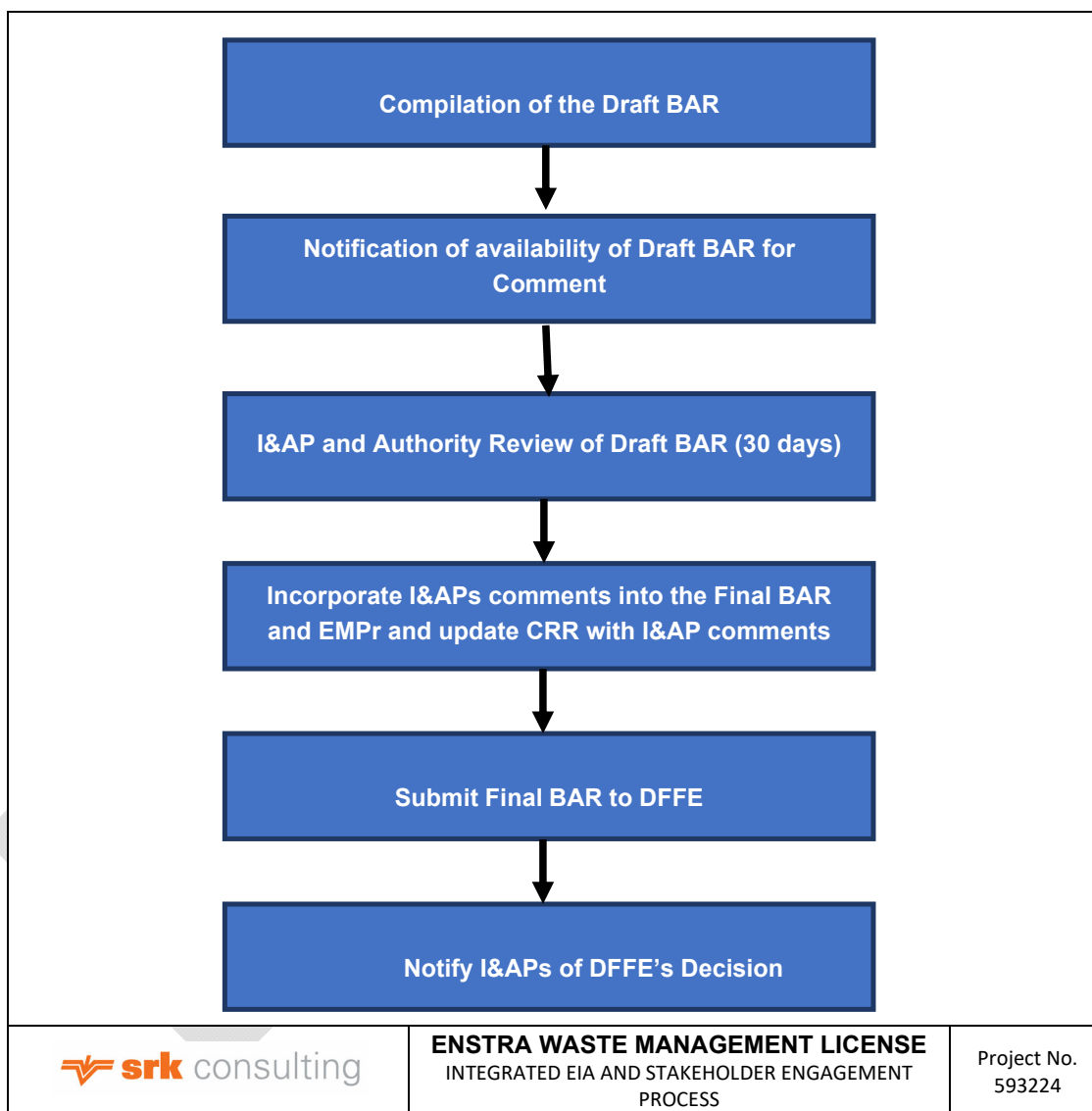
The stakeholder engagement process forms an important part of the impact assessment process. The stakeholder engagement process is primarily aimed at affording I&AP's the opportunity to gain an understanding of the proposed project. In addition, the purpose of consultation with the landowners, key stakeholders, and I&AP's is to provide them with the necessary information about the proposed project so that they can make informed decisions as to whether the project will affect them, and provide the EIA team with local knowledge of the area and raise concerns relating to the biophysical, socio-economic and cultural impacts that may arise.

The stakeholder engagement process is conducted in terms of NEMA, which provides clear guidelines for stakeholder engagement during an EIA. Chapter 1 of the NEMA outlines the principles



of environmental management, several pertaining to public consultation (e.g. Chapter 1, subsections (2), (3), (4) (f), (g), (h), (k), (q) and (r). Chapter 6, Regulations 39 – 44 of the amended EIA Regulations GNR) 982, promulgated on 8 December 2014, specify the minimum requirements for stakeholder engagement in an EIA process conducted under the NEMA. In 2017, the Minister of Environmental Affairs published, in terms of Section 24J of the NEMA, Public Participation Guidelines which guide the PPP in order to give effect to Section (2)(4)(f), (o) and 24 (1A)(C) of the NEMA.

Figure 6-1 provides a summary of the stakeholder engagement process followed for the proposed project.



**Figure 6-1: Summary of the Stakeholder Engagement Process followed**

All the above guidelines have been incorporated into this stakeholder engagement process. This application will be submitted to the DFFE for authorisation as the competent authority. Identified commenting authorities on this application include:

- DWS – Regional Office;
- Gauteng Department of Agriculture and Rural Development;
- SAHRA – Provincial;

- Ekurhuleni Metropolitan Municipality.

## 6.1 Stakeholder Identification: Interested and Affected Parties

An I&APs register was developed using existing databases from previous authorisation processes undertaken for the Enstra site.

The I&APs register will be maintained for the duration of the study where the details of stakeholders are captured and automatically updated upon communication to the EAP. The identification, registration, and comments from I&APs will be an on-going activity. Please refer to Appendix C for a copy of the I&AP register.

The affected properties are provided in Table 6-1

**Table 6-1: List of Affected Farm and Farm Portions**

Farm	Portions	21 Digit Survey General Code
GEDULD 123 IR	18	T0IR00000000012300018

Table 6-2 provides a list of the adjacent farms and farm portions.

**Table 6-2: List of Adjacent Farms and Farm Portions**

Farm	Portions	21 Digit Survey General Code
GEDULD 123 IR	RE/38	T0IR00000000012300038
	RE/36	T0IR00000000012300036
	RE/57	T0IR00000000012300057
	44	T0IR00000000012300044
	RE/37	T0IR00000000012300037
	276	T0IR00000000012300276

A map of the affected and adjacent farm portions and farm portions of the site are illustrated in Figure 6-2.



Figure 6-2: Adjacent farm portions

## 6.2 Confirmation of Land Claims

SRK approached the Office of the Gauteng Regional Land Claims Commissioner during the WML application for the proposed project to verify whether any possible land claims existed on the affected properties. A letter received from the Regional Land Claims Commissioners office on 6 December 2022 stated that, according to their database, a claim was lodged in terms of the Restitution of Land Rights Amendment Act, 2014 (Act No 15 of 2014) (the Amendment Act) which, amongst others, reopened the lodgement of claims for a period of five years. The validity of the Amendment Act was challenged in the Constitutional Court. The Constitutional Court found the Amendment Act to be invalid because of the failure of Parliament to facilitate public involvement as required by the Constitution. The Amendment Act ceased to be law on 28 July 2016. The letter from the land Claims commissioner can be found in Appendix F.

## 6.3 Project Announcement

SRK had made use of various methods to inform stakeholder of Enstra' s intention to undertake the required and environmental processes and WML application. Stakeholder have been provided with the opportunity to participate and register as I&AP's during the BAP review period.

### 6.3.1 Distribution of Notification Letters

Notification letters were sent to identified I&AP's on 11 January 2023, informing them of the proposed project. A copy of the notification letter is attached as Appendix C.

### 6.3.2 Site Notice Placements

Sites notice boards (Size A2: 600 mm X 420 mm) notifying stakeholders and I&AP's of the proposed project were placed at conspicuous places in the project area on 12 January 2023. A copy of the site notices and proof of their placement is provided in Appendix C. Table 6-3provides a list of these site locations.

**Table 6-3: Site Notice Location and Coordinates**

Site Notice	Location
1	Enstra Paper Entrance
2	Springs Library

### 6.3.3 Newspaper Advertisements

Newspaper advertisements notifying stakeholders about the proposed project and the opportunity to participate in the EIA process were placed in the newspapers listed in Table 6-4 and can be found in Appendix C.

**Table 6-4: Newspaper Advertisements**

Newspaper Advertisements			
Newspaper	Distribution	Languages	Date
Springs Advertiser	Springs	English	12 January 2023

## 6.4 Public Review of the Draft Basic Assessment Report

The Draft BAR was compiled in terms of the requirements of GNR 982. The Draft BAR has been made available for a 30-day commenting period from 13 January 2023 to 13 February 2023.

The availability of the Draft BAR was announced by means of SMS's, letters and emails to registered I&APs. Copies of the Draft BAR will be made available at the venues listed in Table 6-5.

**Table 6-5: List of places the Draft BAR will be placed for public review**

Public Place	Locality	Telephone
Enstra Paper Security Office	Enstra Paper	087 286 6006
Springs Public Library	55 5th St, Springs New, Springs	011 999 8814
SRK Website	<a href="http://www.srk.co.za/en/library/za-public-documents">http://www.srk.co.za/en/library/za-public-documents</a>	012 361 9821

The Draft BAR will also made available to the competent and commenting authorities during the 30 day review and comment period.

## 6.5 Key Comments Received

Comment received during the notification period will be included in the Final BAR.

## 6.6 Comments and Response Report

All issues and concerns raised by I&AP's will be recorded and responded to in the Comments and Response Report (CRR). No comments have been received on the BAR at the time of printing the Report.

# 7 Need and Desirability of the Proposed Project

The proposed expansion of waste paper recycling capacity aligns with the National Waste Strategy of DFFE through the increased recycling of waste. The continued reuse of treated sewage effluent aligns with the National Water Strategy of DWS, and aligns with the National Energy Efficiency Campaign of DMRE, in being more energy efficient than the older waste paper recycling operations, and reducing electricity demand on Eskom. The proposed project also supports the Strategic Development Plan of Ekurhuleni Municipality and the Springs Strategic Economic Zone.

The proposed expansion will include additional employment opportunities during the project execution and subsequent operation, both on-site and within the up-stream waste paper supply chain.

The National Waste Management Strategy has the concept of the "circular economy" at its centre. The circular economy is an approach to minimising the environmental impact of economic activity by reusing and recycling processed materials to minimise:

- (a) the need to extract raw materials from the environment; and
- (b) the need to dispose of waste.

The circular economy is built on innovation and the adoption of new approaches and techniques in product design, production, packaging and use – industrial symbiosis, for instance, is a way of preventing waste in industrial production by redirecting waste from one production process to serve as raw materials for another production process.

The National Strategy has made mention that diverting waste from landfill is a key imperative for the country's waste strategy. South Africa's strategy for diversion of waste from landfill is based on building a secondary resources economy around the beneficiation of waste as part of the circular economy. This is through among others, the recycling of paper, glass, plastics, metals, tyres, power generation waste, waste oils, pesticides, batteries, lighting equipment, and recovery of construction and demolition waste to substitute recycled content for virgin materials (DFFE, 2020).

While South Africa has made progress in relation to recycling paper, plastic, glass and metals there is still substantial scope to increase recycling rates. The strategy has identified the lack of recycling infrastructure as a challenge in reducing waste sent to landfill (DFFE, 2020).

The proposed RCF plant plans to aim to address these challenges and outcomes identified in the National Waste Management Strategy.

The proposed increased capacity for waste paper recycling is environmentally and socially beneficial, and the location within the existing Enstra site does not adversely impact wetland, aquatic, riparian area, geology and geohydrology, agricultural potential, and offers significant positive socio-economic advantages and supports the Strategic Development Plan of Ekurhuleni Municipality and the Springs Strategic Economic Zone.

## 8 Description of the Baseline Environment

This Section will detail the current environmental baseline.

### 8.1 Climate

Springs has a typical sub-tropical climate with four distinct seasons. The summers are hot with afternoon thunder showers in early summers and drier during January and February which are the two hottest months. The winters are very cold with severe frost and very occasional snow, the coldest months being July and August although June is also very cold. August is usually a very windy month continuing into early spring of September with sandstorms and strong winds. Spring is warm to hot with some afternoon showers. Spring usually starts to show during the latter half of August although it is officially springtime from September. The autumns are generally cooler, starting with late rains in the beginning of autumn and getting colder towards winter with the first frost in late autumn. At times the first signs of autumn can be seen in late February. The average highs during the summers are 32 C with a record high of 40 C being recorded. Average winter temperatures are around 10 C and the average lows during the summer months are 15 C and - 5 C during the winter months.

The Mean Annual Precipitation (MAP), Mean Annual Evaporation (MAE) and naturalised Mean Annual Runoff (MAR) for the C21D quaternary sub-catchment are presented in Table 8-1.

**Table 8-1: Climatic Information – Quarterly Catchment C21D (WRC, 2012)**

MAP(mm)	Rainfall Zone	MAE(mm)	Evap Zone	MAR(Mm <sup>3</sup> )	MAR(m <sup>3</sup> )
698	C2A	1 625	12A	13.50	16 100 000

#### 8.1.1 Regional Climate Rainfall

The site falls within rainfall zone C2A associated with quaternary C21D, with an MAP of 694 mm. The monthly rainfall distribution is represented in Table 8-2 and Figure 8-1.

**Table 8-2: Monthly rainfall distribution**

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	MAP
123	92	83	43	19	7	6	8	23	71	106	111	694

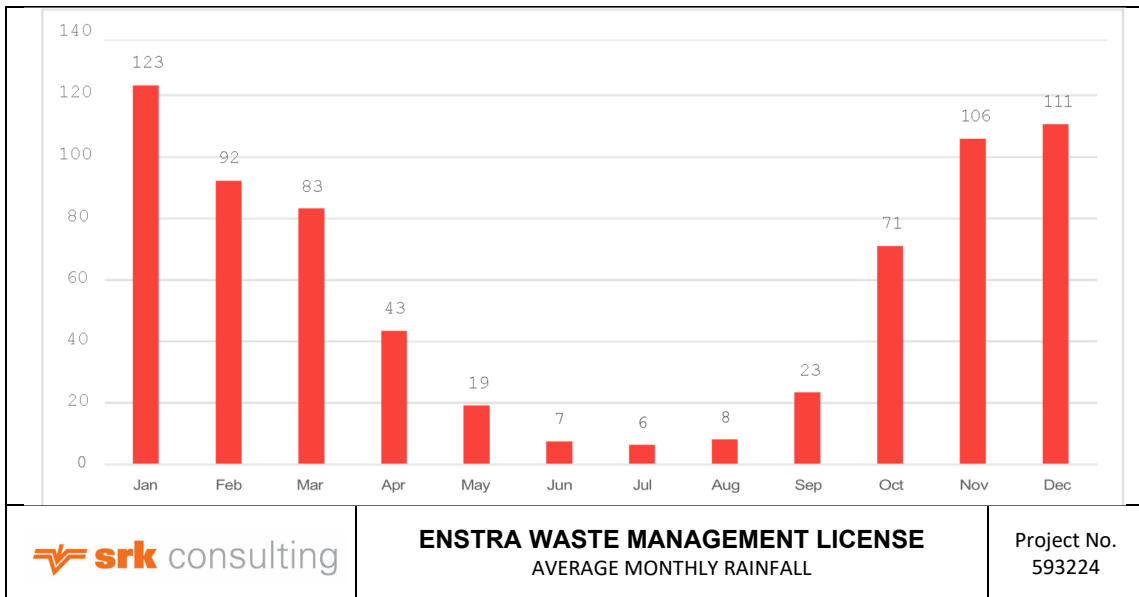


Figure 8-1: Average Monthly Rainfall (WRC, 2012) (mm)

### 8.1.2 Evaporation

Evaporation data for the site was extracted from the WR2012 (Royal HaskoningDHV, 2012) database. The evaporation zone representative of the site is 12A with an MAE of 162 5 mm. The MAE is clearly considerably higher than the MAP, making this a dry area. The monthly evaporation distribution is presented in Table 8-3 and Figure 8-2.

Table 8-3: Monthly Averages of S-Pan Evaporation (WRC, 2012)

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	MAE
185	152	142	108	87	71	77	111	149	176	177	190	1625

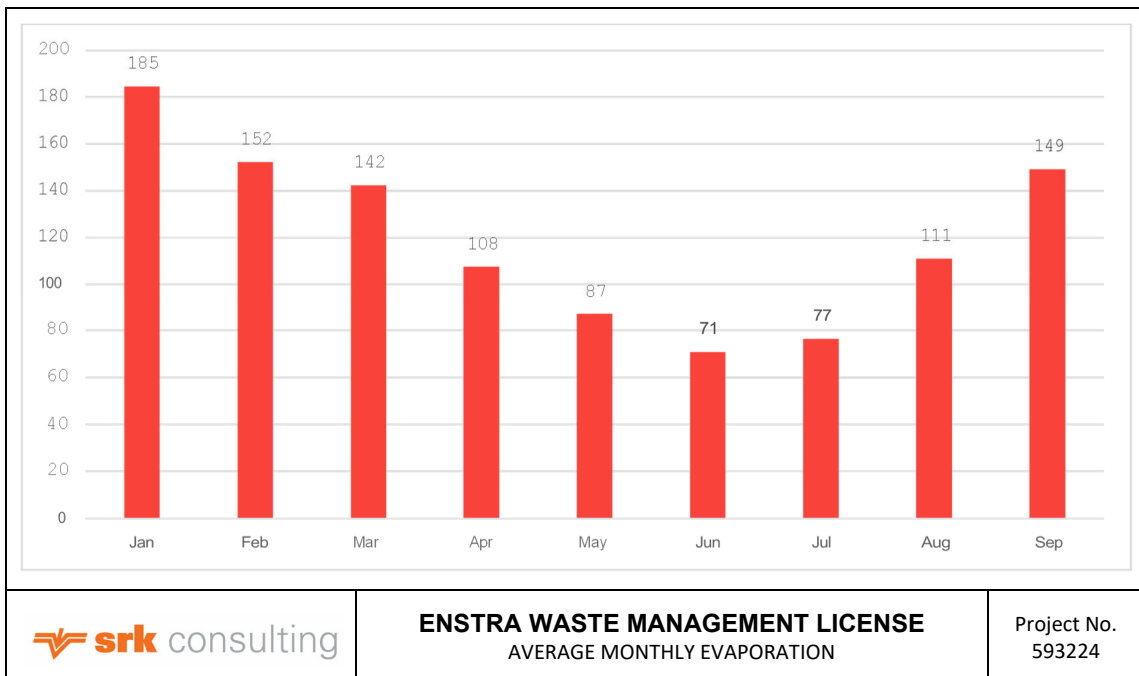


Figure 8-2: Average Monthly Evaporation (WRC, 2012) (mm)

## 8.2 Topography

The Enstra operations are situated at an altitude of between 1600 m and 1650 m Above Mean Sea Level (amsl). The topography in the area is mostly flat and slopes gently to the south-east.

## 8.3 Soils and Land-Use

The site is underlain by drained red, apedal soils of the Hutton form (Hu) overlying weathering and hard rock and various other unconsolidated materials. The proposed footprint for the RCF plant is currently zoned as industrial.

## 8.4 Land Capability

The project site is located within an industrial complex and as such the land capability of the site is extremely poor. The majority of the Enstra surrounding area, is potentially arable, and has few limitations which will reduce the choice of plants or require moderate conservation practices, with farming practices being easy to apply. Cultivation can thus occur.

## 8.5 Air Quality

Existing air pollution sources in the area include the Impala Platinum refinery, Geduld Proprietary Mines and Government Gold Mines and their associated slimes dams. These activities contribute to both particulate matter and gaseous airborne pollutants in the ambient air.

The nature of the paper production process is relatively intensive with regards to air emissions, thus air quality impacts from the mill are of high importance. Enstra currently sources ambient air quality monitoring data from the station located between Impala Platinum Refinery and the mill. Enstra has an Air Emissions license in place and in addition, Enstra undertakes annual monitoring of their stacks and continually monitor their boilers with regards to particulate matter, SO<sub>2</sub> and NO<sub>x</sub>.

## 8.6 Surface Water

This section describes the surface water resources around the proposed development. Information regarding the surface water resources was obtained from the Enstra IWWMP (WSP, 2021)

### 8.6.1 Water Management Area

With reference to the drainage regions within South Africa, the Mill is located within the Upper Vaal Water Management Area (WMA8) which is delineated into three sub-areas namely:

- Wilge sub-area, which corresponds to the catchment of the Wilge River to its confluence with the Vaal River;
- The sub-area "upstream of the Vaal Darn", which corresponds to the portion of the Vaal River catchment upstream of the Vaal Darn; and,
- The sub-area "downstream of the Vaal Darn", which comprises the portion of the Vaal River catchment between the Vaal Darn and the confluence of the Mooi River with the Vaal River.

### 8.6.2 Surface Water Hydrology

The Mill is located within the Blesbokspruit Quaternary Catchment (C21D) which is a contributing catchment to the Vaal River confluence "downstream of the Vaal Dam". The C21D Quaternary Catchment is the upper quaternary associated with the Blesbokspruit catchment and incorporates Quaternary Catchments C21D, C21E and C21F and covers an area of 1 502 km<sup>2</sup> (Figure 8-3).



The Blesbokspruit Quaternary Catchment is a tributary of the Suikerbosrand River. The confluence of the Blesbokspruit and the Suikerbosrand Rivers is below the town of Heidelberg. The Suikerbosrand River is a tributary of the Vaal River. The Suikerbosrand River joins the Vaal River at the Vaal Barrage located below the Vaal Dam.

The Blesbokspruit is located approximately 3.5 km to the east of the Mill and flows in a southerly direction. The Klein Blesbokspruit is located directly to the south of the Mill and flows in an easterly direction. The headwaters of the Klein Blesbokspruit originate in the Jet Park. The river flows through Benoni (via Homestead-, Middle, Civic- and Klein Fontein Lakes) then via the historical mining activities associated with the New Modder area and onto Enstra.

The Enstra property lies on a gentle south-easterly slope and the general surface water drainage is towards the south to a vlei area, adjacent to the Klein Blesbokspruit. The plant itself is approximately 1km north of the Klein Blesbokspruit.

Key surface water features along the Klein Blesbokspruit in the vicinity of Enstra Paper include the Alexander Dam (upstream of the Mill) and the Cowles Darn which is located approximately 700 m south east of the Mill. The Klein Blesbokspruit confluences with the Blesbokspruit approximately 3.5 km downstream of the Mill.

The water balance for the Enstra site can be found in Figure 8-4.

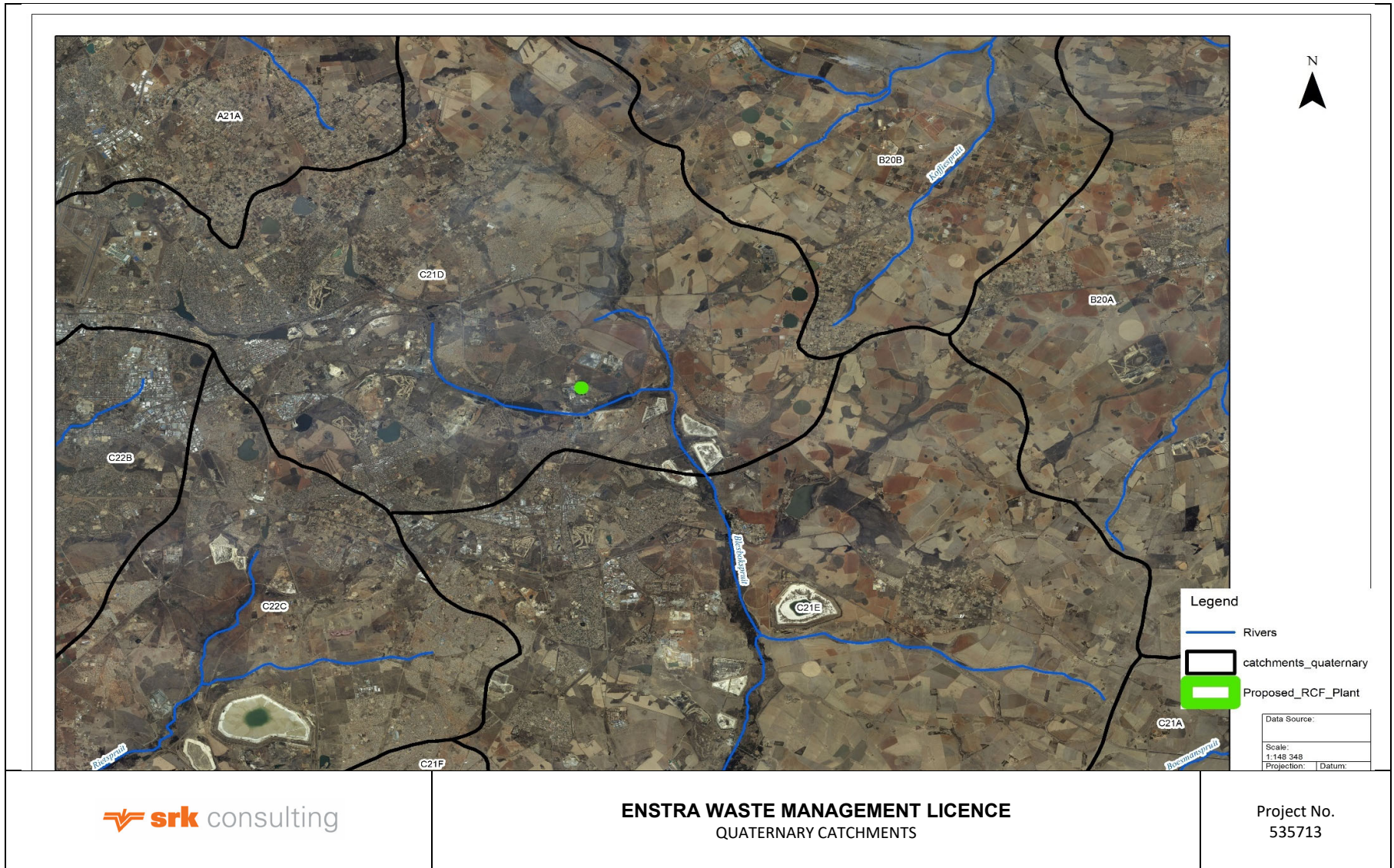


Figure 8-3: Quaternary Catchments

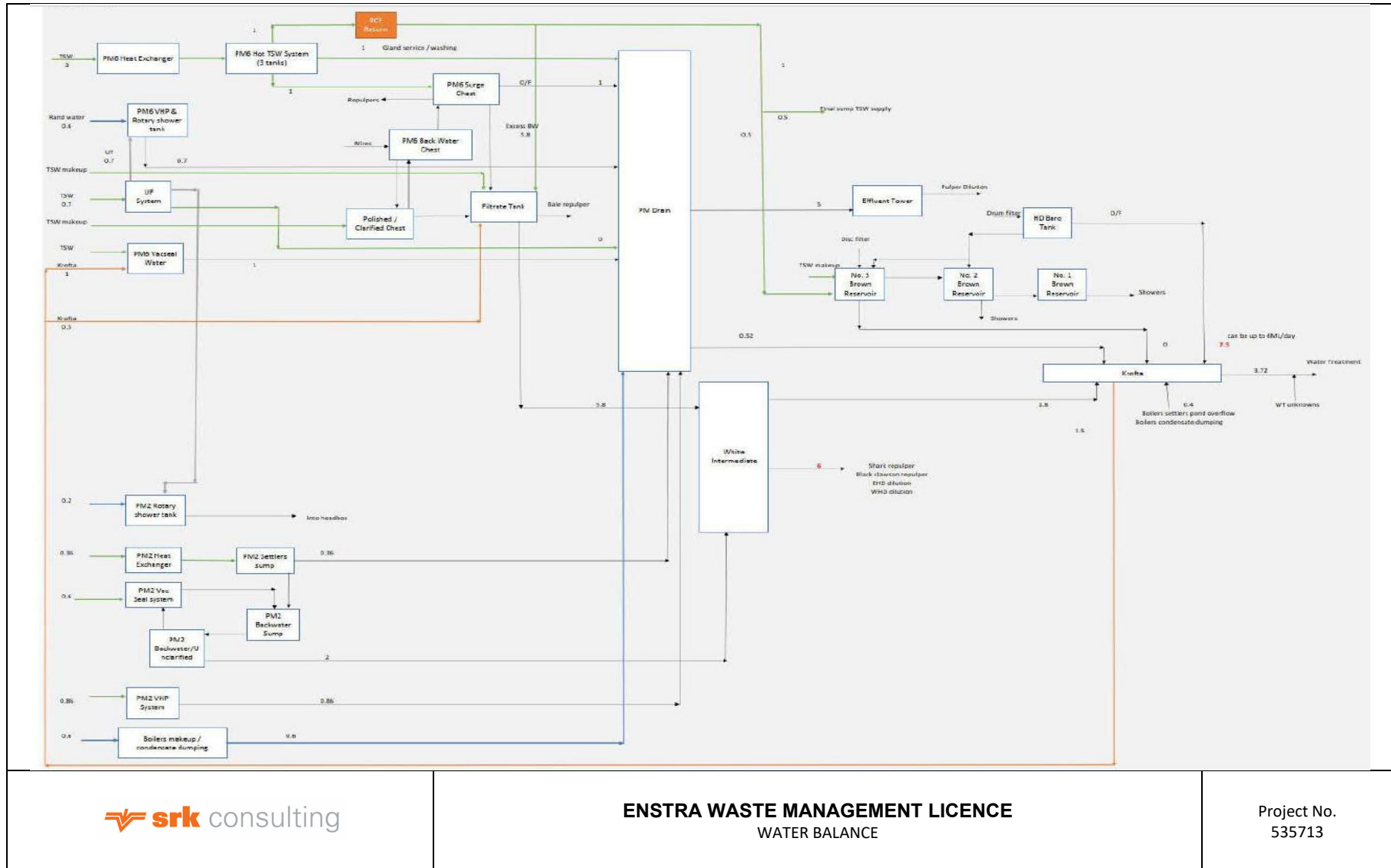


Figure 8-4: Enstra Water Balance

### 8.6.3 Flood Risk

A flood risk assessment was undertaken as part of the IWWMP process. The objective of the flood risk assessment was to ascertain whether the activities associated with the Enstra Paper are inundated by the Klein Blesbokspruit during the 50- and 100-year flood events and to determine the associated flood impacts. The 100 year flood line does not result in any inundation of Enstra Paper activities.

### 8.6.4 Surface Water Quality

The Blesbokspruit catchment is significantly developed, with extensive urban areas, industrial complexes, irrigation areas, lakes/darns, mining and associated tailings facilities. There are a number of significant point source discharges from the ERWAT and local municipality Waste Water Treatment Plant (WWTW), as well as various mine water discharge within the catchment. As a result of these activities, the Blesbokspruit catchment, including the Klein Blesbokspruit, is expected to be highly impacted.

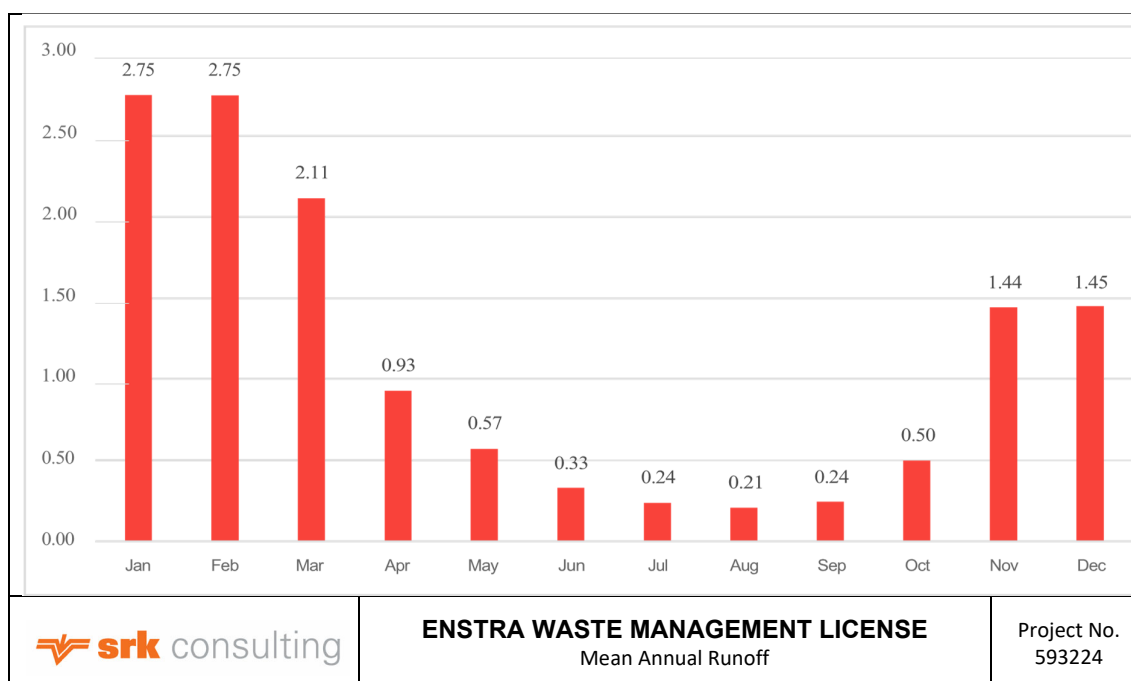
Enstra Paper has a regular surface water monitoring programme which includes the monitoring of the surface water quality of the Klein Blesbokspruit. Table 8-4 describes the monitoring points and frequency.

**Table 8-4: Surface monitoring points and frequency**

Monitoring Point	Latitude	Longitude	Current Sampling Frequency
Upstream of Cowles Dam	26.21643°S	28.44175°E	Once a Week
Effluent Discharge Point	26.20907°S	28.44569°E	Daily
Downstream of Cowles Dam	26.20506°S	28.46347°E	Once a Week

### 8.6.5 Mean Annual Runoff

WR2012 (Royal HaskoningDHV, 2012) simulates average runoff of this quaternary at 13.50 mcm per annum. The monthly runoff is presented in Figure 8-5.



**Figure 8-5: Average Naturalised Runoff (mcm)**

## 8.6.6 Resource Class and River Health receiving Water Quality Objectives and Reserve

### Groundwater Resource Class and the Reserve

In 2013 the Department of Water Affairs commissioned the Upper Vaal WMA Groundwater Reserve Determination (GWRD) Study by the WRC to support the water use licensing process in the Upper Vaal WMA. Groundwater resources were assessed to provide a basis for the implementation of the Reserve. The study was performed by the Department of Water Affairs GRDM (WRC, 2013). Data verification was carried out using a total of 833 stations under 3 272 analyses (745 stations pre-1985 and 2 526 stations post-1985). The Groundwater Reserve Determination was then done using pre-1980 and post-2000 data.

The study delineated the Upper Vaal WMA into 9 Groundwater Resource Units (GRUs), and further delineated resulting in a total of 12 GRUs: 1, 2, 3, 4a, 4b, Sa, Sb, 6a, 6b, 7, 8 and 9. These GRUs represent a combination of physical and chemical groundwater hydrogeological characteristics, which describe the quantity and quality components of this resource on the basis of groundwater rest level data, groundwater chemistry data and the trends associated with these components.

The GRUs were established using a combination of rock type, magnitude of recharge, nature of land use and conservation status. The C21 tertiary catchment falls within GRU's 4a, 6a and 6b with Quaternary C21D (the Enstra Mill) located in GRU 6a. GRU 6a includes mainly mining and urban land cover and includes the impacted Blesbokspruit River. These GRU's are shown in Figure 8-6.

GRU 6a is classified as having a D Category Present Ecological State (PES) (significantly modified), with a proposed desired status of a Category D with a Fair Management Class. Generally, the GRUs have a desired Class not more than the current. preliminary class, which signifies the resilience of the groundwater as opposed to more easily affected and modified surface water.

Proposed Resource Quality Objectives (RQOs) for groundwater in the Upper Vaal have been derived by the DWS dated July 2015 (GN 610). The RQO are applicable from 1 April 2016. The RQOs defined for the prioritized Resource Unit 62 are presented in Table 8-5.

**Table 8-5: Resource Quality Objectives (GN 610, 2015)**

Component	Numerical Limit
Quality	Q<Average recharge per hectare
Aquifer	Water level fluctuations around the average level should not exceed 11.8 m

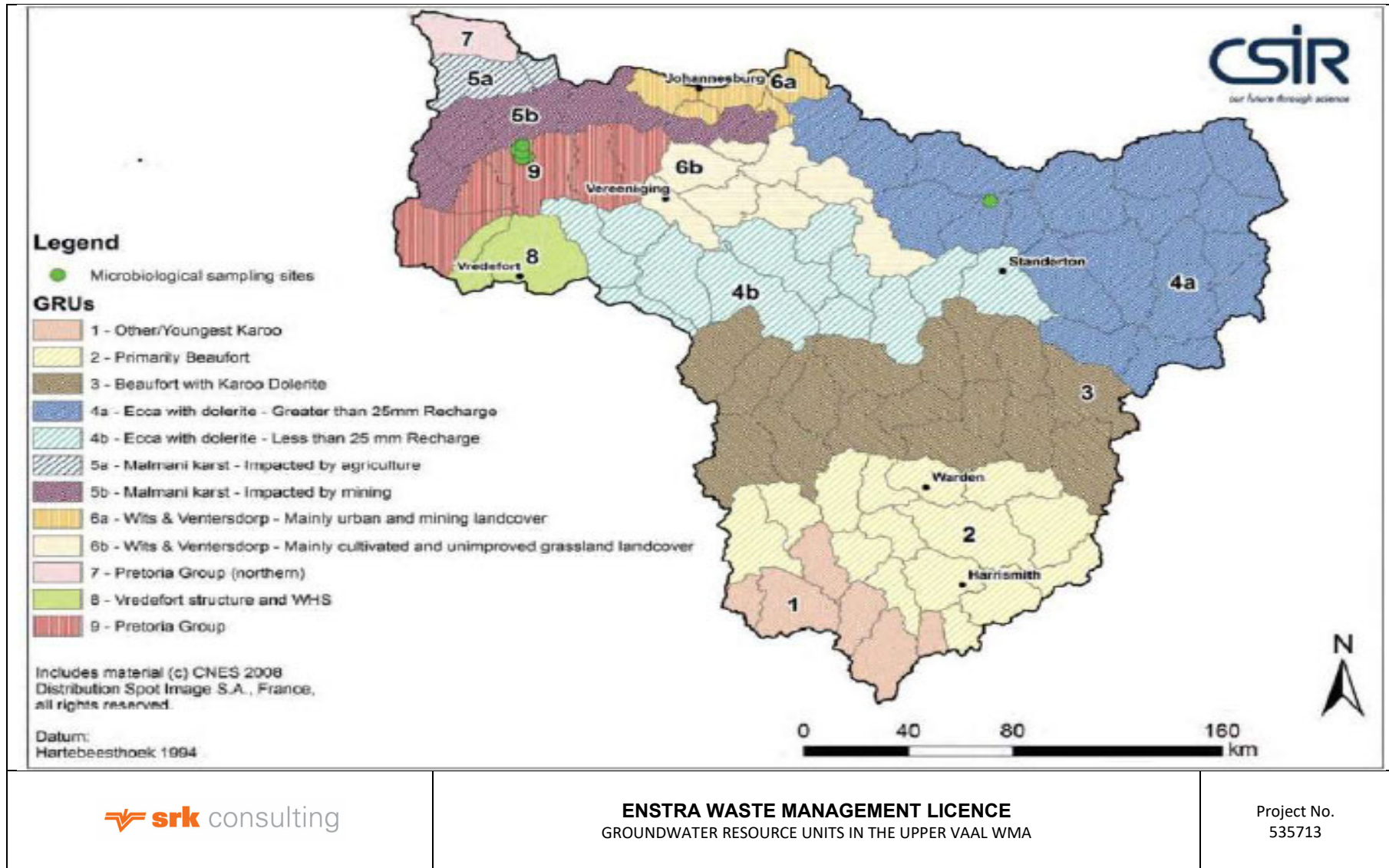


Figure 8-6: Groundwater Resource Units in the Upper Vaal WMA

## Surface Resource Quality Objectives

Proposed Classes and RQOs of Water Resources for Catchments of the Upper Vaal have been derived from DWS dated July 2015 (GN 610). The RQO are applicable from 1 April 2016. In terms of GN 610, the Enstra Paper operations are located within the prioritised Resource Unit 62. The water quantity, quality, habitat and biota objectives associated with this Resource Unit are presented in Table 8-6.

**Table 8-6: Resource Unit 62 Quality Objectives (GN 610, 2015)**

Indicator	Units	Numerical Limit
<b>RIVER WATER QUALITY</b>		
Electrical Conductivity	mS/m	:S1 11
Fluorine	mg/L	:S3.0
Aluminium	µg/L	:S150
Arsenic	µg/L	:S130
Cadmium	µg/L	:S5.0
Chromium	µg/L	:S200
Copper	µg/L	:S8.0
Mercury	µg/L	:S1.70
Manganese	µg/L	:S1 300
Lead	µg/L	:S13.0
Selenium	µg/L	:S30
Zinc	µg/L	:S36
Chlorine	µg/L	:S5.0
Endosulfan	µg/L	:S0.20
Atrazine	µg/L	:S100
E.coli	counts/100	:S130
<b>RIVER INSTREAM HABITAT AND BIOTA</b>		
Instream habitat must be in a largely modified or better condition to support the ecosystem	Instream Habitat Integrity Category 2D (2'42)	
Instream biota must be in a largely modified or better condition	Fish Ecological Category: 2'D (2.42) Macro-Invertebrate Ecological Category: 2:D (2:42) Instream Ecostatus Category: 2:D (2:42)	
Flows must be in a largely modified or better condition. Low flows must be suitable to support the ecosystems functions	Hydrological Category: 2:D (2:42)	
The nutrient concentrations must be decreased to an acceptable mesotrophic state. Salt concentrations must be at levels that do not threaten the ecosystem and are suitable for users. The river water must not be toxic to aquatic organisms or be a threat to human health. Pathogens must be at levels safe for human use (excluding for direct consumption)	Water Quality Category: 2:D (2:42)	
<b>RIVER RIPARIAN ZONE HABITAT</b>		
The riparian zone must be in a largely modified or better condition	Riparian Zone Habitat Integrity Category 2:D (2.42)	
Riparian vegetation must be m a	Riparian Ecostatus Category 2:D (2.42)	

largely modified or better condition	
Low and high flows must be m a largely or better condition	Hydrological Category: 2:D (2:42)
<b>DAM WATER QUANTITY</b>	
Not Applicable	
<b>DAM WATER QUALITY</b>	
Not Applicable	

## 8.7 Surface Water User Survey

The Gauteng Water Use Authorisation and Registration Management System (WARMS) database was interrogated to establish the key water users upstream and downstream the Mill (i.e., Quaternary Catchments C21D, C21E and C21F). The key water users upstream and downstream the Mill are summarised in Table 8-7.

**Table 8-7: Upstream and Downstream Key Water Users (WARMS, 2016)**

Sector	Source Number of Users	Volume (m <sup>3</sup> /annum)	
<b>Upstream Water Users (C21D)</b>			
Recreation Borehole		21 900	
Industry (non-urban)	Borehole	2	8 757
	Dam-Quarry	1	13 000
Agriculture: Irrigation	Borehole	3	194 545
	Scheme		324 600
	River		61 000
Agriculture: Aquaculture Borehole		333 333	
Agriculture: Watering livestock	Borehole		24 921
	Alexander Dam		333 333
Mining Kleinfontein Canal		38 400	
<b>Total</b>		<b>1353 789</b>	
<b>Downstream Water Users (C21E and C21F)</b>			
Agriculture: Irrigation	River/Stream	18	6 666 959
	Borehole	10	2 122 243
Agriculture: Watering Borehole Livestock			43 800
Industry (non-urban)	Borehole	2	14 272
	River/Stream	1	11 200
Industry (urban)	Quarry	2	60 641
	Borehole	3	27 693
	Scheme	2	92 554
<b>Total</b>		<b>9 039 362</b>	

## 8.8 Wetlands

Scientific Aquatic Services conducted a wetland assessment in March 2015 as part of the environmental assessment and authorisation process for the proposed pipeline to transport treated municipal water from the Welgedacht WWTW to the Enstra Mill. Key findings from the report include the following:



- The wetland system identified during the field assessment was classified as a channelled valley bottom wetland, with several artificial drainage canals connected to it;
- The catchment area within the which the wetland system falls is known as Blesbokspruit, and is listed as a Ramsar Site, thus it is of international importance and therefore is of utmost importance to keep the level of disturbance within the channelled valley bottom wetland to a minimum;
- Index of Habitat Integrity (IHI) was applied to the wetland system to determine the PES. Upon completion of the assessment the wetland system is described to fall within a PES Category D (Largely modified), indicating a large change in ecosystem processes and loss of natural habitat and biota has occurred;
- In terms of wetland eco-services and functional assessment, the wetland system provides an intermediate level of ecological function and service provision;
- The Ecological Importance and Sensitivity of the wetland system was determined to fall within Category C (Moderate);
- A suitable Recommended Ecological Category for the wetland system was determined. It is recommended that the wetland system be managed as a Category D resource; and,
- Since both artificial and drainage canals flowing into the channelled valley bottom wetland are considered to be artificial features, SAS did not deem it necessary to undertake a full wetland ecological assessment.

WSP then conducted a desktop review and a site visit to ground-truth the wetlands identified in the SAS report and by the National Freshwater Ecosystem Priority Areas (NFEPA) database. Ground-truthing was conducted on the 12 November 2015 and followed the DWAF (2008) methodology. Vegetation and soil moisture indicators were used to determine the extent of the wetlands. As the wetlands are in a heavily disturbed area, potential impacts are limited and comprise mainly water discharges and land use/management changes. Since the wetlands are located outside the urban edge, the Gauteng Department of Agriculture and Rural Development advocate a 50m buffer for the wetlands. It is, however, observed that the wetland systems have previously undergone disturbances. A 32m buffer zone could therefore be applied (excluding artificial wetlands); as such no further developments should take place within 32 m of the wetland system. The location of the NFEPA wetlands are illustrated in Figure 8-7.



Figure 8-7: NEFAPA Wetlands in relation to the Enstra operations

## 8.9 Biodiversity

The Gauteng Conservation Plan 3.3 is a spatial tool which identifies biodiversity priority areas. The map delineates Critical Biodiversity Areas, Ecological Support Areas and Protected Areas for the province. Figure 8-8 illustrates the terrestrial Critical Biodiversity Areas surrounding the Mill site with a description of each category presented in Table 8-8.

**Table 8-8: Description of Map Categories**

Category	Description
Ecological Support Areas	Natural, near natural, degraded or heavily modified areas required to be maintained in an ecologically functional state to support Critical Biodiversity Areas and / or Protected Areas. Ecological Support Areas maintain the ecological processes on which Critical Biodiversity Areas and Protected Areas depend. Some Ecological Support Areas are irreversibly modified but are still required as they still play an important role in supporting ecological processes.
Critical Biodiversity Areas	Critical Biodiversity Areas include natural or near - natural terrestrial and aquatic features that were selected based on an areas biodiversity characteristics, spatial configuration and requirement for meeting both biodiversity pattern and ecological process targets. Critical Biodiversity Areas include irreplaceable sites where no other options exist for meeting targets for biodiversity features as well as best-design sites which represent an efficient configuration of sites to meet targets in an ecologically sustainable way that is least conflicting with other land uses and activities. These areas need be maintained in the appropriate condition for their category. Some Critical Biodiversity Areas are degraded or irreversibly modified but are still required for achieving specific targets, such as cultivated lands for threatened species.
Protected Areas	Protected Areas are areas which have legal protection under relevant legislation, or which are managed with a primary conservation objective. Importantly, the Protected Area definition used, and the areas included in Gauteng C-Plan v3.3 deviate from those typically used in other South African conservation plans, as the key criteria used to guide inclusion or exclusion is the type of conservation management applied in an area rather than its legal status. For example, World Heritage Sites and Protected Environments are not considered to be Protected Areas while certain undeclared conservation areas are included.

The plan rates the area mirroring the Blesbokspruit tributary and the Blesbokspruit (i.e. south and east of the Mill). The stress from the associated land use within the Upper Vaal River Catchment is perhaps the highest in the country both in terms of water supply and adverse impacts of the water resource environment (Water Resource Commission (WRC, 2013).

The groundwater of the Upper Vaal WMA currently maintains 3 PES categories over the catchment (i.e., 42% Category B; 44% Category B/C and 14% Category D (WRC, 2013).

This status makes it easier to place more uniform and relatively 'natural' set of Resource Quality Objectives over the majority of the Upper Vaal WMA. This will secure the surface water/groundwater interaction, as well as the groundwater contribution to baseflow (WRC, 2013).

The increased capacity to recycle waste paper contributes to the protection of threatened forest ecosystems. Enstra site is within the catchment area of the Ramsar registered Marievale Wetland Reserve as an important wetland reserve within the Blesbokspruit catchment system. Enstra Paper participate in the Blesbokspruit Forum aimed at facilitating collaboration on catchment management with DWS, Rand Water and associated partners.

The Enstra site was established circa 1936 and has remained a brownfield site since then. No known critically endangered or vulnerable species are affected by the proposed project locations within the existing Enstra Paper brownfield site.



Figure 8-8: ESA and CBA

## 8.10 Geohydrology

Information from this section was obtained from the Enstra IWWMP (WSP, 2021).

### 8.10.1 Regional Groundwater

Data verification for the C2 I tertiary in particular was performed using 348 stations under 532 analyses (140 pre- 1985 and 392 post-1985). Results showed that groundwater levels within GRU 6a reflect variations between 6.7- 14.3 mbgl with an average level of 8.9 mbgl. The associated standard deviation in groundwater level (1.2 m) suggests a relative consistency in the levels over time. It must be noted that this GRU displays the most heavily impacted GRU out of the 12 GRU's that were included in the study (WRC, 2013).

Over the entire Upper Vaal WMA, the total volume of groundwater recommended for allocation for the Reserve is approximately 768 million m<sup>3</sup>/a (WRC, 2013), which is approximately 39% of the estimated mean annual groundwater recharge.

Quaternary C21D (Enstra Mill) within GRU 6a has a recharge of 8.56 million m<sup>3</sup>/a (2.8% of MAP), and a groundwater component of baseflow of 5.78 million m<sup>3</sup>/a. The quantity component of the Reserve for GRU 6a only is provided in Table 8-9.

**Table 8-9: Quantity component of the Reserve**

GRU	Groundwater Component of Baseflow (million m <sup>3</sup> /a)	Population at minimum living level	Basic Human Needs Reserve (million m <sup>3</sup> /a)	Total Reserve (million m <sup>3</sup> /a)
6a	25.1	714 795	6.52	31.6

Results per GRU were used to obtain the recharge and groundwater component of the Reserve per quaternary Table 8-10.

**Table 8-10: Quantity Component of the Groundwater Reserve for C21 (DWA/WRC, 2013)**

Quaternary	GRU	Recharge (million m <sup>3</sup> /a)	Groundwater Component of baseflow (million m <sup>3</sup> /a)
C21A	4a	26.89	9.77
C21B	6b	9.70	7.97
C21C	6b	9.85	7.75
C21D	6a	8.56	5.78
C21E	6a	9.21	7.69
C21F	6b	9.49	8.26
C21G	6b	9.38	8.07

Negative slopes were found to be evident in GRU 6a, combined with the defunct mining activity, the long-term trend of groundwater chemistry that marked impacts shall be demonstrated in tertiary C21 (as well as C22 and C23). However, the resilience of groundwater to anthropogenic impacts is sufficient to the degree of mask coal related impacts (as opposed to surface water).

## 8.10.2 Local Groundwater Quality

Preliminary RQOs for the groundwater quality component in the Upper Vaal WMA are set in accordance with the initial determination of this component in regard to the Reserve. The Reserve supports both the ecological and basic human needs components, and therefore its focus is jointly directed at the potable use (basic human needs) of water and that of aquatic ecosystems.

The GWRD Study recognised that impacts are most likely externalised to surface water and therefore, to some extent, masks the effect on groundwater. This is due to the surface water/groundwater interaction which occurs as a result of approximately 93% of the WMA encompassing fractured and intergranular aquifers.

The C2 I tertiary shows groundwater quality exceedances, which is expected due to the active and defunct mining and industrial activities in the area. C2 I has specifically been identified as one of the areas where discernible impacts are manifested, mainly due to the mining in the area. It is for this reason that GRU 6a has been classified as a Category D.

However, out of the 25 boreholes located within GRU 6a, only 2 had sufficient record lengths of groundwater quality. Therefore for practical purposes, there is insufficient data available for the basis to determine the groundwater quality status at the present. Due to the considerable modification of land cover from the natural in GRU 6a, it suggests that the overall PES must be assigned a Category D (WRC, 2013).

Previous groundwater investigations have confirmed that Enstra operations is situated in a historically polluted environment stretching well beyond its boundaries, owing to the many industrial and mining related activities which have occurred and are still present in the area.

Groundwater contamination caused by Enstra Paper therefore needs to be differentiated from other sources of contamination. To achieve this, the geology and hydrogeology must be adequately understood. Only then can the most appropriate solutions to groundwater contamination be found.

The aquifers underlying the Enstra Paper site consist of the following four aquifer zones (WSP, 2021):

- Weathered shale and silt and the clay horizon that covers most of the site, average 3 m; Weathered dolomite aquifer, average 35 m;
- Fractured dolomite aquifer, average 200 m; and,
- Dyke and sill contacts.

Two mechanisms were identified through which possible contaminant loading from Enstra operations may impacts on the receiving water resource, namely:

Direct discharge to groundwater and subsequent discharge to surface water resource: Contaminated groundwater flow to the underground gold mine workings of Grootvlei Mine. Historically mine water used to be pumped from the No 3 Shaft (up to March 2010) and discharged to the Blesbokspruit. This activity ceased in March 2010 and as such is no longer considered a viable pathway to surface water resources. However, should dewatering be re-initiated this pathway would become potentially viable.

Surface contaminant loading from the Enstra Mill has a short time period before it is recorded downstream in the Klein Blesbokspruit, whereas groundwater contaminant loading is a much longer process. According to the Golder and Associate numerical groundwater model, it will take approximately 30 years to reduce the loading to the underground workings by half of the current (original loading).

### 8.10.3 Aquifer Characterisation

According to the 1:250 000 geological map of the East Rand (2628), the Enstra Mill is underlain by Karoo Supergroup rocks, belonging to the Dwyka and Eccca Groups and an inlier of dolomite of the Chuniespoort Group. The Enstra Mill site and the areas to the north, south and west thereof are underlain by the younger Karoo rocks while the eastern half of the property is underlain by dolomite.

The Dwyka deposits generally comprise siltstones and sandstone with abundant cobbles and boulders of other rock types from the region which were transported by glaciers. The Eccca Group comprises sandstones and siltstones. The Chuniespoort Group consists of multiple formations of dolomite with varying amounts of chert bands in each formation. A sinkhole is known to have occurred historically within the Enstra Mill area. As such, the dolomite in the area is assumed to have subterranean caves.

Drilling data has shown that the site is to be underlain by dolomite bedrock at a depth of 4 m to 21 m. The bedrock included variable amounts of chert and localized soft wad lenses. Cavities were also recorded in the bedrock. The dolomite bedrock therefore represents a typical Chuniespoort dolomite bedrock profile where solution weathering has caused the formation of rock pinnacles separated by deep grikes filled with residual dolomite and chert.

A syenite sill is also present underneath parts of the Enstra Mill. This sill, contained within the dolomite, has a weathered upper part and has been observed to be 7 m to 50 m thick. Three sub-vertical dykes, assumed to also be syenite, have been identified to run across the site in a northwest to southeast trend.

The soils on site represent residual soils from the dolomite and syenite rocks and clayey transported soils. In the low-lying parts of the site black alluvial clays of 2m to 6m in thickness have been identified. The residual soils include the dark brown clayey silt (residual dolomite wad) with chert gravels and silty clay (residual syenite). It has however been reported that well defined clay layers with significantly low permeabilities are present in parts of the site.

Gold mining has taken place beneath the Enstra operations. The shallowest mining (approximately 200 m) was done on the Black Reef formation, situated at the base of the dolomite. Kimberley Reef mining in the underlying Witwatersrand quartzite occurred at depths >300 m. The puncturing of the dolomite by underground mine excavations has altered the natural flow of groundwater in the dolomite as the mine voids act as groundwater drains at the base of the dolomite aquifer.

The Enstra Mill is situated on a complex geological and hydrogeological terrain. The property, as well as the surrounding areas, is underlain at relatively shallow depth by dolomite, which is traditionally a good source of groundwater. The groundwater flow is considered to be governed to a degree by geological structures such as dykes, faults, sills and preferential weathering zones (WSP, 2021).

Before mining, industrial and the urban development of the East Rand, the Blesbokspruit was a seasonal river, which reportedly dried up during winter. Dolomite springs, controlled by either topography or chert banding within the dolomite, discharged into the Blesbokspruit. The seasonality of the flow of the river was controlled by the water table elevation in the dolomite.

The mining of the deep Witwatersrand Sediments and shallower Karoo Sediments, created mining voids and a downward hydraulic gradient was established due to pumping of groundwater, sourced chiefly from the overlying dolomite, from the mine workings. Thus, all or a proportion of the spring flow from the dolomite into the Blesbokspruit was diverted to underground flow. Due to increasing volumes of industrial and wastewater effluent discharged into the Blesbokspruit and its tributaries, the Blesbokspruit did not dry up as would have been expected due to the diversion of the dolomitic water to the deep mines (WSP, 2021).

Over time the hydraulic situation in the Blesbokspruit began to change from an effluent stream to one of an influent stream and water losses from the stream to the subsurface environment. The losses from surface flow to the subsurface together with water from the dolomite aquifer contribute to the mine inflow (WSP, 2021).

With the cessation of mining activities within the area, groundwater levels are expected to recover and again contribute directly to the Blesbokspruit in the form of baseflow contribution. Flow in the Blesbokspruit will presumably still be fed by anthropogenic effluent. There may be notable changes in the flow regime of the water course during the period of groundwater recovery owing to lack contribution of flow from dewatering of mines within the catchment.

### 8.10.4 Hydrocensus

Over the entire Upper Vaal WMA, the approximate use of groundwater is 84 million m<sup>3</sup>/a, with a remaining 1 063 million m<sup>3</sup>/a of allocable groundwater (WRC, 2013). However, not all of this groundwater is accessible, and for this reason the DWA made the assumption that only 50% would be available for use (i.e., 532 million m<sup>3</sup>/a).

Groundwater use within GRU 6a as a percentage of recharge fluctuates between 0% - 20%. Of all the GRUs delineated, the C21 tertiary encompasses 3 of these as shown in Table 8-11. It also includes the results of the quantity component of the groundwater Reserve (WRC, 2013).

**Table 8-11: Quantity Component of the Groundwater Reserve for all C21 Quaternaries**

GRU	Quaternary	Groundwater Use	Allocable Groundwater (Million m <sup>3</sup> /a)	
		Million m <sup>3</sup> /a	Total	50% of Total
4a	C21A	0.06	17.02	8.51
6a	C21D	0.84	0.29	0.15
	C21E	0.22	0.93	0.47
6b	C21B	0.23	1.33	0.67
	C21C	0.13	1.89	0.94
	C21F	0.59	-0.01	0.00
	C21G	0.03	1.26	0.63

Groundwater is used in the parts of the Upper Vaal WMA for urban, mining, irrigation and industrial purposes and is included in Table 8-12 (WRC, 2013).

**Table 8-12: Summary of Groundwater Use in the C21 Tertiary**

Quaternary	Rural	Municipal	Agriculture		Mining	Industry	Aquatic	Total
			Irrigation	Livestock				
(MILLION M <sup>3</sup> /A)								
C21A	0	0	0	0.0515	0	0.007	0	0.0585
C21B	0	0.1048	0	0.1182	0	0.003	0	0.2260
C21C	0	0	0	0.1311	0	0	0	0.1311
C21D	0	0.2614	0	0.0012	0.0384	0.207	0.3333	0.8414
C21E	0	0	0	0.1540	0	0.066	0	0.2200
C21F	0	0.4266	0	0.1394	0	0.023	0	0.5890
C21G	0	0	0	0.0142	0	0.016	0	0.0302
TOTAL	0	0.7928	0	0.6096	0.0384	0.3220	0.3333	2.0962



Based on the 2013 Golder IWWMP, a hydrocensus was undertaken in September 2008 on and surrounding the Enstra operations. The objective of the hydrocensus was to determine the existence, condition and suitability of existing groundwater monitoring boreholes to measure groundwater levels and obtain groundwater quality samples.

Approximately 50 sites were identified, primarily in the C21D quaternary catchment. Of these, 39 boreholes were sufficiently accessible to obtain water elevation measurements. Ten of these boreholes were strategically selected for water quality analyses in order to obtain an initial understanding of the lateral variation of the groundwater quality around the site. The results of the sampling exercise for the boreholes sampled are provided in Table 8-13.

**Table 8-13: Hydrocensus Borehole Sampling (Golder 2013)**

Borehole	Description	pH	TDS	Na	Cl	SO4
			(mg/l)			
<b>Up-gradient of Site</b>						
<b>2628AB00436</b>	North of Alexander Dam	8.01	754	172	37.5	369
<b>GVI</b>	Up-gradient along Klein Blesbokspruit	7.85	1746	157	79.3	1048
<b>GP151</b>	Up-gradient along Blesbokspruit	8.44	272	14.5	25.6	14.2
<b>CSIRI</b>	South East of Old Sappi Lime Dams	8.39	8144	2580	289	1849
<b>TI</b>	Old Sappi Irrigation Field	7.84	5476	392	400	2289
<b>SE3</b>	Old Sappi Irrigation Field	8.1	1212	16	352	344
<b>J&amp;WID</b>	South East of Old Sappi Lime Dam	8.45	1244	267	141	269
<b>Site</b>						
<b>CSIR8</b>	South of Enstra Mill	7.95	2408	372	178	673
<b>Down-gradient of Site</b>						
<b>SE4</b>	South of Aeration Lagoon	7.96	2376	232	414	783
<b>SRK2</b>	Up-gradient of Cowles Dam	7.18	665	81.4	149	13.9

The DWS National Groundwater Archive (NGA) was also interrogated to establish the presence of registered boreholes and associated groundwater use within a 2 km radius of the Enstra Mill. According to the NGA one groundwater borehole is registered within a 2 km radius of the site. The borehole identified in the hydro census is a DWS monitoring borehole and the NGA record does not include any general water level or water quality data.

Based on the information reviewed it is concluded that there is no groundwater for potable water use within the vicinity of the Enstra Mil.

## 8.11 Potential Pollution Source Identification

Based on the activity related processes of Enstra, the following potential source areas with their associated activities were identified:

- TSW Dams;
- Broke Storage Area;
- Raw Fibre Material Storage Area; Recovered Fibre Plant and Storage Area; Coal Bunker;
- Ash Settling Ponds;
- Boiler Ash Storage Area;
- Pollution Control Dam;
- Former Black Liquor Dams/ TSW Dams; Scrap Yard and Recovery Centre;
- Sump for Pump House 1 & 4 (Final Sump); Mini Sump
- Krofta (Sediment Plant)
- Dissolved Air Flotation (DAF) System; Primary Clarifier;
- Lagoon Sump Triangular Sump
- Activated Sludge reaction Basin and Secondary Clarifier; and, Aeration Lagoon.

It must be noted that the list of key areas provided does not indicate that these areas specifically pose a direct risk to the regional water resources associated with the Enstra Paper operations. Furthermore, the risks assessed do not imply that the activity is related to Section 21 water use in terms of the NWA.

## 8.12 Archaeological Status of the Site

No sites of archaeological, cultural and heritage interests will be affected by the existing or proposed facilities.

## 8.13 Visual

The proposed development should have minimal visual impact as they will be situated within the context of the existing Enstra Mill facility. Therefore, the facilities are not perceived to be visually detrimental to their surroundings.

## 8.14 Noise

Potential onsite receptors include Enstra employees and visiting contractors. The noise impacts will mainly be due to vehicular movements to and from the waste facilities and also that from loading and offloading wastes. Given the existing noise levels at certain parts of Enstra, the sound levels from the proposed facility will be considered negligible in comparison.

## 8.15 Socio – Economical Environment

### 8.15.1 Regional Context

Enstra is situated in the Ekurhuleni Metropolitan Municipality. The Ekurhuleni Metropolitan Municipality lies within the Gauteng Province of South Africa, the smallest of the provinces in South Africa accounting for only 1.5% of the country's land area. Gauteng is highly urbanised and houses the largest city in the country, Johannesburg, as well as Tshwane (formally Pretoria) which is the administrative capital of South Africa. Gauteng is considered the economic hub of South Africa,

generating a third of South Africa's Gross Domestic Product (GDP). Table 8-14 presents the income range (2001 South African National Census) and ethnic population (2011 South African National Census) for Gauteng (South African National Census 2001 and 2011).

**Table 8-14: Key Population Statistics for Gauteng**

Aspect	Description	Percentage
Annual Household Income	No Income	2%
	R12-R4 800	6.4%
	R4812-R9600	13%
	R9 612 - R19 200	24.0%
	R19 212 - R38 400	20.4%
	R38412-R 76800	15.8%
	R76812-R153600	10.4%
	R153 612 - R307 200	5.0%
	R307 212 - R614 400	1.8%
	R614412 - R614 412+	1.1%
Population Group	Black African	77.36%
	Coloured	3.45%
	Indian or Asian	2.91%
	White	15.6%
	Other	0.69%
Language	Zulu	19.79%
	English	13.28%
	Afrikaans	12.45%
	Sesotho	11.55%
	Sepedi	10.62%
	Other	32.31%

### 8.15.2 Local Context

Enstra is located within Ward 72 of the Ekurhuleni Metropolitan Municipality. The Ekurhuleni Metropolitan Municipality has a total surface area of 1 975 km<sup>2</sup> that accommodates a population of 3 178 470 million (Source: Census 2011). The Ekurhuleni Metropolitan Municipality is spread over 15.6% of Gauteng's land mass, houses 5.4% of the country's population, and 25.5% of Gauteng's population. The area is exceptionally densely populated with 1 609 people/km<sup>2</sup> as compared to Gauteng (680.6 people/km<sup>2</sup>) and the national population (42.8 people/km<sup>2</sup>). The area has an average annual population growth rate of 2.47%.

According to Census 2011, the Ekurhuleni Metropolitan Municipality has a total population of just under 3,2 million people, 78,7% of which are Black Africans. Whites make up 15.8% of the population, while other race groups comprise the remaining 5.5% (Table 8-15).

**Table 8-15: Population groups of the Ekurhuleni Metropolitan Municipality**

Group	Percentage
Black African	78.7%

Group	Percentage
Colored	2.7%
Indian/Asian	2.1%
White	15.8%
Other	0.6%

An average of 2.9 persons occupies a household in the Ekurhuleni Metropolitan Municipality. An estimated 77.4% of residents reside in formal housing. In terms of services, 57.2% of the population have access to water within their dwelling and majority (82.2%) of the population having access to electricity. A summary of household services within the Ekurhuleni Metropolitan Municipality is presented in Table 8-16.

**Table 8-16: Household Services for the Ekurhuleni Metropolitan Municipality**

Service	Total
Number of Households	1015465
Flush Toilet Connected to sewerage	85%
Weekly refuse removal	88.4%
Piped water inside dwelling	57.2%
Electricity for lighting	88.2%

## 9 Specialist Studies

Extensive specialist studies have been undertaken historically in support of the WUL Applications, and Amendments and the WML and Amendments. The proposed project will occur within the existing footprint area of the Enstra Site on land that has historically been disturbed and put under hard-standing. No additional specialist studies have therefore been undertaken for the purpose of this application.

## 10 Environmental Impact Assessment

### 10.1 Impact Assessment Methodology

The main objective of the impact assessment is to identify the negative environmental impacts that can be avoided and/or mitigated and the benefits of the positive impacts that can be enhanced as a result of the proposed project .

A quantitative impact assessment methodology was used for the impact assessment. This method makes use of the basic risk assessment approach of deriving an expression for risk from the product of likelihood (probability) and consequences.

#### 10.1.1 Baseline Characterisation of the Environment

The baseline characterisation of the environment (biodiversity, geohydrology, heritage resources, wetlands, air quality and hydrology) included in Section 8 of this BAR is based on findings from previous specialist studies undertaken for Enstra, the IWWMP update in 2021 and other existing information and Geographic Information System (GIS) databases. The characterisation provides a description of the current status of the environment, based on which an impact assessment will be conducted.

## 10.1.2 Identification of Key Issues

Key potential environmental risks have been identified as part of the impact assessment. The assessment also took into account any anticipated cumulative impacts that may occur as a result of the proposed project.

## 10.1.3 Quantitative Impact Rating (Significance)

The anticipated impacts associated with the proposed project will be assessed according to SRK's standardised impact assessment methodology, which is presented below. This methodology has been utilised for the assessment of environmental impacts where the consequence (severity of impact, spatial scope of impact and duration of impact) and likelihood (frequency of activity and frequency of impact) have been considered in parallel to provide an impact rating and hence an interpretation in terms of the level of environmental management required for each impact.

The first stage of any impact assessment is the identification of potential environmental activities<sup>1</sup>, aspects<sup>2</sup> and impacts, which may occur during the commencement, and implementation of a project. This is supported by the identification of receptors<sup>3</sup> and resources<sup>4</sup>, which allows for an understanding of the impact pathway and an assessment of the sensitivity to change. Environmental impacts<sup>5</sup> (social and biophysical) are then identified based on the potential interaction between the aspects and the receptors/resources.

The significance of the impact is then assessed by rating each variable numerically according to defined criteria as outlined in Table 10-1.

The purpose of the rating is to develop a clear understanding of influences and processes associated with each impact. The severity<sup>6</sup>, spatial scope<sup>7</sup> and duration<sup>8</sup> of the impact together comprise the consequence of the impact and when summed can obtain a maximum value of 15. The frequency of the activity<sup>9</sup> and the frequency of the impact<sup>10</sup> together comprise the likelihood of the impact occurring and can obtain a maximum value of 10. The values for likelihood and consequence of the impact are then read off a significance rating matrix table as shown in Table 10-2.

This matrix thus provides a rating on a scale of 1 to 150 (low, medium low, medium high or high) based on the consequence and likelihood of an environmental impact occurring.

Natural and existing mitigation measures, including built-in engineering designs, are included in the pre-mitigation assessment of significance. Measures such as demolishing of infrastructure, and reinstatement and rehabilitation of land, are considered post-mitigation.

<sup>1</sup>An **activity** is a distinct process or task undertaken by an organisation for which a responsibility can be assigned. Activities also include facilities or pieces of infrastructure that are possessed by an organisation.

<sup>2</sup>An **environmental aspect** is an 'element of an organisations activities, products and services which can interact with the environment'. The interaction of an aspect with the environment may result in an impact.

<sup>3</sup>**Receptors** comprise, but are not limited to people or man-made structures.

<sup>4</sup>**Resources** include components of the biophysical environment.

<sup>5</sup>**Environmental impacts** are the consequences of these aspects on environmental resources or receptors of particular value or sensitivity, for example, disturbance due to noise and health effects due to poorer air quality. Receptors can comprise, but are not limited to, people or human-made systems, such as local residents, communities and social infrastructure, as well as components of the biophysical environment such as aquifers, flora and palaeontology. In the case where the impact is on human health or well-being, this should be stated. Similarly, where the receptor is not anthropogenic, then it should, where possible, be stipulated what the receptor is.

<sup>6</sup>**Severity** refers to the degree of change to the receptor status in terms of the reversibility of the impact; sensitivity of receptor to stressor; duration of impact (increasing or decreasing with time); controversy potential and precedent setting; threat to environmental and health standards.

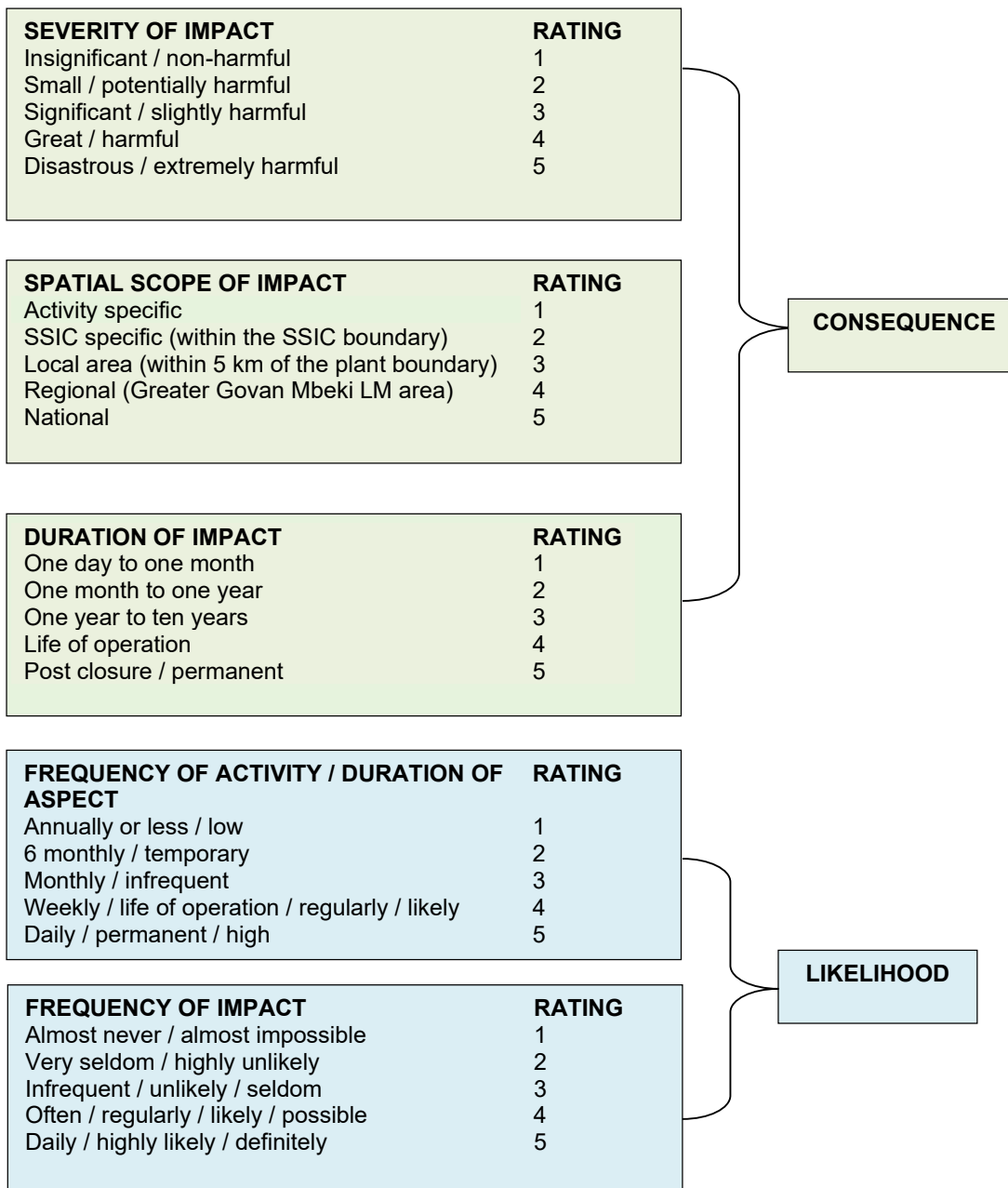
<sup>7</sup>**Spatial scope** refers to the geographical scale of the impact.

<sup>8</sup>**Duration** refers to the length of time over which the stressor will cause a change in the resource or receptor.

<sup>9</sup>**Frequency of activity** refers to how often the proposed activity will take place.

<sup>10</sup>**Frequency of impact** refers to the frequency with which a stressor (aspect) will impact on the receptor.

**Table 10-1: Criteria for Assessing Significance of Impacts**



**Table 10-2: Interpretation of Impact Rating**

		Consequence														
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Likelihood	1	2	4	6	8	10	12	14	16	18	20	22	24	26	28	30
	2	4	8	12	16	20	24	28	32	36	40	44	48	52	56	60
	3	6	12	18	24	30	36	42	48	54	60	66	72	78	84	90
	4	8	16	24	32	40	48	56	64	72	80	88	96	104	112	120
	5	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150
	6	12	24	36	48	60	72	84	96	108	120	132	144	156	168	180
	7	14	28	42	56	70	84	98	112	126	140	154	168	182	196	210
	8	16	32	48	64	80	96	112	128	144	160	176	192	208	224	240
	9	18	36	54	72	90	108	126	144	162	180	198	216	234	252	270
	10	20	40	60	80	100	120	140	160	180	200	220	240	260	280	300

High	76 to 150	Improve current management
Medium High	40 to 75	Maintain current management
Medium Low	26 to 39	
Low	1 to 25	No management required

**SIGNIFICANCE = CONSEQUENCE x LIKELIHOOD**

## 10.2 Summary of Identified Possible Impacts

The identified potential positive and negative biophysical, socio-economic and cultural impacts are summarised in Table 10-3. It is noted that potential impacts associated with the proposed RCF plant is mitigated through the implementation of approved designs as well as by complying with the requirements of existing environmental approvals. The RCF plant will be constructed using improved technology within an already disturbed area within the Enstra complex. It is therefore not expected that significant environmental impacts will occur as a result of the operation of the plant.

**Table 10-3: Summary of Potential Environmental Impacts Associated with the Proposed Development**

Element of Environment	Potential Impact Descriptions
Socio-Economic	Possible temporary and permanent job opportunities during the construction and operation of the RCF plant Regional economic benefits as a result of the on-going waste paper recycling.
Hydrogeology	Possible, but limited groundwater contamination.
Surface water	Possible, but limited surface water contamination.
Noise	Possible generation of noise during the construction of the RCF plant.
Visual	It is not anticipated that any visual impacts will be associated with the proposed RCF Plant
Soils/Land Use/Land Capability	Possible, but limited soil contamination.
Waste	Increased waste paper recycling capabilities in the country, aligning with the National Waste Management Strategy.

## 11 Assessment of Environmental Impacts

This section contains the assessment of potentially positive and negative environmental impacts that can be caused by the proposed waste recycling optimization project. The impacts are linked to the activities conducted for the proposed RCF plant, broadly relating to planning, construction, operations and decommissioning phases. Specific emphasis was placed on any relevant environmental, social and economic impacts identified by the EAP, based on information in Section 8, as well as a professional judgement of the EAP team through appraisals on the project description, listed activities and the receiving environment.

The objectives for each of the potential environmental impacts identified was to determine their significance and to promote mitigation measures to reduce the impacts to an acceptable level where required.

All of the identified impacts are assessed in this section. Considering the general nature of the proposed project, this section will take cognisance of the construction, operational, and decommissioning phases. This is intended to:

- Enable to facilitate the preferred alternative during the decision making process of the DFFE; and
- Enable stakeholders to understand the potential impact of the project.

Identified potential environmental impacts have been addressed in this section, according to the adopted methodology for assessing impacts as described in Section 9.

Environmental impacts on the biophysical and socio-economic environment, which could potentially occur throughout the construction, operation and closure of the RCF Plant, are described in the following sections.

## 11.1 Potential Environmental Issues Identified for the Project

Key potential positive and negative environmental issues relating to the proposed RCF Plant were identified based on the finding the EAP conducting the EIA. Taking into consideration that there will be no point sources, additional emissions, or additional impacted areas as a result of the proposed RCF Plant, minimal impacts are envisaged. The following potentially significant environmental issues relating to the proposed RCF Plant were identified

## 11.2 Pre Construction and Construction Phase

It must be noted that no biophysical, social or cultural impacts are envisaged during the pre-construction phase. The proposed RCF Plant will largely entail the conversion of an existing building into the RCF Plant, fitted with the necessary screening and pulping equipment. The construction phase will be temporary in nature and expand across approximately one year. Construction activities will include, but are not limited to the following:

- Clearing of the existing warehouse currently utilised for storage of waste paper;
- Construction/delivery of repulping and course screening infrastructure namely:
  - Repulper;
  - Hydrapurge
  - Trommel;
  - Compactor;
  - HD Cleaners;
  - Ragger;
  - Junk trap
  - Waste storage skips,
- Construction/delivery of the following equipment for hole screening:
  - UVK1 compartment;
  - Conicdrum Screen;



- Float purger;
- Waste skips.
- Construction/Delivery of the following equipment for fractionating and cleaning:
  - Fractionator;
  - Centricleaners;
  - Fibremisers.
- Construction/delivery of the following equipment slotted screens:
  - UVK2 Slotted Screen;
  - FNK Slotted Screen;
  - Eco rejects Screen
- Construction / delivery of a short fibre and disk filter

Following filtration at the short fibre and disk filter, pulp is transported to the paper machines for final processing and paper manufacturing. Currently the paper machines are operating under capacity, and it is not envisaged that any alterations will be required on the paper machines.

### 11.2.1 Socio Economic

Enstra employs over 400 permanent people for their entire operations with approximately 10% of this employed at the current RCF plant. As a result of the proposed expansion of Enstra's Waste Paper Recycling capacity from 500 to 1000 dtpm, it is expected that the employment compliment will be augmented in line with the increase in tonnage. As a result of the increased recycling capabilities, additional service providers will be given the opportunity for additional business opportunities with Enstra. The following impacts are envisaged during the construction phase:

- Positive impact on the possible temporary job opportunities during construction of the RCF plant.
- Localized and temporary negative impact on the construction activities which will result in the influx of heavy vehicles, posing a potential risk to the safety of community members and Enstra personnel in the area;
- Localized and temporary negative impact of safety as a result of construction activities;
- Generation of dust during construction potentially resulting in a health and nuisance impact, affecting the neighbours which therefore will require applicable mitigation and management;
- Potential increase in social pathologies and negative health impacts due to contractor camp and potential squatting of job seekers.

### 11.2.2 Groundwater

Groundwater has been contaminated as a result of historic activities on the site as well as from surrounding land users. The RCF plant will be placed on a hard standing surface and will be integrated into the stormwater management of the site.

The following impacts on groundwater resources are envisaged as a result of the construction phase of the RCF plant:

- The use of earth moving machinery and vehicles on site poses the risk of chemical spillages including fuel and oils, impacts groundwater resources;

- Improper storage and handling of hazardous materials impacting on groundwater resources..

### 11.2.3 Surface Water and Wetlands

It is not expected that activity resulting from the construction phase will detrimentally impact on surface water resources and wetlands. Considering the limited impact on surface water resources and wetlands identified in close proximity to the site are largely associated with the Blesbokspruit, these have therefore been assessed as a single entity. The following impacts are envisaged as a result of the construction phase:

- Contamination of surface water resources due to the incorrect storage/leakage/spillage of chemicals, hydrocarbons or any other hazardous substances/materials used during the construction of the RCF plant;
- Contaminated dirty water runoff to surrounding areas resulting in the impact on local surface water quality;
- Debris from poor handling of materials and/or poor waste management practises.

### 11.2.4 Air Quality and Climate Change

It is expected that minimal impacts on air quality and climate change will result from the construction phases. These impacts will be insignificant and localised. The following Air Quality and Climate Change impacts are envisaged as a result of the construction phase.

- The movement of vehicles and earth moving machinery will likely result in an increase in nuisance dust, and Volatile Organic Compounds (VOC) emissions.
- The movement of vehicles and earth moving machinery may result in the production of carbon dioxide (Green House Gas), which may have an impact on the climate in the area.

### 11.2.5 Noise

The RCF plant will be located within the industrial complex of Enstra operations. It is not expected that the proposed construction phase will result in significant noise impacts. The following impacts are envisaged:

- Localized and temporary increase in noise levels due to the presence of construction vehicles and machinery related to the additional activities taking place within the immediate surroundings. This impact is considered to be likely but insignificant in nature.

### 11.2.6 Visual

No visual impacts are envisaged. The proposed RCF Plant will be located within the Enstra industrial complex, utilising an existing warehouse currently utilised for storage.

### 11.2.7 Soils, Land Use and Land Capability

The construction phase of the RCF plant will result in the requirement of machinery and construction plant on site, and the possible storage of chemicals and hydrocarbons. The following impacts are envisaged as a result of the construction phase:

- Localized and temporary contamination of soil resources as a result of incorrect storage/leakage/spillage of chemicals, hydrocarbons or any other hazardous substances/materials used during the construction of the proposed RCF Plant.

### **11.2.8 Biodiversity**

The proposed RCF plant will be located within the Enstra industrial complex, utilising an existing warehouse. No impact is envisaged on the biodiversity in the area as a result of the construction phase of the RCF Plant.

### **11.2.9 Heritage**

The proposed RCF plant will be located within the Enstra industrial complex, utilising an existing warehouse. No impact is envisaged on heritage resources in the area as a result of the construction phase of the RCF Plant.

### **11.2.10 Traffic**

Movement of vehicles during the construction phase of the RCF plant, transporting material from the site will result in a temporary increase in traffic on public roads. It is expected that there will be minimal additional vehicles required and the impact for a short duration.

### **11.2.11 Waste**

Possible impact on the surrounding environment as a result of waste generation, incorrect waste disposal (general and hazardous), and housekeeping on the construction site requiring care and attention. The construction of the proposed RCF plant may result in the increase of waste which will be landfilled. This may have a negative impact on the environment if not correctly managed. It is anticipated that minimal waste will be generated during the construction phase. Waste generated will be directly related to the day to day activities of the construction camps, offices and laydown areas, and off cuts from building material. Small amounts of hydrocarbon contaminated waste, redundant equipment, paint, and insulation may be generated. This impact is considered to be likely but insignificant in nature.

Table 11-1 provides a detailed impact assessment of the impacts identified during the construction phase as per the methodology described in Section 10.

**Table 11-1: Impact assessment of the identified impacts arising during the construction phase**

TYPE OF IMPACT	POTENTIAL IMPACT DESCRIPTION IN TERMS OF ENVIRONMENTAL ASPECTS	ENVIRONMENTAL SIGNIFICANCE BEFORE MITIGATION							Impact Management Objective	IMPACT MANAGEMENT ACTIONS (PROPOSED MITIGATION MEASURES)		IMPACT MANAGEMENT OUTCOME (ENVIRONMENTAL SIGNIFICANCE AFTER MITIGATION)						
		Consequence			Likelihood (Probability)		Significance (Degree to which impact may cause irreplaceable loss of resources)	Significance Rating				Consequence			Likelihood (Probability)		Significance (Degree to which impact may cause irreplaceable loss of resources)	Significance Rating
		Severity	Spatial	Duration	Frequency: Activity	Frequency: Impact				Severity	Spatial	Duration	Frequency: Activity	Frequency: Impact				
<b>Socio - Economic Impacts</b>																		
Direct (+)	Positive impact on the possible temporary job opportunities during expansion of the RCF plant capacity	1	2	2	2	2	20	L No Management Required	Protect social - economic environment of surrounding land users.	1. Where it is possible, hire/use local personnel; 2. Identify opportunities for the employment/procurement and training of people and contractors from the local area; 3. Opportunities for local employment may include activities related to site clearance, digging of trenches and building of the open pit; 4. Based on these opportunities, develop a recruitment and training strategy that the main construction contractors will have to adhere to; 5. Monitor implementation of local recruitment and training strategies, including monitoring of corruption and nepotism; 6. Employment and training of the youth and females where possible; 7. Implementation of employment and procurement policy; 8. Communication with locals regarding job opportunities and skills requirements to manage expectations.	1 month to 1 year	3	2	2	2	2	28	ML Maintain Current Management
Direct (-)	Localized and temporary negative impact on the construction activities which will result in the influx of heavy vehicles, posing a potential risk to the safety of community members and Enstra personnel in the area	3	2	2	1	1	14	L No Management Required	Minimise safety concerns on surrounding land uses	1. Reduce speed limits to 40 km/h or less; 2. Heavy vehicles travelling to site must do so during off peak times to prevent traffic congestion around the site;	1 month to 1 year	1	2	2	1	1	10	L No Management Required
Direct (-)	Localized and temporary negative impact of safety of contractors and Enstra Employees as a result of construction activities	3	2	2	2	2	28	ML Maintain Current Management	Minimise safety concerns on construction and Enstra personnel	1. Each contractor will employ their own Safety Officer to monitor the safety conditions during the construction phase. Enstra Safety Officer will oversee the contractor; 2. All contractors and staff members must wear the correct Personal Protective Equipment (PPE) at all times; 3. Handling of hazardous waste and chemicals must only be done by trained personnel; 4. Any safety or environmental incidents must be reported to the Safety Officer who then needs to communicate to the Environmental Officer.	1 month to 1 year	2	2	2	2	1	18	L No Management Required
Direct (-)	Generation of dust during construction potentially resulting in a health and nuisance impact, affecting the neighbours which therefore will require applicable mitigation and management	2	1	2	2	1	15	L No Management Required	Minimise safety concerns on surrounding land uses	1. Construction vehicles speed limit should not exceed 40 km/h; 2. Dust suppression will be employed on site should it be evident that construction activities result in nuisance dust emissions.	1 month to 1 year	1	1	1	2	1	9	L No Management Required
Direct (-)	Potential increase in social pathologies and negative health impacts due to contractor camp and potential squatting of job seekers	2	2	2	2	2	24	L No Management Required	Minimise safety concerns on construction and Enstra personnel	1. Ensure a grievances procedure is in place for local people to log grievances; 2. Implement local recruitment and training strategies and policies, and clearly communicate these locally through relevant authorities and media; 3. Do not recruit informally at the gate but follow a formal recruitment process; 4. Make use of local accommodation for workers, as opposed to a construction camp; 5. Monitor the surrounding area for illegal informal settlement and develop a strategy to deal with illegal settlement; 6. Ensure that all contractors and their employees attend inception training.	1 month to 1 year	2	3	2	2	1	21	L No Management Required

TYPE OF IMPACT	POTENTIAL IMPACT DESCRIPTION IN TERMS OF ENVIRONMENTAL ASPECTS	ENVIRONMENTAL SIGNIFICANCE BEFORE MITIGATION				Impact Management Objective	IMPACT MANAGEMENT ACTIONS (PROPOSED MITIGATION MEASURES)	IMPACT MANAGEMENT OUTCOME (ENVIRONMENTAL SIGNIFICANCE AFTER MITIGATION)										
		Consequence		Likelihood (Probability)	Significance (Degree to)			Significance Rating	Consequence	Likelihood (Probability)	Significance (Degree to)	Significance Rating						
<b>Groundwater Impacts</b>																		
Direct (-)	The use of earth moving machinery and vehicles on site poses the risk of chemical spillages including fuel and oils, impacts groundwater resources	2	2	2	2	2	24	L No Management Required	Prevent groundwater contamination.	1. All spillages will need to be cleaned up as soon as practically possible; 2. Proper management of stormwater drainage infrastructure should be ensured. Stormwater infrastructure will be maintained and not allowed to overflow; 3. Maintain construction vehicles and encourage contractors to report, react and manage all spills and leaks so that action can be taken to immediately minimise contamination to the groundwater; 4. Spill kits will be made available in areas of likely spillage; 5. All hydrocarbon storage containers will be stored within a bunded areas which are water tight and able to contain 110% of the stored volume; 6. All equipment utilising hydrocarbons will be stored on a hard standing surface. 8. Drip trays will be placed underneath vehicles and machinery waiting for maintenance, or repair; 7. No waste water or waste will be disposed of into the surrounding environment; 8. Should a spill of a hazardous substance occur, the spill will be contained so as not affect the surrounding area; 9. There will be a specific storage area for fuel, oil and other hydrocarbon/hazardous materials. This area will be access controlled and Safety Data Sheets will be available;\n10. Personnel will be trained on the correct handling of spillages and precautionary measures to prevent spillages. All spillages will be recorded and reported; 11. No vehicles will be washed/services or maintained on site. Maintenance of vehicles will be undertaken off site in a designated workshop.	1 month to 1 year	1	2	2	2	2	20	L No Management Required
Direct (-)	Contaminated dirty water runoff to surrounding areas resulting in the impact on local surface water quality	2	2	2	2	2	24	L No Management Required		1 month to 1 year	1	2	2	2	2	20	L No Management Required	
<b>Surface Water Impacts</b>																		
Direct (-)	Contamination of surface water, groundwater and land resources due to the incorrect storage/leakage/spillage of chemicals, hydrocarbons or any other hazardous substances/materials used during the expansion of the RCF plant capacity.	2	2	2	3	3	36	ML Maintain Current Management	Protect surface water flow and associated pollution.	1. Access to the construction site will be controlled; 2. Refuelling areas will be bunded and nozzles protected from spillage during refuelling; 3. Vehicular access to the stream will be restricted; 4. All spillages will need to be cleaned up as soon as practically possible; 5. Proper management of stormwater drainage infrastructure should be ensured. Stormwater infrastructure must be frequently maintained and cater for the proposed new RCF plant; 6. Hazardous substances stored on site will be stored within a designated bunded areas fitted with a sump and valve. Collection of water within the bunded areas will be deemed hazardous and disposed of as such; 7. Bunded areas will be water tight and inspected for leaks on a frequent basis; 8. Leaks to the bunded areas will be rectified as soon as possible; 9. Drip trays will be utilised for the collection of leaks from vehicles and machinery parked for long period of time; 10. Should a spill occur, this will be handled at the source of the leak and prevented from transpiring to nearby watercourse; 11. Ensure that routine maintenance on all vehicles is undertaken as per maintenance schedule and records are kept; 12. Sewage spillages will be seen as hazardous waste and will be handled as such; 14. Ablution facilities will be made available for construction workers. Proof of offsite sewerage disposal will be made available to Enstra.	1 month to 1 year	1	1	1	1	1	6	L No Management Required
Direct (-)	Impact on surface water, groundwater and land quality as a result of accidental spillages of hazardous substances from construction vehicles used during project activities , as well as from hazardous storage areas	2	2	3	2	3	35	ML Maintain Current Management	Protect surface water quality.	1. Waste will be disposed of in accordance with the waste management procedure; 2. Housekeeping will be kept up to standard. Housekeeping should be done after every shift; 3. Operate using best practises in separating waste streams and disposing of the waste correctly.	1 month to 1 year	1	1	1	1	1	6	L No Management Required
Direct (-)	Contamination of surface water, groundwater and land resources due to polluted runoff due to poor materials/waste handling practices during the expansion of the RCF Plant capacity.	2	2	3	2	3	35	ML Maintain Current Management			1 month to 1 year	1	1	1	1	1	6	L No Management Required

TYPE OF IMPACT	POTENTIAL IMPACT DESCRIPTION IN TERMS OF ENVIRONMENTAL ASPECTS	ENVIRONMENTAL SIGNIFICANCE BEFORE MITIGATION				Impact Management Objective	IMPACT MANAGEMENT ACTIONS (PROPOSED MITIGATION MEASURES)	IMPACT MANAGEMENT OUTCOME (ENVIRONMENTAL SIGNIFICANCE AFTER MITIGATION)										
		Consequence		Likelihood (Probability)	Significance (Degree to)			Significance Rating	Consequence	Likelihood (Probability)	Significance (Degree to)	Significance Rating						
<b>Air Quality Impacts</b>																		
Direct (-)	The movement of vehicles and earth moving machinery will likely result in an increase in nuisance dust, and Volatile Organic Compounds (VOC) emissions	2	2	2	2	2	24	L No Management Required	Minimise emissions to the atmosphere impacting on employees, local land users, and climate change.	1. Engine idle speeds during operating times should be reduced; 2. Where applicable, use a fuel sources with low sulphur content; 3. Ensure regular servicing and maintenance of all combustion engine operated machinery.	1 month to 1 year	1	1	1	1	1	6	L No Management Required
Direct (-)	The movement of vehicles and earth moving machinery may result in the production of carbon dioxide (Green House Gas), which may have an impact on the climate in the area	2	2	2	2	2	24	L No Management Required			1 month to 1 year	1	1	1	1	1	6	L No Management Required
<b>Noise Impacts</b>																		
Direct (-)	Localized and temporary increase in noise levels due to the presence of construction vehicles and machinery related to the additional activities taking places within the immediate surroundings.	1	2	2	2	2	20	L No Management Required	Minimise the emission of noise pollution during construction activities.	1. The project will investigate using equipment and applying technology that results in the generation of less noise than existing equipment and technology; 2. Building activities to take place during daytime only; 3. If noise levels exceed 85 dBA, acoustic mitigation measures must be installed. 4. All equipment should be provided with standard mufflers. Muffling units on vehicles and equipment must be kept in good working order; 5. Staff working on site should wear ear protection equipment where necessary. 6. All equipment must be kept in good working order; 7. Equipment must be operated within specifications and capacity (e.g. no overloading of machines).	1 month to 1 year	1	1	1	1	1	6	L No Management Required
<b>Soil, Land Use and Land Capability Impacts</b>																		
Direct (-)	Localized and temporary contamination of soil resources as a result of incorrect storage/leakage/spillage of chemicals, hydrocarbons or any other hazardous substances/materials used during the construction of the proposed RCF Plant.	2	1	2	2	2	20	L No Management Required	Prevent soil contamination and ensure rehabilitation of contamination.	1. Losses of fuel and lubricants from the oil sumps and steering racks of vehicles and equipment should be contained using a drip tray with plastic sheeting filled with absorbent material; 2. Avoiding waste disposal at the site wherever possible, by segregating, trucking out, and recycling waste; 3. Spill kits will be made available in areas of likely spillage; 4. All hydrocarbon storage containers will be stored within a bunded areas which are water tight and able to contain 110% of the stored volume; 5. All equipment utilising hydrocarbons will be stored on a hard standing surface; 6. Spills will be cleaned up immediately and disposed of as hazardous waste.	1 month to 1 year	1	1	1	1	2	9	L No Management Required
<b>Waste</b>																		
Direct (-)	Possible impact on the surrounding environment as a result of waste generation, incorrect waste disposal (general and hazardous), and housekeeping on the site requiring care and attention.	3	2	2	2	2	28	ML Maintain Current Management	Waste minimisation and pollution prevention	1. Contractors' waste management procedures will be approved as part of the safety file; 2. General waste generated on the proposed site should be collected by authorised waste contractors and disposed at a licensed landfill site; 3. Waste receptacles should be provided; 4. Waste will not be stored for a period exceeding 90 days or volumes exceeding 100 cubic metres; 5. Records of all waste removed from site must be kept for a period of 5 years following collection; 6. Unauthorised ignition sources or burning of waste material will not be permitted; 7. Storage areas containing hazardous substances/materials are to be clearly demarcated and labelled.	1 month to 1 year	2	1	2	2	2	20	L No Management Required

TYPE OF IMPACT	POTENTIAL IMPACT DESCRIPTION IN TERMS OF ENVIRONMENTAL ASPECTS	ENVIRONMENTAL SIGNIFICANCE BEFORE MITIGATION						Impact Management Objective	IMPACT MANAGEMENT ACTIONS (PROPOSED MITIGATION MEASURES)	IMPACT MANAGEMENT OUTCOME (ENVIRONMENTAL SIGNIFICANCE AFTER MITIGATION)								
		Consequence		Likelihood (Probability)		Significance (Degree to)	Significance Rating			Consequence		Likelihood (Probability)		Significance (Degree to)	Significance Rating			
<b>Cumulative Impacts</b>																		
Indirect (-)	Increased generation of dust, PM10 and PM2.5 within the local area	2	2	2	2	2	24	L No Management Required	To minimise air quality emissions and health impacts.	1. Through the implementation of all the above mentioned mitigation measures, the overall significance of the activity's impact can be lowered to LOW.	1 month to 1 year	1	1	1	1	1	6	L No Management Required
Indirect (+)	Increased employment opportunities for local residents and service providers.	3	2	2	2	2	28	ML Maintain Current Management	Protect social - economic environment of surrounding land users.			3	2	2	3	2	35	ML Maintain Current Management
In terms of the overall construction phase it is anticipated that the significance of the cumulative negative impact will be LOW, due to the impact occurring on site and over a short duration of time																		

## 11.3 Operational Phase

The operation of the RCF plant will largely be related to the receiving of waste paper, screening, pulping and distribution of the pulp to the paper machines. Waste water generated from the RCF plant will be reused in the plant. The following potential impacts are anticipated during the operational phase of the proposed RCF Plant.

### 11.3.1 Socio Economic

The expansion of Enstra's waste recycling capabilities will ultimately increase the amount of water recycled at Enstra. Enstra employs approximately 400 people of what approximately 10% is employed at the RCF plant. As the Plant will increase in capacity, the employment compliment is anticipated to increase in alignment. The increase in capabilities will furthermore increase business opportunities of external service providers supplying waste paper to Enstra. The following socio – economic impacts are envisaged:

- Positive impact of increased permanent employment at Enstra;
- Positive impact as a result of additional service providers providing waste paper to Enstra;
- Negative impact as a result of increased traffic to the Enstra site.

### 11.3.2 Groundwater

As the RCF plant will focus on the pulping of waste paper, no chemicals will be utilised on site. It is therefore not expected that the operation of the plant will result in groundwater contamination.

### 11.3.3 Surface Water and Wetlands

The proposed project is an expansion in waste paper recycling capacity of the existing infrastructure at Enstra Paper. There should be no significant adverse effects on any aspect of the environment, especially the water resource, surface and groundwater, where the existing WUL (and associated IWWMP and RSIP annual updates) and WML mitigation, management and monitoring programmes are appropriately implemented and applied, and regular internal and external auditing applied and appropriate recommendations implemented timeously and effectively.

The existing warehouse on site will be transformed into the RCF plant. As a result, the stormwater, and wash water will be generated in an area not previously generated.

The proposed new RCF plant is expected to reduce the water and electricity consumption compared to the old RCF plant. Waste water generated from Enstra operations will be end to the WWTP situated on site.

The following impacts are envisaged on the surface water resources:

- Impact on surface water resources as a result of wash water and dirty stormwater runoff from the site;
- Impact on surface water resources as a result of inefficient operation of the WWTP.

### 11.3.4 Biodiversity

No habitat loss, ecosystem degradation or loss of integrity/loss of habitat quality are affected by the proposed project location within the existing Enstra Paper brownfield site. The only impact on biodiversity is the positive impact in preserving forests otherwise destined for paper production.



### 11.3.5 Soils Land Use and Land Capability

Increased waste paper delivered to site has the potential to impact on the surrounding soils and land capability:

- Impact on soils and land capability as a result of ineffective waste storage and waste water management.

### 11.3.6 Noise

The proposed RCF plant will be located within the Enstra industrial operations, and is surrounded by industrial activity. It is not expected that the increase in truck delivery to site will result in nuisance noise generation.

### 11.3.7 Waste Management

The proposed new RCF plant will provide an opportunity for additional waste paper to be recycled in South Africa. The following impacts on waste management are envisaged:

- Positive impacts as a result of increased waste paper recycling, ultimately reducing waste sent to landfills;
- Negative impact as a result of litter carried by winds;
- Negative impact as a result of insufficient landfill capacity to receive the increase in waste generated.

Table 11-2 provides a detailed impact assessment of the impacts identified during the operational phase as per the methodology described in Section 10.

**Table 11-2: Impact assessment of the identified impacts arising during the operational phase**

TYPE OF IMPACT	POTENTIAL IMPACT DESCRIPTION IN TERMS OF ENVIRONMENTAL ASPECTS	ENVIRONMENTAL SIGNIFICANCE BEFORE MITIGATION							Significance Rating	Impact Management Objective	IMPACT MANAGEMENT ACTIONS (PROPOSED MITIGATION MEASURES)		IMPACT MANAGEMENT OUTCOME (ENVIRONMENTAL SIGNIFICANCE AFTER MITIGATION)						
		Consequence			Likelihood (Probability)		Significance (Degree to which impact may cause irreplaceable loss of resources)	Management and Mitigation Measures			Timeframe	Consequence			Likelihood (Probability)		Significance (Degree to which impact may cause irreplaceable loss of resources)	Significance Rating	
		Severity	Spatial	Duration	Frequency: Activity	Frequency: Impact						Severity	Spatial	Duration	Frequency: Activity	Frequency: Impact			
<b>Socio – Economic Impacts</b>																			
Direct (+)	Positive impact of increased permanent employment at Enstra and secondary economic benefits to the local communities and supporting businesses	3	2	3	2	2	32	ML Maintain Current Management	Protect social – economic environment of surrounding land users.	1. Where it is possible, hire/use local personnel; 2. Identify opportunities for the employment/procurement and training of people and contractors from the local area; 4. Based on these opportunities, develop a recruitment and training strategy that the main construction contractors will have to adhere to; 5. Monitor implementation of local recruitment and training strategies, including monitoring of corruption and nepotism; 6. Employment and training of the youth and females where possible; 7. Implementation of employment and procurement policy; 8. Communication with locals regarding job opportunities and skills requirements to manage expectations.	Life of Operation	3	2	4	2	2	36	ML Maintain Current Management	
Direct (+)	Positive impact as a result of additional service providers providing waste paper to Enstra	3	2	2	1	1	14	L No Management Required	Protect social – economic environment of surrounding land users	1. Enstra will sign agreements with external service providers to ensure the full capacity of the plant is utilised for maximum waste recycling; 2. Should insufficient waste providers be available, Enstra will investigate opportunities to import waste paper, and export final products.	Life of Operation	1	2	2	1	1	10	L No Management Required	
Direct (+)	Negative impact as a result of increased traffic to the Enstra site.	3	1	2	1	1	12	L No Management Required	Protect social – economic environment of surrounding land users	1. Compile a traffic management plan to manage the increase in trucks to the Enstra operations; 2. Endeavour to accept truck deliveries during off peak times to reduce the local traffic load.	Life of Operation	1	2	2	1	1	10	L No Management Required	
<b>Surface Water Impacts</b>																			
Direct (-)	Impact on surface water resources as a result of increased wash water and dirty stormwater runoff from the site.	4	3	2	3	3	54	MH Maintain Current Management	Protect surface water flow and associated pollution.	1. Stormwater management infrastructure will be upgraded to include the RCF plant; 2. Stormwater will be captured and reused in the Enstra operations. No dirty stormwater will be allowed to exit the site; 3. Compile a comprehensive clean and dirty water drainage and containment systems to minimise risk of release to the surface water environment	Life of Operation	2	2	2	2	2	24	L No Management Required	
Direct (-)	Impact on surface water resources as a result of inefficient operation and operation over designed capacity of the WWTP	2	2	3	2	3	35	ML Maintain Current Management	Protect surface water quality.	1. The WWTP will be maintained and operated in accordance with a Standard Operating Procedure; 2. Should it become evident that the technology and capacity of the plant is unable to handle waste water from the site, Enstra will investigate the upgrading of the plant to ensure waste water is treated in accordance with the WUL.	Life of Operation	2	1	1	2	2	16	L No Management Required	
<b>Biodiversity</b>																			
Direct (+)	Positive impact in preserving forests otherwise destined for paper production	2	2	2	2	2	24	L No Management Required	Minimise waste sent to landfill.	1. Through the implementation of all the above mentioned mitigation measures, the overall significance of the activity's impact will be MEDIUM HIGH	Life of Operation	3	3	4	2	2	40	MH Maintain Current Management	
Direct (+)	Positive impact on reduced importation of paper products and beneficial use of national resources	2	2	2	2	2	24	L No Management Required	Minimise waste sent to landfill.	1. Through the implementation of all the above mentioned mitigation measures, the overall significance of the activity's impact will be MEDIUM HIGH	Life of Operation	3	3	4	2	2	40	MH Maintain Current Management	
<b>Soil, Land Use and Land Capability Impacts</b>																			
Direct (-)	Impact on soils and land capability as a result of ineffective waste storage and waste water management.	2	1	2	2	2	20	L No Management Required	Prevent soil contamination and ensure rehabilitation of contamination.	1. Waste management will be undertaken on site in terms of the authorised WML and Waste Management Procedure; 2. Waste should not be allowed to freely exit the site, and pollute adjacent properties; 3. Stormwater and waste water runoff infrastructure will be upgraded to account for the proposed RCF plant.	Life of Operation	1	1	1	1	2	9	L No Management Required	
<b>Waste</b>																			

TYPE OF IMPACT	POTENTIAL IMPACT DESCRIPTION IN TERMS OF ENVIRONMENTAL ASPECTS	ENVIRONMENTAL SIGNIFICANCE BEFORE MITIGATION							Impact Management Objective	IMPACT MANAGEMENT ACTIONS (PROPOSED MITIGATION MEASURES)	Life of Operation	IMPACT MANAGEMENT OUTCOME (ENVIRONMENTAL SIGNIFICANCE AFTER MITIGATION)					Significance Rating			
		Consequence			Likelihood (Probability)		Significance (Degree to which)					Significance Rating		Consequence		Likelihood (Probability)		Significance (Degree to which)		
Direct (+)	Positive impacts as a result of increased waste paper recycling, ultimately reducing waste sent to landfills	3	2	4	2	2	36		ML Maintain Current Management	Waste minimisation and pollution prevention.	1. This positive impact will materialise as a result of the authorisation of the proposed RCF plant.	Life of Operation	3	3	4	3	3	60		MH Maintain Current Management
Direct (+)	Negative impact as a result of litter carried by winds	2	2	4	1	1	16		L No Management Required	Waste minimisation and pollution prevention.	1. Litter management will be undertaken daily to ensure no unnecessary waste is deposited on adjacent properties.	Life of Operation	1	1	4	1	1	12		L No Management Required
Direct (+)	Negative impact as a result of insufficient landfill capacity to receive the increase in waste generated.	4	2	4	2	2	40		MH Maintain Current Management	Waste minimisation and pollution prevention.	1. Enstra will be in continual communication with the external landfill site to proactivity identify and capacity constraints; 2. Develop a waste minimisation plan focusing on reduced waste sent to landfill.	Life of Operation	2	2	4	2	2	32		ML Maintain Current Management
<b>Cumulative Impacts</b>																				
Direct (+)	Positive impact on waste minimisation in the country.	2	2	2	2	2	24		L No Management Required	Minimise waste sent to landfill.	1. Through the implementation of all the above mentioned mitigation measures, the overall significance of the activity's impact will be MEDIUM HIGH	Life of Operation	3	3	4	2	2	40		MH Maintain Current Management

In terms of the overall operational phase it is anticipated that the significance of the cumulative negative impact will be positive

## 11.4 Decommissioning Phase

At this point in time, during the BAP, the planning and timing for decommissioning is not known. At the time decommissioning activities become evident, this will be done in alignment with the entire Enstra's. All appropriate legal procedures will be followed, which may include the need to apply for a separate EA in terms of GNR 982 published in terms of the NEMA. The following potential impacts are anticipated during the decommissioning phase.

### 11.4.1 Socio Economic

- Positive impact on the possible temporary increase in job opportunities during decommissioning phase of the RCF plant.
- Negative impact as a result of retrenchments when Enstra cease operations. This impacts is unlikely and of low significance;
- Localized and temporary negative impact of safety as a result of decommissioning activities;
- Generation of dust during decommissioning potentially resulting in a health and nuisance impact, affecting the neighbours which therefore will require applicable mitigation and management.

### 11.4.2 Groundwater

- Contamination of groundwater resources due to the incorrect storage/leakage/spillage of chemicals, hydrocarbons or any other hazardous substances/materials used during the decommissioning of the RCF Plant. It is not expected that this impact will detrimentally alter the current groundwater conditions. This impact is likely, however the significance is considered to be low.

### 11.4.3 Surface Water

- Contamination of surface water resources due to the incorrect storage/leakage/spillage of chemicals, hydrocarbons or any other hazardous substances/materials used during the decommissioning of the RCF Plant. The significance of these impacts is low.

### 11.4.4 Air Quality

- Localized and temporary potential carbon emissions resulting from the operation of heavy machinery during the decommissioning phase of the RCF Plant.
- Localized and temporary potential impact on Air Quality due to the generation and dispersion of dust caused by decommissioning activities.

These impacts are considered likely. Taking into context the status quo of the surrounding area's Air Quality, this impact is considered to be insignificant.

### 11.4.5 Noise

Localized and temporary increase in noise levels due to the presence of decommissioning vehicles and machinery related to the additional activities taking place within the immediate surroundings. This impact is considered to be likely but insignificant in nature.

### 11.4.6 Soils Land Use and Land Capability

- Localized and temporary contamination of soil resources as a result of incorrect storage/leakage/spillage of chemicals, hydrocarbons or any other hazardous

substances/materials used during the decommissioning of the RCF Plant. This impact is considered likely but insignificant in nature.

- Erosion and disturbance of the soil profile as a result of turning of ground during the decommissioning phase.
- Pollution of soil resources as a result of incorrect/no remediation of contaminated soil.

Following decommissioning activities, the land will be rehabilitated to present the pre-land use condition as far as feasible. This will allow for the re-investigation into alternative land uses which may finally alter the land capability

#### 11.4.7 Waste

- Possible impact on the surrounding environment as a result of waste generation, incorrect waste disposal (general and hazardous), and housekeeping on the construction site requiring care and attention. The decommissioning of the RCF Plant may result in the increase of waste which will be landfilled. This may have a negative impact on the environment is not correctly managed. Waste generated will be directly related to the day to day activities of the construction camps and off cuts from decommissioning material. Small amounts of hydrocarbon contaminated waste, redundant equipment, paint, and insulation may be generated. This impact is considered to be likely but insignificant in nature.
- Collection of waste from redundant material disposed of to landfill. This will ultimately result in the reduced air space of licenced landfill sited with material that can possible be reused or recycled.

Table 11-3 provides a detailed impact assessment of the impacts identified during the decommissioning phase as per the methodology described in Section **Error! Unknown switch argument.**

**Table 11-3: : Impact assessment of the identified impacts arising during the decommissioning phase**

TYPE OF IMPACT	POTENTIAL IMPACT DESCRIPTION IN TERMS OF ENVIRONMENTAL ASPECTS	ENVIRONMENTAL SIGNIFICANCE BEFORE MITIGATION							Impact Management Objective	IMPACT MANAGEMENT ACTIONS (PROPOSED MITIGATION MEASURES)		IMPACT MANAGEMENT OUTCOME (ENVIRONMENTAL SIGNIFICANCE AFTER MITIGATION)						
		Consequence			Likelihood (Probability)		Significance (Degree to which impact may cause irreplaceable loss of resources)	Significance Rating		Management and Mitigation Measures	Timeframe	Consequence			Likelihood (Probability)		Significance (Degree to which impact may cause irreplaceable loss of resources)	Significance Rating
		Severity	Spatial	Duration	Frequency: Activity	Frequency: Impact						Severity	Spatial	Duration	Frequency: Activity	Frequency: Impact		
<b>Socio - Economic Impacts</b>																		
Direct (+)	Positive impact on the possible temporary increase in job opportunities during decommissioning phase of the RCF plant.	1	2	2	2	2	20	L No Management Required	Protect social - economic environment of surrounding land users.	1. Where it is possible, hire/use local personnel; 2. Identify opportunities for the employment/procurement and training of people and contractors from the local area; 3. Opportunities for local employment may include activities related to site clearance, digging of trenches and demolition; 4. Communication with locals regarding job opportunities and skills requirements to manage expectations..	1 month to 1 year	3	2	2	2	2	28	ML Maintain Current Management
Direct (-)	Negative impact as a result of retrenchments when Enstra cease operations. This impacts is unlikely and of low significance	4	2	4	1	1	20	L No Management Required	Protect social - economic environment of surrounding land users.	1. Possible retrenchments should be communicated to personnel as early as possible; 2. All legal processes will be followed should retrenchments be required.	1 month to 1 year	2	2	4	1	1	16	L No Management Required
Direct (-)	Localized and temporary negative impact of safety as a result of decommissioning activities	3	2	2	2	2	28	ML Maintain Current Management	Minimise safety concerns on construction and Enstra personnel	1. Each contractor will employ their own Safety Officer to monitor the safety conditions during the construction phase. Enstra Safety Officer will oversee the contractor; 2. All contractors and staff members must wear the correct PPE at all times; 3. Handling of hazardous waste and chemicals must only be done by trained personnel; 4. Any safety or environmental incidents must be reported to the Safety Officer who then needs to communicate to the Environmental Officer; 5. Demolition work will be undertaken by specialist demolition contractors.	1 month to 1 year	2	2	2	2	1	18	L No Management Required
Direct (-)	Generation of dust during decommissioning potentially resulting in a health and nuisance impact, affecting the neighbours which therefore will require applicable mitigation and management	2	1	2	2	1	15	L No Management Required	Minimise safety concerns on surrounding land uses	1. Vehicles speed limit should not exceed 40 km/h; 2. Dust suppression will be employed on site should it be evident that construction activities result in nuisance dust emissions.	1 month to 1 year	1	1	1	2	1	9	L No Management Required

TYPE OF IMPACT	POTENTIAL IMPACT DESCRIPTION IN TERMS OF ENVIRONMENTAL ASPECTS	ENVIRONMENTAL SIGNIFICANCE BEFORE MITIGATION				Impact Management Objective	IMPACT MANAGEMENT ACTIONS (PROPOSED MITIGATION MEASURES)	IMPACT MANAGEMENT OUTCOME (ENVIRONMENTAL SIGNIFICANCE AFTER MITIGATION)									
		Consequence	Likelihood (Probability)	Significance (Degree to which)	Significance Rating			Consequence	Likelihood (Probability)	Significance (Degree to which)	Significance Rating						
<b>Groundwater Impacts</b>																	
Direct (-)	Contamination of groundwater resources due to the incorrect storage/leakage/spillage of chemicals, hydrocarbons or any other hazardous substances/materials used during the decommissioning of the RCF Plant	2	2	2	2	24	L No Management Required	Prevent groundwater contamination.	1. All spillages will need to be cleaned up as soon as practically possible; 2. Proper management of stormwater drainage infrastructure should be ensured. Stormwater infrastructure will be maintained and not allowed to overflow; 3. Maintain construction vehicles and encourage contractors to report, react and manage all spills and leaks so that action can be taken to immediately minimise contamination to the groundwater; 5. Spill kits will be made available in areas of likely spillage; 6. All hydrocarbon storage containers will be stored within a bunded areas which are water tight and able to contain 110% of the stored volume; 7. All equipment utilising hydrocarbons will be stored on a hard standing surface. 8. Drip trays will be placed underneath vehicles and machinery waiting for maintenance, or repair 9. No waste water or waste will be disposed of into the surrounding environment; 10. Should a spill of a hazardous substance occur, the spill will be contained so as not affect the surrounding area; 11. There will be a specific storage area for fuel, oil and other hydrocarbon/hazardous materials. This area will be access controlled and Safety Data Sheets will be available; 12. Personnel will be trained on the correct handling of spillages and precautionary measures to prevent spillages. All spillages will be recorded and reported; 13. No vehicles will be washed/services or maintained on site. Maintenance of vehicles will be undertaken off site in a designated workshop.	1 month to 1 year	1	2	2	2	2	20	L No Management Required
<b>Surface Water Impacts</b>																	
Direct (-)	Contamination of surface water resources due to the incorrect storage/leakage/spillage of chemicals, hydrocarbons or any other hazardous substances/materials used during the decommissioning of the RCF Plant	2	2	2	2	24	L No Management Required	Protect surface water flow and associated pollution.	1. Access to the construction site will be controlled; 2. Refuelling areas will be bunded and nozzles protected from spillage during refuelling; 3. Vehicular access to the stream will be restricted; 4. All spillages will need to be cleaned up as soon as practically possible; 5. Proper management of stormwater drainage infrastructure should be ensured. Stormwater infrastructure must be frequently maintained and cater for the proposed new RCF plant 6. Hazardous substances stored on site will be stored within a designated bunded areas fitted with a sump and valve. Collection of water within the bunded areas will be deemed hazardous and disposed of as such; 7. Bunded areas will be water tight and inspected for leaks on a frequent basis; 8. Leaks to the bunded areas will be rectified as soon as possible; 9. Drip trays will be utilised for the collection of leaks from vehicles and machinery parked for long period of time; 10. Should a spill occur, this will be handled at the source of the leak and prevented from transpiring to nearby watercourse; 11. Ensure that routine maintenance on all vehicles is undertaken as per maintenance schedule and records are kept; 12. Sewage spillages will be seen as hazardous waste and will be handled as such 14. Ablution facilities will be made available for construction workers. Proof of offsite sewerage disposal will be made available to Enstra.	1 month to 1 year	1	1	1	1	1	6	L No Management Required

TYPE OF IMPACT	POTENTIAL IMPACT DESCRIPTION IN TERMS OF ENVIRONMENTAL ASPECTS	ENVIRONMENTAL SIGNIFICANCE BEFORE MITIGATION						Impact Management Objective	IMPACT MANAGEMENT ACTIONS (PROPOSED MITIGATION MEASURES)	IMPACT MANAGEMENT OUTCOME (ENVIRONMENTAL SIGNIFICANCE AFTER MITIGATION)								
		Consequence		Likelihood (Probability)	Significance (Degree to which)	Significance Rating	Consequence			Likelihood (Probability)	Significance (Degree to which)	Significance Rating						
<b>Air Quality Impacts</b>																		
Direct (-)	Localized and temporary potential carbon emissions resulting from the operation of heavy machinery during the decommissioning phase of the RCF Plant	2	2	2	2	2	24	L No Management Required	Minimise emissions to the atmosphere impacting on employees, local land users, and climate change.	1. Engine idle speeds during operating times should be reduced; 2. Where applicable, use a fuel sources with low sulphur content; 3. Ensure regular servicing and maintenance of all combustion engine operated machinery;	1 month to 1 year	1	1	1	1	1	6	L No Management Required
<b>Noise Impacts</b>																		
Direct (-)	Localized and temporary increase in noise levels due to the presence of decommissioning vehicles and machinery related to the additional activities taking place within the immediate surroundings	1	2	2	2	2	20	L No Management Required	Minimise the emission of noise pollution during construction activities.	1. The project will investigate using equipment and applying technology that results in the generation of less noise than existing equipment and technology; 2. Decommissioning activities to take place during daytime only; 3. If noise levels exceed 85 dBA, acoustic mitigation measures must be installed. 4. All equipment should be provided with standard mufflers. Muffling units on vehicles and equipment must be kept in good working order. 5. Staff working on site should wear ear protection equipment where necessary. 6. All equipment must be kept in good working order 7. Equipment must be operated within specifications and capacity (e.g. no overloading of machines).	1 month to 1 year	1	1	1	1	1	6	L No Management Required
<b>Soil, Land Use and Land Capability Impacts</b>																		
Direct (-)	Localized and temporary contamination of soil resources as a result of incorrect storage/leakage/spillage of chemicals, hydrocarbons or any other hazardous substances/materials used during the construction of the proposed RCF Plant.	2	1	2	2	2	20	L No Management Required	Prevent soil contamination and ensure rehabilitation of contamination.	1. Losses of fuel and lubricants from the oil sumps and steering racks of vehicles and equipment should be contained using a drip tray with plastic sheeting filled with absorbent material; 2. Avoiding waste disposal at the site wherever possible, by segregating, trucking out, and recycling waste. 3. Spill kits will be made available in areas of likely spillage; 4. All hydrocarbon storage containers will be stored within a bunded areas which are water tight and able to contain 110% of the stored volume; 5. All equipment utilising hydrocarbons will be stored on a hard standing surface; 6. Spills will be cleaned up immediately and disposed of as hazardous waste.	1 month to 1 year	1	1	1	1	2	9	L No Management Required
Direct (-)	Erosion and disturbance of the soil profile as a result of turning of ground during the decommissioning phase	2	1	2	2	2	20	L No Management Required	Prevent soil erosion.	1. The footprint area of the decommissioning activities must be landscaped to represent the surrounding environment. Landscaping must be done so that pooling of water does not occur. 2. Signs of erosion must be inspected on a frequent basis following decommissioning activities. Remedial measures will be instated should erosion occur. 3. Disturbed areas will be top soiled in order to promote vegetation growth. Seeding of indigenous species will be conducted should natural succession not establish.	1 month to 1 year	1	1	1	1	2	9	L No Management Required
Direct (-)	Pollution of soil resources as a result of incorrect/no remediation of contaminated soil	2	1	2	2	2	20	L No Management Required	Prevent soil contamination and ensure rehabilitation of contamination.	Should there be reason or suspect reason the soils are contaminated following decommissioning activities, the soils will be assessed by a competent person and remediated by Enstra within a reasonable timeframe.	1 month to 1 year	1	1	1	1	2	9	L No Management Required



TYPE OF IMPACT	POTENTIAL IMPACT DESCRIPTION IN TERMS OF ENVIRONMENTAL ASPECTS	ENVIRONMENTAL SIGNIFICANCE BEFORE MITIGATION				Impact Management Objective	IMPACT MANAGEMENT ACTIONS (PROPOSED MITIGATION MEASURES)	IMPACT MANAGEMENT OUTCOME (ENVIRONMENTAL SIGNIFICANCE AFTER MITIGATION)									
		Consequence	Likelihood (Probability)	Significance (Degree to which)	Significance Rating			Consequence	Likelihood (Probability)	Significance (Degree to which)	Significance Rating						
<b>Waste</b>																	
Direct (-)	Possible impact on the surrounding environment as a result of waste generation, incorrect waste disposal (general and hazardous), and housekeeping on the construction site requiring care and attention	3	2	2	2	28	ML Maintain Current Management	Waste minimisation	1. Contractors' waste management procedures will be approved as part of the safety file. 2. General waste generated on the proposed site should be collected by authorised waste contractors and disposed at a licensed landfill site. 3. Waste receptacles should be provided. 4. Waste will not be stored for a period exceeding 90 days or volumes exceeding 100 cubic metres. 5. Records of all waste removed from site must be kept for a period of 5 years following collection. 6. Unauthorised ignition sources or burning of waste material will not be permitted. 7. Storage areas containing hazardous substances/materials are to be clearly demarcated and labelled.	1 month to 1 year	2	1	2	2	2	20	L No Management Required
Direct (-)	Collection of waste from redundant material disposed of to landfill. This will ultimately result in the reduced air space of licenced landfill sited with material that can possible be reused or recycled	3	2	2	2	28	ML Maintain Current Management	Waste minimisation	Investigate the recycling or reuse of waste generated as part of the decommissioning activities prior to landfilling.	1 month to 1 year	2	1	2	1	1	10	L No Management Required
<b>Cumulative Impacts</b>																	
Indirect (-)	Increased generation of dust, PM10 and PM2.5 within the local area	2	2	2	2	24	L No Management Required	To minimise air quality emissions and health impacts.	1. Through the implementation of all the above mentioned mitigation measures, the overall significance of the activity's impact can be lowered to LOW.	1 month to 1 year	1	1	1	1	1	6	L No Management Required

## 11.5 Cumulative Impacts

The construction and operation of the RCF plant should be seen as a positive development due to the increased waste recycling capabilities, and reduced waste to landfill.

Minimal environmental impacts will result from the construction and operation of the plant. All impacts can be mitigated, subject to conformance to the EMP. No material negative cumulative biophysical, cultural or social impacts will be experienced.

## 12 Summary of the Findings of the Specialist Studies

Taking cognisance of the nature of the proposed RCF Plant, no specialist studies have been undertaken. Specialist information on the background status quo was obtained from specialist studies undertaken for the Enstra WUL and WML applications previously submitted to the competent authorities.

## 13 Opinion and Conditions on Authorisation

The implementation of the RCF Plant will increase the waste paper recycling capabilities of Enstra. This is ultimately in line with the National Waste Management Strategy of South Africa. The National Waste Management Strategy has recognised the lack of recycling infrastructure as a challenge to recycling, what the RCF Plant plans to address locally.

Environmental impacts arising from the RCF Plant are primarily positive, and where negative impacts are identified, these have very low significance and can be effectively managed and mitigated subject to the effective implementation of the EMP. The majority of the negative environmental impacts will be experienced during the construction phases and can be effectively mitigated.

The impacts identified are mainly related to the construction phase, which are temporary in nature. Once operation has commenced, the plant will operate as per the existing philosophy. Any impacts identified during this phase are of very low significance and can be managed, as has been done throughout the life of the Enstra operations, through existing monitoring and management procedures.

It can be concluded that the proposed RCF Plant will comply with the principles of the NEMA, which embraces sustainability. The Stakeholder Engagement will be undertaken as per NEMA and the EIA Regulations of 2014 and it is believed that stakeholders will be provided with sufficient time to raise any comments or concerns, and those that have been raised will be adequately addressed. It is the opinion of the EAP that the proposed RCF Plant is the Best Practical Environmental Option to reach the objectives of the project.

Department. It is thus the opinion of the EAP that the project should be authorised with no specific additional conditions, apart from the adherence to the EMP.

## 14 Environmental Impact Statement

This BAP for the proposed RCF Plant has been undertaken in accordance with the EIA Regulations amended in 2014 and published in GNR 982 of 4 December 2014 of the NEMA, as amended in 2017, and 2021. This process included the required Stakeholder Engagement Process as stipulated in GNR 982. This study provides an assessment of the possible positive and negative impacts that may arise from the proposed RCF Plant. Taking into consideration that the proposed RCF Plant will be undertaken within the existing established Enstra industrial site, no alternatives were assessed.

Where potential biophysical or social impacts have been identified, mitigation and management measures have been proposed to control and monitor the magnitude of impacts associated with the various aspects of the proposed RCF Plant.

The findings of the BAP concluded that there are no environmental fatal flaws that could hinder the construction and subsequent operation of the RCF Plant. An EMPr has been compiled to manage and control activities during the construction and operation phase (Appendix B) with all the impact having a LOW MEDIUM to LOW significance rating following mitigation and management measures.

From the findings of this BAP, it is recommended that the EA be granted for the proposed RCF Plant in adherence to the EMPr as per the project description provided in Section 2.

## 15 Assumptions, uncertainties and gaps in knowledge

All the data and information supplied to SRK is assumed to be accurate and reflective of the current condition of the affected area. It is assumed that the baseline information scrutinised and used to explain the environmental profile is accurate.

Enstra will comply with all legislation pertaining to the activities of the RCF Plant and that all permits and licenses that may be required will be identified and applied for prior to commencement of construction activities.

The Stakeholder Engagement Process has been sufficiently effective in identifying the critical issues needing to be addressed in the EIA/EMPr by the EAP. The Stakeholder Engagement Process has sought to involve key stakeholders and individual landowners. Wherever possible the information requested and comments raised by I&APs has been sufficiently addressed and incorporated into the BAR for perusal and comment.

SRK assumes that Enstra will implement the measures contained in the EMPr, and will adhere to any monitoring procedures. A monitoring and evaluation system, including auditing, will be established and operationalized to track the implementation of the EMPr ensuring that management measures are effective to avoid, minimize and mitigate impacts and that corrective action is being undertaken to address shortcomings and/or non-conformances.

The Screening phases of this project did not highlight potential issues or concerns. It is assumed that all comments and concerns received by I&APs have been informed and considered. All key issues pertaining to the project have been assessed in this draft BAR. Additional issues raised during the review of the BAR by stakeholders will be addressed and included within the BAR prior to submission to the DFFE for approval.

Enstra will adopt a process of continual improvement when managing and mitigating negative environmental impacts arising from the project. The EMPr will be used as the basis of environmental management and will regularly be improved and refined where applicable to the proposed RCF Plant.

The EAP does not accept any responsibility in the event that additional information comes to light at a later stage of the process. All data from unpublished research utilised for the purposes of this project is valid and accurate. The scope of this investigation is limited to assessing the potential biophysical, social and cultural impacts associated with the RCF Plant.

## 16 Environmental Objectives of the Proposed RCF Plant

The key environmental objectives for the proposed RCF Plant are:

- Formalise and disclose the programme for environmental and social management;
- Ensure that appropriate environmental management measures and requirements are implemented from the start of the project;
- Ensure compliance to environmental legislation and guidelines which may be local, provincial and/or national;
- Ensure sufficient resources are allocated on the project budget so that the scale of the EMPr related activities are consistent with the significance of project impacts;
- Manage identified impacts;
- Verify environmental performance through information on impacts as they occur;
- Ensure precautions against damage and claims arising from damage are taken timeously;
- Provide feedback for continual improvement in environmental performance; and
- Provide a framework for the implementation of environmental and social management initiatives.

The EMPr serves as a stand-alone document to be disseminated to and used by the contractor/s and project managers/supervisors during the construction phase of the project. By its very nature, the EMPr is a dynamic document and updating may be required.

The EMPr has been compiled on the basis of the outcome of work undertaken during the BAP and represents management commitments of Enstra once approved by the Competent Authorities, whereby the EMPr will be legally binding.

## 17 Undertaking of Oath by the EAP

Section 16 (1) (b) (iv), and Appendix 3 Section 2 (j) of the EIA Regulations, 2014 (promulgated in terms of the NEMA), require an undertaking under oath or affirmation by the EAP in relation to:

- The correctness of the information provided in the report;
- The inclusion of comments and inputs from stakeholders and I&APs; and
- Any information provided by the EAP to I&APs and any responses by the EAP to comments or inputs made by I&APs.

SRK and the EAPs managing this project hereby affirm that:

- To the best of our knowledge the information provided in the report is correct, and no attempt has been made to manipulate information to achieve a particular outcome. Some information, especially pertaining to the project description, was provided by the applicant and/or their sub-contractors. In this respect, SRK's standard disclaimer pertaining to information provided by third parties applies.
- To the best of our knowledge all comments and inputs from stakeholders and I&APs have been captured in the report and no attempt has been made to manipulate such comment or input to achieve a particular outcome. Written submissions are appended to the report while other comments are recorded within the report. For the sake of brevity, not all comments are recorded verbatim, and in instances where many stakeholders have made similar

comments, they are grouped together, with a clear listing of who submitted which comment(s).

- Information and responses provided by the EAP to I&APs are clearly presented in the report. Where responses are provided by the applicant (not the EAP), these are clearly indicated.

## 18 Conclusion and Recommendations

The project involves the construction and operation of the proposed RCF Plant. With reference to the available information of the project cycle, the confidence in the environment assessment undertaken is regarded as acceptable for decision making purposes.

Following the screening phases and the subsequent BAR, it has come to light that from a financial, biophysical and social–economical perspective, the proposed alternative is the most preferable and no other alternatives will be assessed.

SRK has undertaken a detailed assessment of this on the basis of impacts identified through the Stakeholder Engagement and professional judgement of the SRK project team. It can therefore be concluded there are no fatal flaws of the proposed RCF Plant that have been identified.

It is envisaged that it will be possible to effectively manage any identified biophysical, cultural or social impacts in accordance with national and international industry standards. The current monitoring and auditing program of Enstra will include the RCF Plant.

## 19 Way Forward

The BAR (this document) is available for viewing at the following venues from 13 January 2023 to 13 February 2023.:

- Enstra Paper Security Entrance;
- Springs Municipal Library;
- SRK Offices in Pretoria;
- SRK Website (<http://www.srk.co.za/en/library/za-public-documents>).

In addition, digital copies of the report without appendices may be emailed to I&APs on request.

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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.

## 21 Bibliography

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WRC, 2013. *Groundwater Reserve Determination for the Upper Vaal Water Management Area*. Pretoria: WRC.

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## Appendices



## **Appendix A: Project Team CV and Registrations**

## **Appendix B: Environmental Management Programme**

## **Appendix C: Stakeholder Engagement Documentation**

## **Appendix D: Facility Illustration and Photographs**

## **Appendix E: DFFE Acceptance Letter**

## **Appendix F: Land Claims Letter**

## SRK Report Distribution Record

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