PROPOSED EXPANSION OF THE CAPE WINELANDS AIRPORT
EIA REFERENCE: 16/3/3/2/A5/20/2046/24
APPEAL DECISION: 14/3/1/A5/20/0705/26

ANNEXURE 8 – WASTE MANAGEMENT PLAN

OCTOBER 2026

DEA&DP IN-PROCESS NR: 16/3/3/2/A5/20/2046/24

WASTE MANAGEMENT PLAN FOR THE EXPANSION OF THE CAPE WINELANDS AIRPORT

(P10 OF FARM 724, RE OF FARM 724, P23 OF FARM 724, P7 OF FARM 942, RE OF FARM 474, P3 OF FARM 474 AND P4 OF FARM 474)

JULY 2025



COVER IMAGE NOT REPRESENTATIVE OF THE PROJECT SITE
© ADOBE STOCK

PREPARED FOR
CAPEWINELANDS AERO (PTY) LTD

PREPARED BY
PHS CONSULTING

P.O. BOX 1752, HERMANUS, 7200 I TEL: +27 28 312 1734 I FAX: 086 508 3249,
JT@PHSCONSULTING.CO.ZA / PAUL@PHSCONSULTING.CO.ZA

Document Details

DOCUMENT TITLE	Waste Management Plan for the proposed expansion of the Cape Winelands Airport
NUMBER OF PAGES	69 (excluding appendices)
DOCUMENT VERSION	Final Report

Document Control

	NAME	EAPASA REGISTRATION NUMBER	SIGNATURE	DATE
AUTHOR	Jenna Theron	2022/5926		22 June 2025
REVIEWER	Paul Slabbert	2019/1036		24 June 2025
EDITOR & REVIEW	Olivia Brunings	2023/6743 (Candidate)		24 June 2025

PLEASE NOTE THAT ALL CHANGES TO THE DRAFT REPORT FOR COMMENT (VERSION 1) ARE UNDERLINED.

PLEASE NOTE THAT ALL CHANGES TO THE DRAFT REPORT FOR COMMENT (VERSION 2) ARE UNDERLINED & IN BLUE.

TABLE OF CONTENTS

KEY TERMS AND ABBREVIATIONS 5

SECTION 1: CONTEXTUAL INFORMATION 7

1.1. Background 7

1.2. Purpose and Principles of the WMP 10

1.3. Status of the WMP 11

1.4. Comment to the WMP 12

1.5. Relevant legislation and policies 12

1.6. The competent authority 15

SECTION 2: PROJECT DETAIL 16

2.1. Planning Phase 16

2.2. Construction Phase 17

2.3. Operational Phase 19

SECTION 3: RESPONSIBILITIES AND ENFORCEMENT OF THE WMP 22

3.1. The Applicant 22

3.2. CWA Environmental Management Division & Environmental Manager ..... **Error! Bookmark not defined.**

3.3. The Environmental Control Officer (ECO) 23

3.4. Waste Control Officer 23

3.5. Engineers and Contractors 22

SECTION 4: WASTE HIERARCHY & REDUCING WASTE TO LANDFILL 26

4.1 Prevention 26

4.2 Re-use 27

4.3 Recycling 27

4.4 Recovery 28

4.5 Landfill 29

SECTION 5: WASTE TYPES, SOURCES AND STREAMS 29

5.1. Construction Phase 29

5.2. Operational Phase 32

SECTION 6: IMPACTS AND MITIGATION MANAGEMENT 41

SECTION 7: DEVELOPMENT PHASE REQUIREMENTS 49

7.1. Planning and Design Requirements 49

7.2. Construction Phase Requirements 49

7.3. Reduce transportation of waste 50

SECTION 8: CONSTRUCTION & OPERATIONAL PHASE REQUIREMENTS AND MANAGEMENT OBJECTIVES 50

8.1 Components of Waste Management 50
8.2. Waste Management 50
8.2.1 Construction Phase: 51
8.2.2. Operational Phase: 53
8.3. Reduce transportation of waste 55
SECTION 9: MONITORING AND COMPLIANCE 56
9.1. Environmental Reporting 56
9.2. Record Keeping 57
9.3. Method Statements 57
9.4. Monitoring 56
9.5. Waste Control Sheets 58
9.6. Review of the WMP 65
9.7. Environmental Audits 65
9.8. Incident reporting 66
9.9. External Records and Monitoring 66
9.10. Operational Waste Survey 67
9.11. Laboratory Tests 68
SECTION 10: TRANSGRESSIONS IN TERMS OF WMP 69
SECTION 11: CONCLUSION 69
APPENDIX A: SITE DEVELOPMENT PLAN AND ASSOCIATE PLANS 70
APPENDIX B: NORMS AND STANDARDS 71
APPENDIX C: INCIDENT REPORT TEMPLATE 72
APPENDIX D: CV OF EAP 73

KEY TERMS AND ABBREVIATIONS

Applicant – Capewinelands Aero (Pty) Ltd

Auditing - A systematic and objective assessment of an organization's activities and services conducted and documented on a periodic basis to a predetermined standard.

Baling – the manual or mechanical tying, bundling or wrapping of compressed waste material.

Chipping – the manual or mechanical chopping or cutting of garden waste into smaller pieces in preparation for further processing.

Competent Authority – the organ of state charged by the National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008)(as amended), as the licensing authority.

Composting – means a controlled biological process in which organic materials are broken down by micro-organisms by means of aerobic and anaerobic processes.

CWA – Cape Winelands Airport

Department of Environmental Affairs and Development Planning: Waste Management (DEA&DP: WM)– the provincial authority for sustainable environmental management and integrated development planning.

DWS - Department of Water & Sanitation

EA – Environmental Authorisation

EAP – Environmental Assessment Practitioner

EM – Environmental Manager

EMD - Environmental Management Division

Environmental Management Programme (EMPr) an environmental management tool used to ensure that undue or reasonably avoidable adverse impacts of the construction, operation, and decommissioning of a project are managed, and that positive benefit of the projects are enhanced.

Environmental Control Officer (ECO) – a suitably qualified environmental consultant to be appointed by the Applicant to oversee the implementation of the suite of Environmental Management Plans complied for the site, inclusive of this Veld Fire Management Plan.

Handling – means functions associated with the movement of waste, including storage, treatment and ultimate disposal, by means of manual systems or automated systems;

National Environmental Management Act (Act 107 of 1998, as amended) (NEMA)– national legislation that provides principles for decision-making on matters that affect the environment.

N&S - Norms & Standards

Separation at Source (S@S) - Involves sorting post-consumer waste at the point of generation—whether at homes, businesses, or industrial sites—using a system that divides waste into categories, such as a two-bag system for recyclables and non-recyclables (e.g., wet and dry waste). At the Airport, S@S means providing separate bins at each waste collection point, ensuring that waste is properly sorted before being transported to the Waste Management Facility for further processing

Shredding – the breaking down of waste material, through manual or mechanical cutting or tearing into smaller parts.

Sorting – the manual or automated separation of waste materials according to type, class, state of contamination or usability for a particular purpose.

Site - Area where the proposed development will take place.

Waste Facility – a commercial place, infrastructure or containment of any kind including associated structures or infrastructure where there is sorting, shredding, grinding, crushing, screening, chipping or baling of general waste.

WCO – Waste Control Officer

WMP – Waste Management Plan

WMF - Waste Management Facility

WULA – Water Use License Application

WWTW – Waste Water Treatment Works

SECTION 1: CONTEXTUAL INFORMATION

1.1. Background

This report is an Environmental Management Programme (EMPr) for the Waste Management Facilities proposed at the Cape Winelands Airport (CWA). PHS Consulting was appointed by *Capewinelands Aero (Pty) Ltd* to compile this document in order to satisfy the requirements of NEM: WA. The CWA development, historically known as Fisantekraal Airfield (FAFK), is located approximately 10.5 km northeast of Durbanville and 25 km northeast of Cape Town International Airport (CTIA) (see Figure 1).

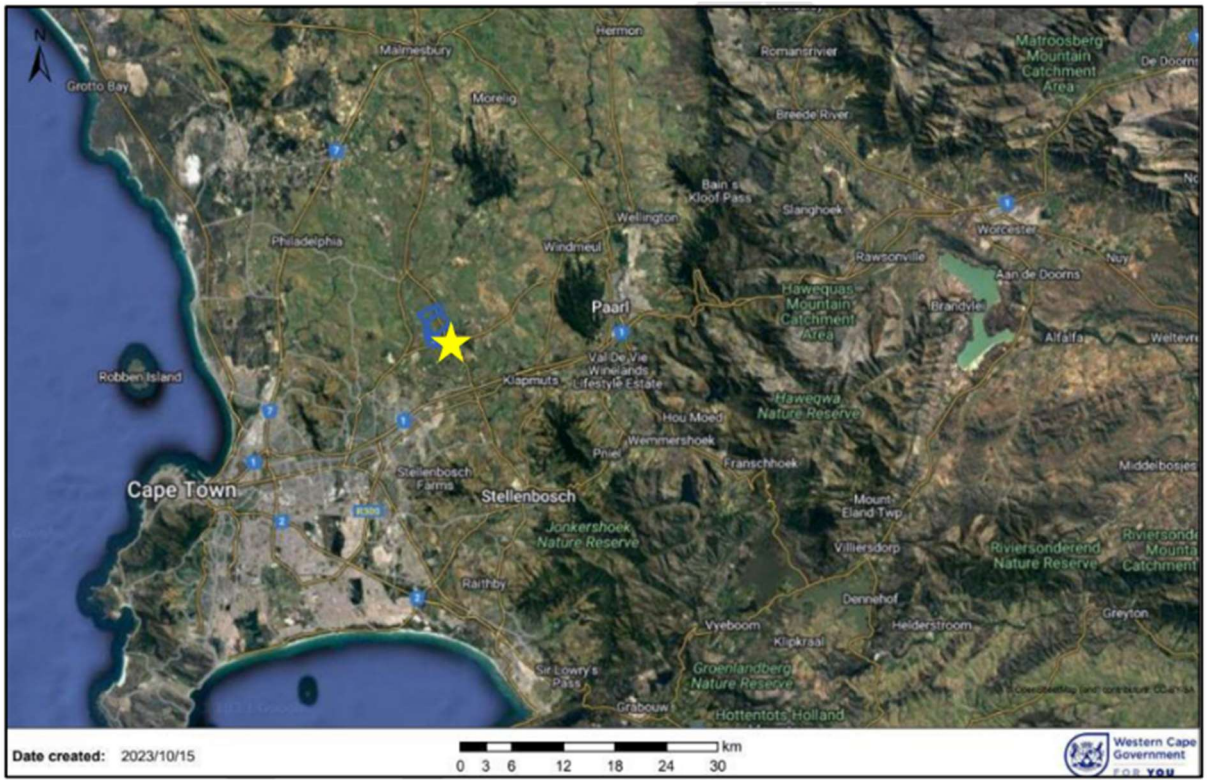


Figure 1: Regional location of CWA (indicated by yellow star and with cadastrals outlined in blue).

Initially constructed around 1943 as a South African Air Force aerodrome during World War II, CWA has since transitioned into a general aviation (GA) airfield. The current 150-hectare site includes four concrete runways, each 90 meters wide and varying in length between 700 meters and 1,500 meters. The facility supports various unscheduled operations such as recreational flying, flight training, aircraft maintenance, charter operations, crop spraying, and aerial banner towing. The development spans across the following cadastral portions (see Figure 2):

- Portion 23 of Farm 724,
- RE of Farm 724,
- Portion 10 of Farm 724,

- Portion 4 of Farm 474,
- RE of Farm 474,
- Portion 7 of Farm 942,
- Portion 3 of Farm 474.

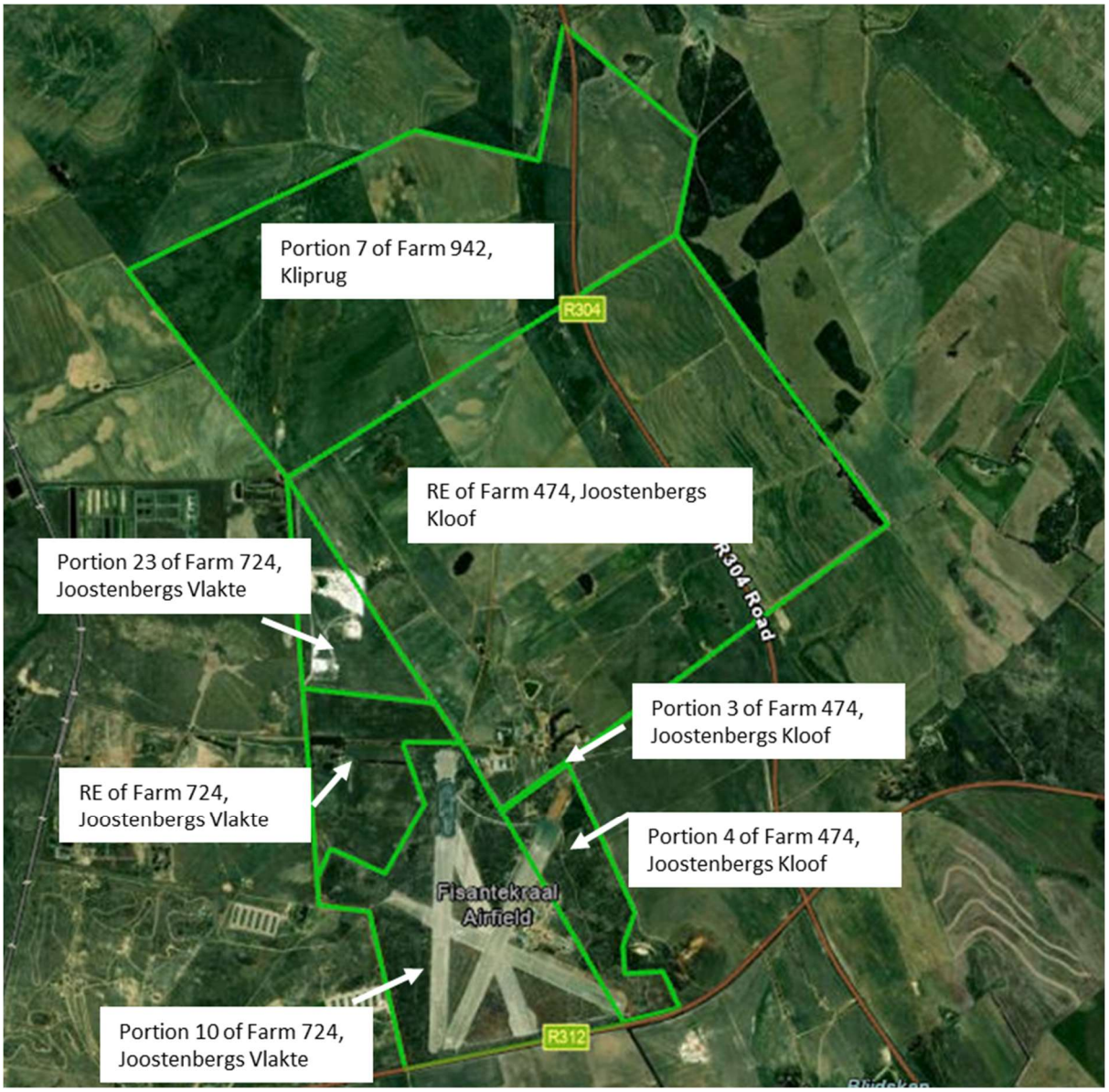


Figure 2: Cadastrals forming part of application area

The proposed development will expand the existing airport facilities, encompassing five additional cadastral portions, creating a combined area of 885 hectares. Of this area, 470 hectares will be allocated for airport development, including an airside precinct, terminal precinct, services precinct, general aviation precinct and associated landscaping (**Appendix A**). The remaining land will remain as agricultural zones, designated as an agricultural precinct. This agricultural precinct will feature a combination of dryland agriculture, conservation of botanically sensitive areas, and wetland offsets.

The project envisions a phased development approach, including the realignment of a primary runway to an orientation of 01-19 with a length of 3.5 km. The upgraded CWA is planned to transition from a general aviation airfield into a commercial airport capable of facilitating long-haul, wide-body flights by airlines and unscheduled operators from across the world. The airport's expansion will serve multiple roles within the aviation sector and will support a variety of industries, including fixed-based operations, private charter services, flight training, helicopter services, aircraft maintenance, hotel and conferencing facilities, retail and food services, warehousing, logistics, and freight operations.

No Waste License application is required for the proposed project, in terms of the National Environmental Management: Waste Act (NEM: WA), 2008 (Act 59 of 2008). However, CWA will have to adhere and register in terms of several "Norms & Standards" as per NEM: WA. One of the requirements is the compilation of an EMPr to be adopted by Department of Environmental Affairs and Development Planning: Waste Management (DEA&DP: WM). However, considering the project will have an overarching EMPr, of which this document will form an Annexure, we will refer to this document as a Waste Management Plan (WMP) instead.

Waste management is the process of collecting, treating, recycling, and disposing of different waste materials to reduce the environmental impact of waste. A WMP plays a key role in achieving sustainable waste management. The purpose of this plan is to ensure that effective procedures are implemented for the handling, storage, transportation and disposal of waste that is generated from the proposed development activities. The plan prescribes measures for the collection, temporary storage and safe disposal of the waste streams associated with the project and includes provisions for the recovery, re-use and recycling of waste. Airports, by their very nature, generate a significant amount of waste. This waste comes from a variety of sources and requires careful management to reduce environmental impacts. *Capewinelands Aero (Pty) Ltd* can effectively manage construction and operational waste by requiring in-house teams, contractors and operators to follow a Waste Management Plan that identifies:

- The types of waste materials that will likely be generated on a site;
- The procedures that will be used to collect, sort and store the waste materials;
- How the materials will be reused or recycled
- Who will haul away the waste material;
- The location to which the materials will be hauled; and
- Final disposal requirements

The compilation of the WMP was based on waste stream information available at the time of compilation. Construction practices and operations must be measured and analyzed to determine the efficiency of the plan and whether further revision of the plan is required. This WMP describes the facility management in detail, and is prescriptive, identifying specific individuals or organizations responsible for undertaking specific tasks to ensure that environmental impacts resulting from the

operation of the CWA is minimized. This WMP is an open-ended document and information gained during on-going monitoring of procedures on site could lead to changes in the recommendations and specifications of this document. This plan should be updated should further detail regarding waste quantities and categorization become available, during the construction and/or operational stages.

1.2. Purpose and Principles of the WMP

The purpose of this Waste Management Plan is to describe the principles, procedures and management of the waste generated by Cape Winelands Airport and to ensure waste is reduced, reused and recycled wherever possible. The Waste Management Plan outlines measures to manage and mitigate waste generation and resource consumption during the construction and operation of the development. The Waste Management Plan is therefore designed to support an ecological based management approach underpinned by adaptive management principles through the entirety of the project life cycle.

In general, the following phases can apply: planning & design; pre-construction activities; construction activities; operational activities and rehabilitation &/or decommissioning. However, the need to include all the above phases depends on the scale and scope of each individual project. Decommissioning of the facility is not currently foreseen and therefore it is not further addressed in this document. The WMP focuses primarily on the construction and operational phase of the facility and is intended to guide construction and operational aspects in line with relevant legislative requirements and the recommendations made by the specialist and/or consultant(s) as applicable.

As indicated, the WMP forms part of the overarching EMPr for the CWA and will therefore be included and circulated as stipulated in the EMPr. The WMP must form part of all contractual documents for this project. The approval of the WMP by DEA&DP: WM will require that the landowner and all appointed contractors must comply with the requirements therein. Any amendments/ changes/ upgrades to the WMP will require submission to and approval by DEA&DP: WM.

Capewinelands Aero (Pty) Ltd are committed to implementing the WMP so that it is effective, accurate, economical and ensures that the procedures put into place are working and are maintained. The aim is to minimise waste and the reduction of waste pollution. An integrated approach to waste management will be implemented on site with the aim of:

- Considering the Life Cycle Analysis of waste on site allows one to better understand the true impacts of any given goods or services over the course of the entire life cycle.
- Product Stewardship accountability needs to be placed on those who design, manufacture, use, or dispose of products. Collaboration in this regard between CWA and its suppliers/ service providers can result in innovative and continued improving of achieving waste management targets.
- Prioritizing the reduction of waste volumes is therefore paramount. Continued education and training of all CWA staff, sub-contractors and passengers is required.

- If avoidance or reduction is not feasible, the maximum amount of waste is to be recycled or re-used through separation and sorting of waste on site.
- Waste that cannot be recycled is to be disposed of in the most environmentally responsible manner possible.
- As a last resort, non-recoverable waste will be sent to the appropriate Landfill (hazardous or non-hazardous).
- Monitoring, recording and auditing of all waste management taking place on site.

Such an approach is illustrated in Figure 3 below.

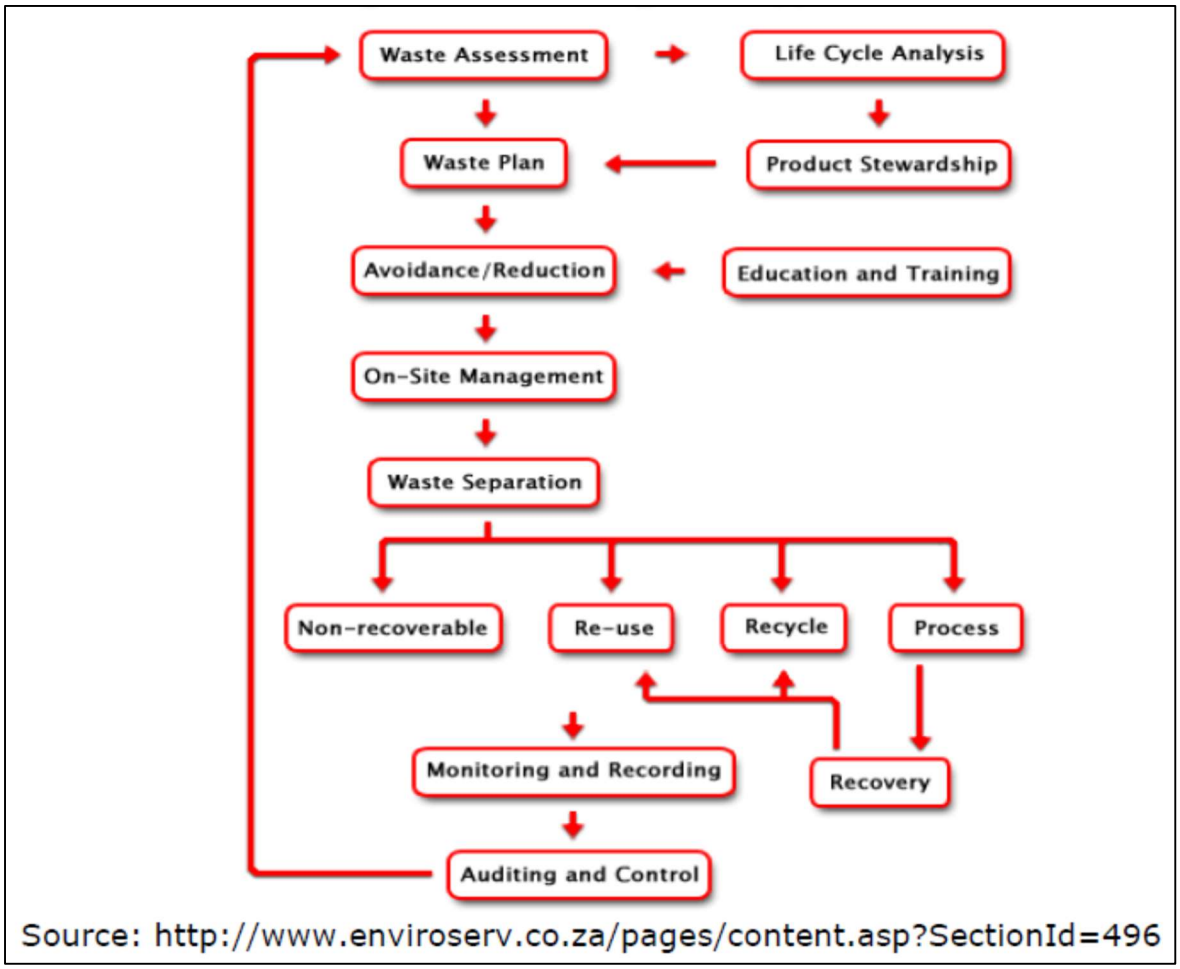


Figure 3: The integrated waste management approach to waste.

1.3. Status of the WMP

The WMP must form part of all contractual documents for this project. The WMP includes all relevant documentation within this report and/or referred to within it. The approval of the WMP by DEA&DP: WM will require that the landowner and all appointed contractors must comply with the requirements

therein. Any amendments/ changes/ upgrades to the WMP will require submission to and approval by DEA&DP: WM.

1.4. Comment to the WMP

The WMP forms part of the contract identifying and specifying the procedures to be followed by all contractors, and employees of the facility to eliminate or reduce adverse impacts of the works on the environment. The appointed EAP will hand over the WMP to the landowner/operator for implementation. Should the landowner/operator, contractor or employee persistently fail to observe the provisions of the WMP, the auditing EAP can recommend remediation actions including notification of the relevant authority for a compliance audit.

Copies of the WMP will be made available to all senior personnel on site, who will be required to familiarize themselves with the contents of the document and to follow procedures accordingly. Each contractor involved in the development and/or operation of the facility will be expected to sign for, and thus acknowledge receipt of the final WMP, and thereby will be expected to abide by the specifications of the document, as well as annexures and any amendments thereto.

The WMP will include goals and objectives set to achieve the required environmental standards. The Landowner will be responsible for the overall implementation of the WMP

1.5. Relevant legislation and policies

Waste in South Africa is currently governed by means of a number of pieces of legislation, including:

- National Environmental Management: Waste Act (NEM: WA), 2008 (Act 59 of 2008) (as amended).
- The South African Constitution (Act 108 of 1996).
- Hazardous Substances Act (Act 5 of 1973).
- Health Act (Act 63 of 1977).
- Environment Conservation Act (Act 73 of 1989).
- Occupational Health and Safety Act (Act 85 of 1993).
- National Water Act (Act 36 of 1998).
- The National Environmental Management Act (Act 107 of 1998).
- Municipal Structures Act (Act 117 of 1998).
- Municipal Systems Act (Act 32 of 2000).

- Mineral and Petroleum Resources Development Act (Act 28 of 2002).
- National Environmental Management: Air Quality Act, 2004 (Act 39 of 2004) (NEM: AQA)
    - The provisions of the National Dust Control Regulations published in terms of section 53 (o), read with section 32 of the NEM: AQA.
    - The provisions of the National Greenhouse Gas Emission Reporting Regulations published in terms of section 53 (aA), (o) and (p), read with section 12 of the NEM: AQA.
    - The National Ambient Air Quality Standards published in terms of section 9 (1) of the NEM: AQA.
- City of Cape Town: Integrated Waste Management By-law, 2009.

It was clarified with DEA&DP: WM that no Waste License application is required for the proposed project, in terms of the National Environmental Management: Waste Act (NEM: WA), 2008 (Act 59 of 2008) based on the following:

- The airport will have a WMF of approx. 1250 m^2, where all waste streams will go for temporary storage and where waste separation will take place.
- General waste will be sorted and temporarily stored in various categories.
- Shredding and baling of general waste will take place.
- All sorted, shredded or baled recyclable waste will be collected by recycling companies for off-site processing.
- Organic, food, garden, decomposable waste will go to a composting facility and bio-digester that will generate electricity. Alternatively organic waste will be collected by an accredit service provide for off-site composting.
- A sewerage package plant is proposed as an alternative to a conventional Waste Water Treatment Works.
- The sewerage effluent water generated by the package plant is normally used for irrigation or toilet flushing.
- The biodigester requires water to operate, but the water demand can be reduced or replaced by the sewerage effluent water from the sewage package plant (SPP).
- Considering the airports location the biodigester intents to use biomass sourced from the surrounding agricultural area, supplemented by general food waste from the airport or other organic /decomposable waste.
- Hazardous waste will be removed to a licensed facility.
- The intent is not to feed raw sewage sludge into the bio-digester, this will go into the SPP and then the outflow effluent water will be used in the biodigester. Bio-solids after treatment will be removed to a licenced facility alternatively if tested as non-hazardous it can be used in the biodigester.

- The combined tons of waste and water/ sewerage effluent water per day will probably exceed 100 Tons per day with the ability to produce 1 MW of continues power.
- The by-product from the bio-digester plant comprises "liquid fertilizer" which is planned to be used as organic agricultural fertiliser."

Based on the above, CWA will have to register and adhere in terms of the following Norms & Standards (N&S) due to the waste activities described above and the exceedance of the thresholds below:

- "National Norms and Standards for the Storage of Waste" (GN926 of 29 November 2013) should the facility have the capacity to store more than 80m^3 for hazardous waste and/or 100m^3 for general waste at any one time and for a period exceeding 90 days. (CWA 1250 m2 waste facility)
- "National Norms and Standards for Sorting, Shredding, Grinding, Crushing, Screening, Chipping or Baling of General Waste" (GN1093 of 11 October 2017) if general waste is sorted, shredded, grinded, crushed, screened, chipped or baled in an operational area at the facility exceeding 1000m^2. If the operational area does not exceed 1000m^2, the facility needs to register in terms of GN1093 only and adhere to section 28 of the National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended, and sections 16(1) and 16(3) of the NEM: WA. (CWA 1250 m2 waste facility).
- National Norms and Standards for Organic Waste Composting (GN 561 in GG 44762 of 25 June 2021) read with GN 1757 in GG 45907 of 11 February 2022. The composting facility will process less than 10 tonnes per day of organic waste, therefore it will be registered ito the N&S and aligned with the requirements of applicable integrated waste management by-laws and comply with the principle of duty of care as per S28 of NEMA.
- The activity of anaerobic digestion (biodigester) resort under the NEM: WA "*National Norms and Standards for Organic Waste Treatment*", published as GN. No. 1984 of 1 April 2022, and no longer requires an application for a waste management licence. Facilities that have the capacity to process in excess of 10 tonnes of organic waste per day need to register in terms of and adhere to GN No. 1984. (BIOMASS exceeds 10 tonnes per day plus the additional organic waste streams).
- GN No. 1984 above does not apply to any infectious animal waste, raw sewage or sewage sludge that does not meet the minimum quality standards for sludge as determined by the Department of Waste and Sanitation in their "*National Norms and Standards for Domestic Waste and Sanitation Services*", published as GN No. 982 of 8 September 2017. (The intent is to regard treated solids from the on-site WWTW as hazardous, to be removed from site, however if the minimum standards can be achieved it could be used in the bio-digester. Please note it needs to adhere to the requirement for the submission of Standard Operating Procedures (SOP) in accordance with section 6.2 of GN No. 1984.

- DEA&DP: Waste Management noted the intent to use the digestate from the anaerobic digester as a liquid fertiliser. The Department requested that once available, the digestate be analysed to determine its suitability as a liquid fertiliser, and that these results be made available to the Department, the DWS and the Western Cape Department of Agriculture.
- DEA&DP: Waste Management requires more information on the future biosolids resulting from the sewage package plant before a classification of the waste can be awarded. If the biosolids are regarded as hazardous it will be transported and disposed of at a hazardous waste facility. If not deemed hazardous it will be fed into the biodigester. Waste classification of the biosolids will also depend on an analysis provided on the chemical constituency of the biosolids, and depending on end use, the Department might require total concentration and leachable concentration tests to be conducted on the biosolids.

This Waste Management Plan (WMP) is in part fulfilment of the aforementioned NEM: WA Norms and Standards. Please note the WMP is an evolving document that will be shaped by the EIA process and final detailed operational procedure will become clear during the design phases for the WMF. As a norm a new waste facility must be registered with the competent authority in accordance with the N&S within 90 days prior to any construction of the WMF taking place. Considering the amount of time before the WMF will be constructed in relation to the current junction in the EIA process, it is therefore highly likely that this WMP will only be finally adopted by DEA&DP: WM after the Environmental Authorisation for the projects has been issued. Some design details of the WMF will therefore not form part of the WMP at this point in time until it's required to finally submit the WMP for adoption. Therefore 90 days prior to the construction of the WMF a NEM: WA Registration form will be submitted adhering to all the requirements of the N&S as attached under Annexure B.

1.6. The competent authority

DEA&DP: WM will review the WMP and on approval they may have the following role to play:

- Review and monitor implementation of the WMP;
- Review whether there is compliance by the landowner;
- Perform random control checks;
- Review ECO, incident and audit reports; and
- Enforce legal mechanisms for contraventions of the WMP.

SECTION 2: PROJECT DETAIL

2.1. Planning Phase

The SDP is divided into four (4) Precincts namely Airside, Airport Landside, General Aviation and Services Precincts. Please refer to Figure 4 & Figure 5 and Appendix A for more detail. The site has dedicated areas earmarked for waste management inside the services precinct (Figure 6). The rational for the location of infrastructure on site was primarily dictated by the 3.5 km runway orientation, this resulted in the airside precinct to be on the east of the site and the landside precincts to be located on the western side of the site. This also allowed for effective integration with the future urban area, services and access roads. Therefore, the services precinct was also positioned on the west to support the landside development. The WMF is opposite the City of Cape Town's WWTW, an area not suitable for residential development, and therefore suitable for the proposed activities.

The EIA process identified all bio-physical environments and constraints regarded as sensitive. Noteworthy sensitive areas that will remain on site after development is intact indigenous vegetation on the south eastern side of the runway and a partly remaining seep wetland on the eastern side of the runway all within the airside precinct. None of these areas will be exposed to any waste risks considering the services precinct where the WMF is located on the western side completely separated from these environments. Waste generated in these natural areas is organic waste generated by the natural landscape or windblown waste in the form of plastic or paper originating on or off-site. The main waste streams on site will be on the western side of the site, within the built environment. Any waste escaping the management system will end up in the stormwater system that will have sufficient retention and trap capacity to eliminate waste risks. The location of the waste facilities is on stable level ground, it will be inside a contained demarcated area designed in accordance with the N&S, therefore the on-site waste risk is limited and only relevant if managed poorly. The risk of waste smell to airport and surrounding land users is mitigated by the fact that the WMF is inside the services precinct, separate from the airport airside and landside precincts. This separation is regarded as sufficient to avoid waste smell impacts. The implementation of the WMP and N&S will also mitigate the possible impact of flies, rodents or pests etc. considering the design and management requirements as per N&S.

The agricultural area to the east of the airport contains wetland areas, however it's far from the waste management facility on the west, it also falls within two separate water sheds eliminating the risk of contamination via stormwater surface flows. The main waste streams originate on the west of the site, directly connected via a contained service network to the WMF. Therefore, neighboring areas to the west of the airport are most vulnerable to the waste streams. The risk of unmanaged waste stream reaching an off-site area is considered low. If waste is spilled or mismanaged, it could either flow via stormwater to neighboring sites, blow by wind or disperse foul odors onto neighboring properties. But if managed well, all waste streams

should move efficiently to the WMF, that is contained within a defined service precinct where it will be managed, delivered, handled and collected. All waste skips should be covered at all time and waste storage facilities should all be under roof and closed off.

2.2. Construction Phase

The airside precinct will be developed first (Figure 4). This relates to the demolition of existing unwanted infrastructure, usable material will be crushed for compaction re-use on site, unwanted waste will be removed to recycling or landfill, followed by earthmoving, cut and fill, then the construction of the new 3.5 km airstrip with associated airside infrastructure.

During the initial demolition and construction phase, the waste facilities will relate to a mobile waste yard managed by the contractors and the position will be away from sensitive features and informed by site logistics i.e. where works are taking place. Thereafter landside development will commence. As soon as the services precinct is established the WMF will be established and formally developed and used for the remainder of the construction an operational phase (Figure 6)

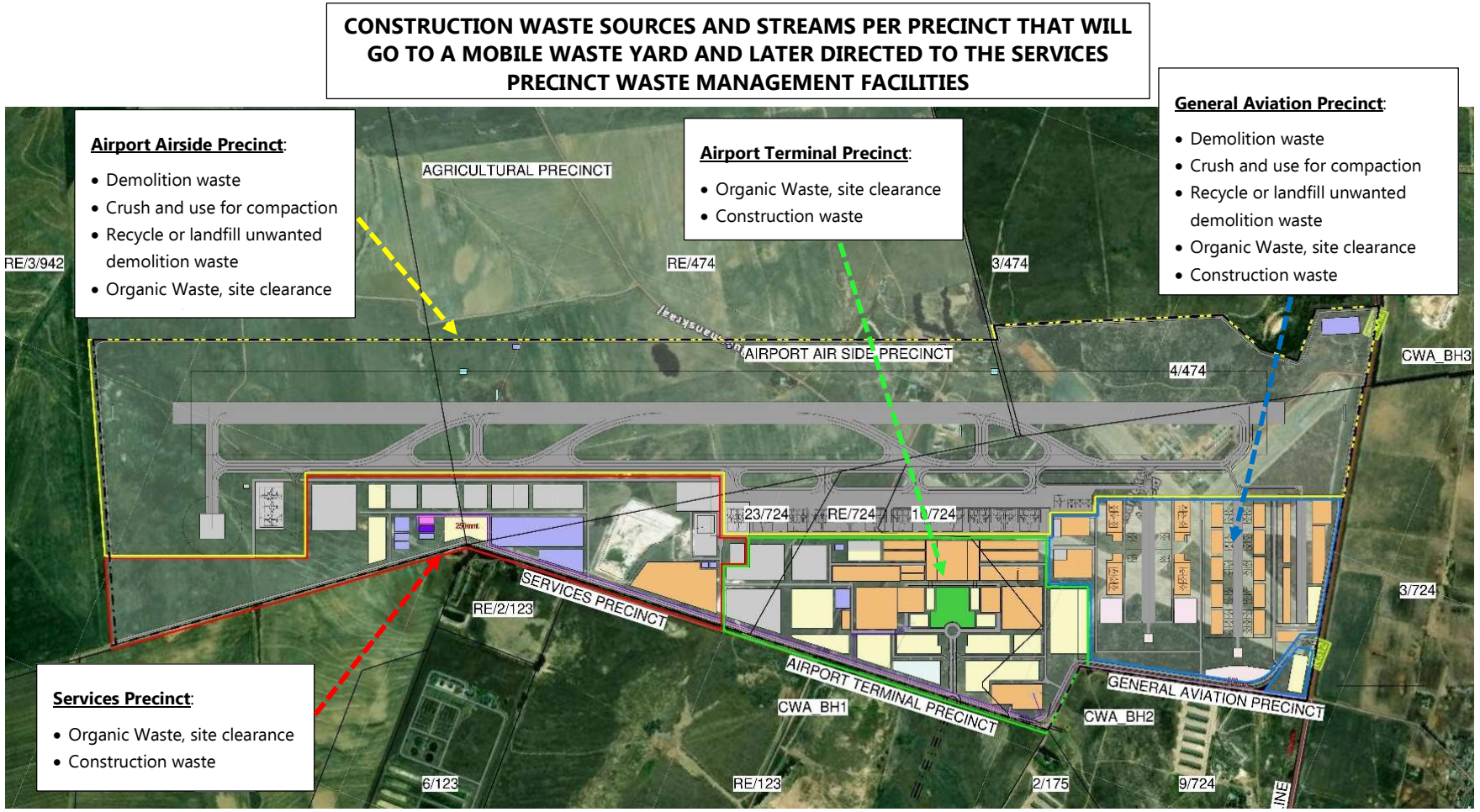


Figure 4: The Phase 2 SDP for the Cape Winelands Airport expansion. All waste streams during construction will be separated at source from where it will go to a mobile waste yard, location determined by logistics. When the services precinct (red outlined area also refer to Figure 6 below) is complete all waste streams will go to the waste management facility from where it will be collected and removed from site.

2.3. Operational Phase

Figure 5 indicates the various waste streams during operations in each precinct. While every waste source, before feeding into the waste stream, will be expected to implement a certain level of sorting and temporary storage at the source, ultimately all waste will end up in the Services Precinct (Figure 6), where it will be managed and from where it will be collected by external service providers. The Services Precinct will include a dedicated Waste Management Facility (WMF) for General Solid Waste management as well as a dedicated area for the Sewage Package Plant WWTW and Biodigester with a composting area. During the initial demolition and construction works a mobile waste yard will be used by the contractor, located in a low sensitivity but logistical functional area. Soon after the services precinct is established the dedicated WMF will be used for construction and operational waste management.

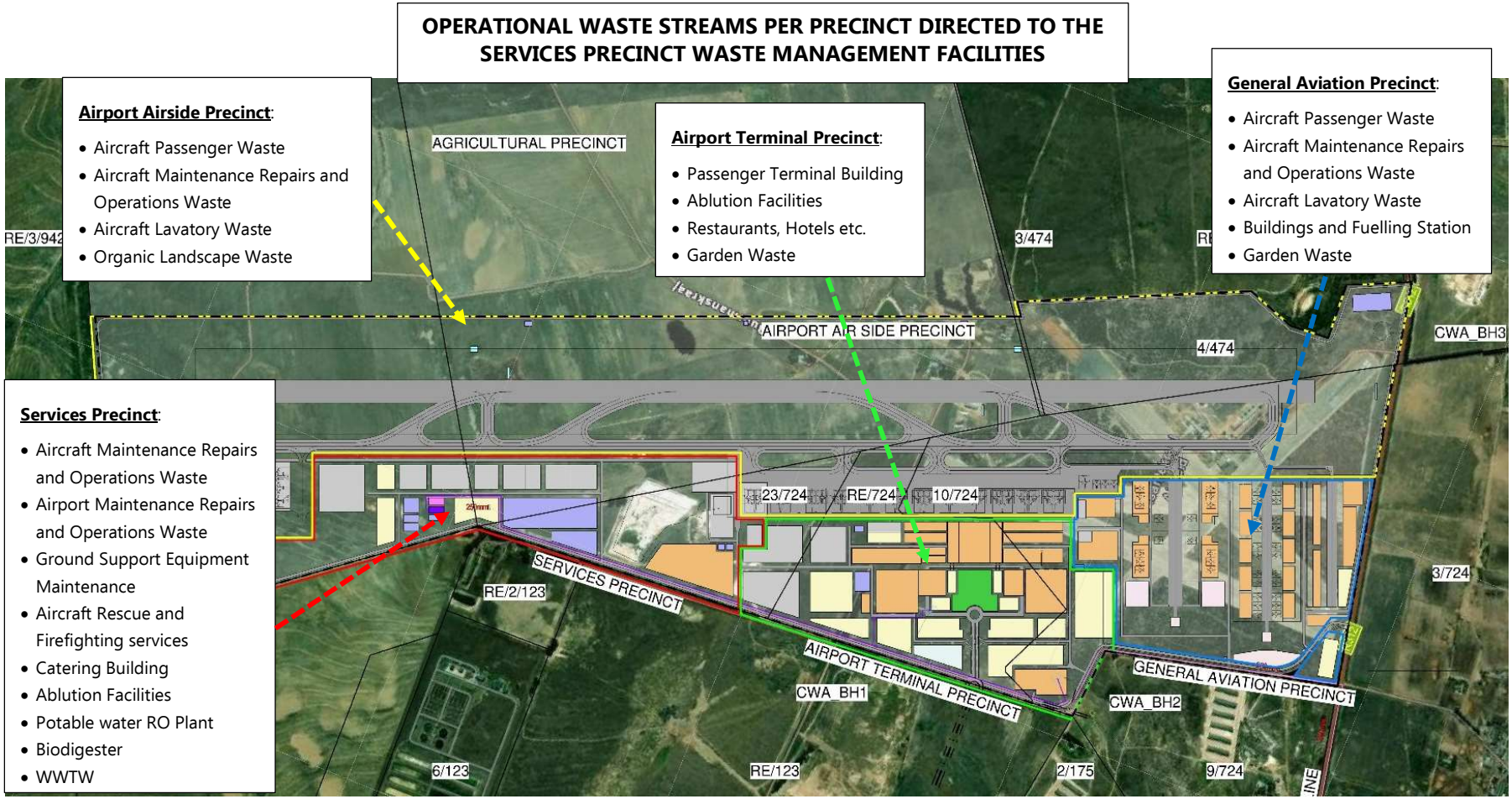
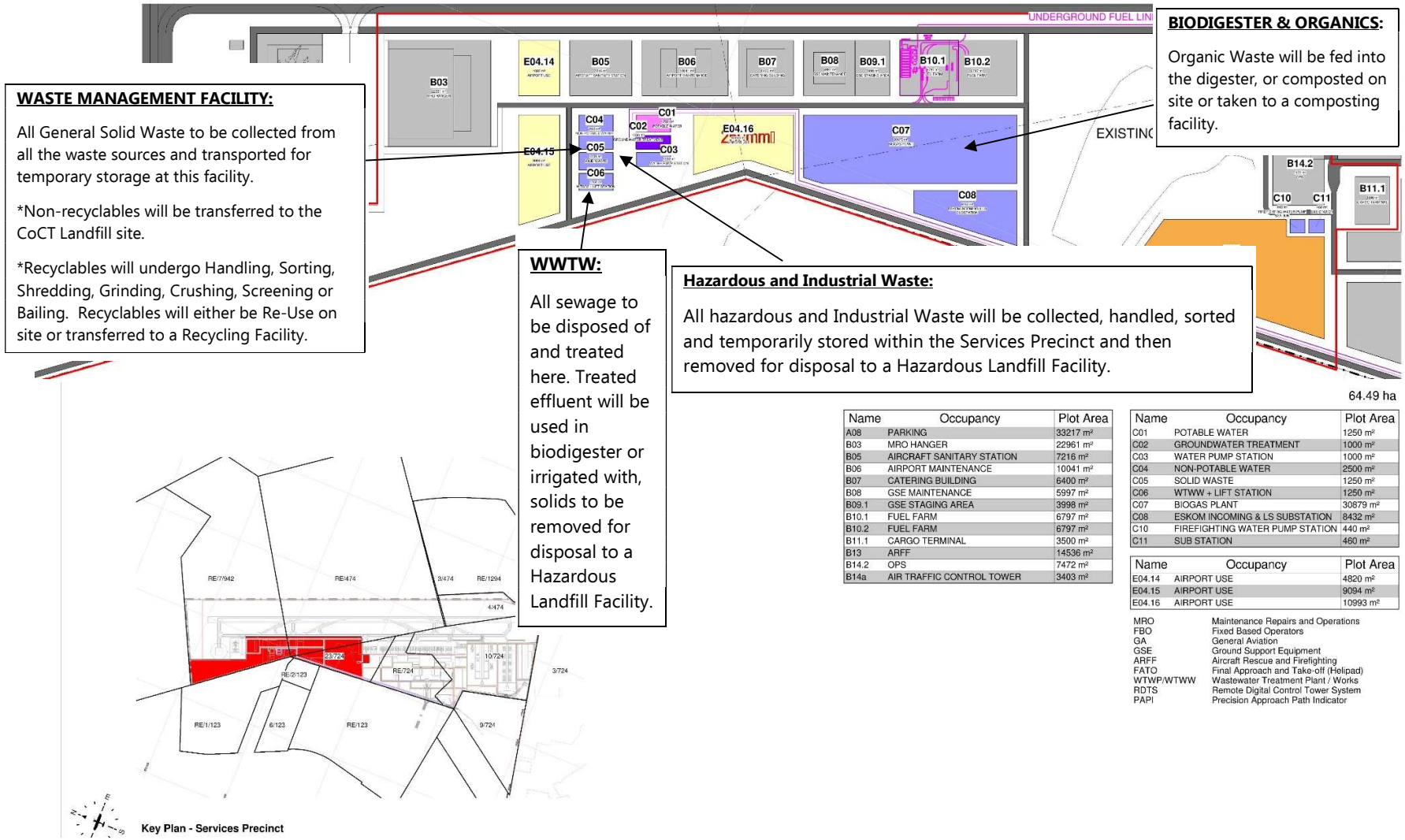


Figure 5: The Phase 2 SDP for the Cape Winelands Airport expansion. All waste streams on the airport will be separated at source from where it will go to the services precinct (red outlined area) for the management of waste on site and where it will be collected for further off-site management.



Name	Occupancy	Plot Area
A08	PARKING	33217 m²
B03	MRO HANGER	22961 m²
B05	AIRCRAFT SANITARY STATION	7216 m²
B06	AIRPORT MAINTENANCE	10041 m²
B07	CATERING BUILDING	6400 m²
B08	GSE MAINTENANCE	5997 m²
B09.1	GSE STAGING AREA	3998 m²
B10.1	FUEL FARM	6797 m²
B10.2	FUEL FARM	6797 m²
B11.1	CARGO TERMINAL	3500 m²
B13	ARFF	14536 m²
B14.2	OPS	7472 m²
B14a	AIR TRAFFIC CONTROL TOWER	3403 m²

Name	Occupancy	Plot Area
C01	POTABLE WATER	1250 m²
C02	GROUNDWATER TREATMENT	1000 m²
C03	WATER PUMP STATION	1000 m²
C04	NON-POTABLE WATER	2500 m²
C05	SOLID WASTE	1250 m²
C06	WTWW + LIFT STATION	1250 m²
C07	BIOGAS PLANT	30879 m²
C08	ESKOM INCOMING & LS SUBSTATION	8432 m²
C10	FIREFIGHTING WATER PUMP STATION	440 m²
C11	SUB STATION	460 m²

Name	Occupancy	Plot Area
E04.14	AIRPORT USE	4820 m²
E04.15	AIRPORT USE	9094 m²
E04.16	AIRPORT USE	10993 m²

MRO	Maintenance Repairs and Operations
FBO	Fixed Based Operators
GA	General Aviation
GSE	Ground Support Equipment
ARFF	Aircraft Rescue and Firefighting
FATO	Final Approach and Take-off (Helipad)
WTWP/WTWW	Wastewater Treatment Plant / Works
RDTS	Remote Digital Control Tower System
PAPI	Precision Approach Path Indicator

Figure 6: The 'Services Precinct' within the Cape Winelands Airport development where waste will be managed and collected.

SECTION 3: RESPONSIBILITIES AND ENFORCEMENT OF THE WMP

3.1. The Applicant: Capewinelands Aero (Pty) Ltd

The Applicant who is the landowner, developer and operator of the airport will be responsible for the overall implementation of the WMP.

The Applicant is accountable for the potential impacts of the activities that are undertaken and is responsible for managing these impacts. The Applicant has the overall environmental responsibility to ensure that the implementation of the operational requirements complies with the relevant legislation. The Applicant must ensure that he/she is fully familiar with the requirements of this WMP, any relevant Environmental Authorization or any other legally binding documentation.

3.2 The CWA Environmental Management Division (EMD) & Environmental Manager (EM)

The **CWA Environmental Management Division (EMD)** will be established at the start of construction to ensure environmental compliance throughout the project. The CWA EMD will appoint an **Environmental Manager (EM)** to oversee all aspects of Environmental Management on site. The Environment Manager is responsible for ensuring that the organisation meets its environmental policy commitments and improves its environmental performance. Not only do they monitor performance and ensure compliance with relevant laws and regulatory requirements, but they are also proactive in identifying and promoting opportunities to reduce the environmental impact of the organisation's activities, products and services.

Led by an Environmental Manager, the CWA EMD will consist of several teams e.g. landscaping, waste management, alien species control, fire management etc. During the initial phases it could be one multitask team to be split as the tasks increase. Each team will have a Team Leader reporting directly to the in-house ECO during operations, and EM during construction. In the case of waste management this would be the Waste Control Officer (WCO). The Environmental Manager will oversee the implementation of Environmental Management Plans (EMPr), compliance with regulations, day-to-day environmental management of the site, managing the necessary applications, and overseeing external service providers such as the appointed Environmental Control Officer (ECO) during

construction. Responsibilities also include internal audits and developing strategies for waste minimization and emissions reduction.

3.3. The Environmental Control Officer (ECO)

The Environmental Control Officer (ECO) is responsible for overseeing and verifying the proper execution of the EMPr during the construction and operational phase. This includes ensuring that various contractors working on-site comply with the waste management plan within their designated areas. During the construction phase, an independent Environmental Assessment Practitioner (EAP) firm must be appointed to serve as the ECO who will work alongside the EM. Once the project transitions fully into the operational phase, this function can be managed by an in-house ECO within the CWA Environmental Management Division who will report to the EM. During the construction phase, monthly ECO reports must be prepared and submitted to the Department of Environmental Affairs and Development Planning (DEADP) during construction and to the EM during operations.

3.4. Waste Control Officer

A designated Waste Control Officer (WCO) must be appointed within the EMD to lead the waste team to manage the day-to-day operation of the Waste Management Facility and oversee the implementation of the WMP. The waste control officer will assume overall responsibility for managing the WMF, employees and contractors and ensure and oversee the implementation of the WMP onsite in its entirety. All decisions regarding environmental procedures and protocol must be approved by the WCO, who also has the authority to stop any activity in contravention of the WMP. The role of is interactive and must include daily site visits with the following:

- Conduct environmental awareness training on the operation of the facility and implementation of the WMP;
- Monitor the site and operation of the facility for potential environmental issues on a daily basis,
- Consult with the Applicant, and all staff/contractors to resolve emerging environmental issues;
- Review method statements and determine the most environmentally sensitive options of *modus operandi* for the development tasks,
- Oversee the implementation of environmental procedures set out in this document,
- Report on environmental issues,
- Receive minutes of all site meetings,
- Maintain open and direct communication with the Applicant, contractors, and authorities,

- Monitor contractors, the WMP and the implementation thereof; followed by reporting to the relevant authorities,
- Take immediate action on site where clearly defined no-go areas/actions are violated, or in danger of being violated, and to inform the Applicant immediately,
- Keep an up-to-date record of works on site, as they relate to environmental issues in the Site Control Register including records of non-compliance incidents,
- Be contactable by the public regarding matters of environmental concern as they relate to the development,
- Issue any instructions to the management team via an appropriate management tool,
- Keep photographic records of site visits and records of communication to and from relevant authorities,
- Keep a Site Control Register consisting of the following sections:
    - The **Site Control Sheet** will be used to set out weekly reports in which the findings from daily site monitoring activities are consolidated.
    - The **Environmental Site Instruction Section** will be used to record all general site instructions relating to the protection of the environment and instructions issued by the site manager for the purpose of facilitating the issuing of the site instruction by the landowner.
    - The **Incidents Reporting Section** will be used to record all incidents pertaining to environmental issues onsite as well as remedial actions steps that were or need to be taken.
    - The **Complaints Register** will be used to record all complaints received and responses thereto.

Please note the above list is not exhaustive, the responsibilities of the site manager are adaptive and extent beyond environmental aspects. Many of these tasks would also be performed by the ECO on a larger scale.

3.5. Engineers and Contractors

The engineers and contractors, where applicable, are responsible for physically carrying certain development and maintenance activities. The responsibilities indicated here are also relevant to sub-contractors.

The responsibilities of the engineers and contractors include but are not limited to the following:

- Be conversant with the WMP, EMPr, any relevant Environmental Authorisation or any other legally binding documentation;
- Have a responsibility to adhere to any conditions and recommendations laid out in above mentioned documentation;
- Prevent actions that may cause harm to the environment;

- Be responsible for any remedial activities in response to an environmental incident;
- Review and amend any construction activities to align with the WMP, EMPr and Best Practice Principles;
- Ensure compliance of all site personnel and / or visitors to the WMP, EMPr and any other authorisations.

SECTION 4: WASTE HIERARCHY & REDUCING WASTE TO LANDFILL

Waste materials fall into four categories for management (after pre-treatment), which include: Re-use; Recycle; Residual wastes; and Landfill. From a very early stage the EM, ECO and WCO needs to look at how to manage the waste generated, thereby reducing the amount of waste to be removed from the project site.

The waste hierarchy is a simple ranking system used for the different waste management options according to which is the best for the environment. The most preferred option is to prevent waste, and the least preferred choice is disposal in landfill sites (Figure 7). The waste hierarchy outlines a preferred order for waste management: prevention, reuse, recycling, and energy recovery, with disposal as a last resort. This strategic approach promotes environmentally friendly practices, ensuring efficient resource use and reducing environmental impact.

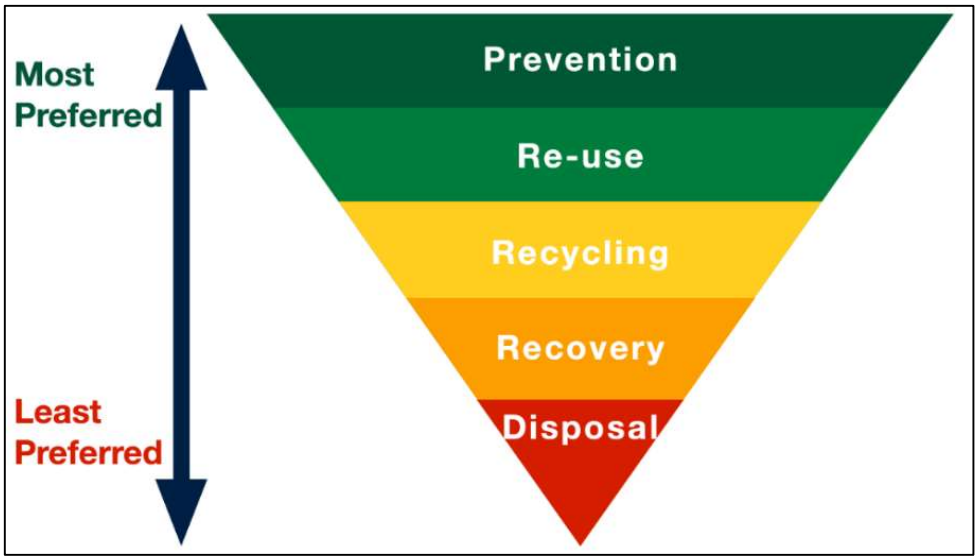


Figure 7: The Waste Hierarchy.

4.1 Prevention

The idea of avoiding things becoming waste in the first place is essential and the preferred option in the waste hierarchy. When we take action to prevent waste from arising in the first place, there is simply less waste. Less waste means less need to reuse products, less disposal, less expenses and most importantly, less waste at landfill sites.

We can prevent waste by using fewer and avoiding unnecessary materials during design, manufacturing and packaging products. It also means using less hazardous waste materials where you can.

This can be achieved through various strategies, such as:

- Promoting refillable water bottles and promoting reusable shopping bags. Airports can partner with concessionaires to offer discounts or incentives for passengers who bring their own reusable water bottles and shopping bags. Additionally, installing convenient water refill stations throughout the terminal can discourage the purchase of bottled water.
- Encouraging concessionaires to use sustainable packaging. Airports can incentivize businesses to use biodegradable or compostable packaging materials for food and beverages. Collaborating with concessionaires to explore alternative packaging options, such as paper or plant-based materials, can significantly reduce reliance on traditional plastic packaging.
- Implementing digital solutions. Replacing paper boarding passes and printed schedules with digital alternatives can significantly reduce paper waste. Airports can invest in mobile applications that allow passengers to access boarding passes, flight information, and terminal maps electronically. This not only reduces paper consumption but also enhances the passenger experience with a more streamlined and convenient travel process.
- Partnering with airlines to reduce single-use items. Collaboration between airports and airlines can lead to initiatives like eliminating unnecessary in-flight plastic service ware or offering pre-packaged meals with minimal plastic wrapping. Airports can leverage their partnerships with airlines to implement sustainable practices throughout the entire travel journey, reducing waste generation at both the airport and onboard flights.

4.2 Re-use

If surplus materials can be used in the future site works, they are classified as re-use materials. If they are surplus to requirements and need to be removed from site and they can be removed and used in their present form, they can be removed from site for re-use. The surplus products will be labelled, and a storage area recorded for future reference.

When waste is created, the waste hierarchy prioritizes reuse. Where possible, reusing products and materials before it becomes waste is the next best option. By cleaning, repairing and refurbishing items, we can significantly increase the number of things we reuse. As more single-use products are being phased out for reusable alternatives, re-using things is more accessible than ever.

4.3 Recycling

If surplus materials cannot be reused in their present form but could be used in a different form, they will be sent to recycling or labelled as future recycling. Recycling plays a vital role in diverting waste from landfills and conserving resources. Recycling is the most environmentally friendly solution when it comes to disposing of waste.

Today, most items we use can now be recycled. Everyday products that we can recycle include paper, cardboard, glass, wood, metal and most plastics. Ways of encouraging recycling during the operational phase include:

1. Setting up clearly labelled bins:

   Bins for different recyclable materials like paper, plastic, and metal should be easily identifiable and conveniently located throughout the terminal buildings, concourses, and even in public areas outside the terminal. Using standardised colour-coding systems and clear signage with pictograms can ensure intuitive waste segregation by passengers and staff, regardless of language barriers.

2. Educating passengers and staff:

   Clear signage, informational kiosks, and awareness campaigns can encourage proper sorting of recyclable items, reducing contamination and improving recycling efficiency. Engaging educational programs can target both passengers and airport personnel to ensure everyone understands the importance of waste segregation and contributes effectively. Making use of digital displays and interactive kiosks can provide informative and engaging content to educate travellers about the airport's recycling practices and encourage their participation.

3. Partnering with recycling facilities:

   Establishing strong relationships with local recycling facilities ensures proper processing and responsible management of collected recyclables. Partnering with local facilities not only supports the regional recycling infrastructure but also reduces transportation distances associated with waste hauling, reducing the environmental impact of the recycling process itself.

4.4 Recovery

Recovery is the next best option when we can't apply the first 2 Rs of waste management in the waste hierarchy. For waste that we can't recycle, it may be possible to recover energy in the form of "waste to energy". Waste to energy is the process of incinerating non-recyclable waste to produce electricity. This helps reduce our reliance on fossil fuels and decreases carbon emissions.

Composting is also a method we use when we can't recycle materials. Composting turns organic wastes into nutrient-rich food for plants.

4.5 Landfill

Residual waste can come in several forms including:

- Waste that cannot be disposed of due to its category, class or material (e.g. old tyres, metals and contaminated waste). Ways of reusing or disposing of the waste from the site needs to found; and
- Unused machinery, spare parts or discarded parts. All items of this nature will be identified and dated. These items will be assessed quarterly to gauge their importance for potential future use. Once an item is deemed to have little or no future potential to be utilised, it will be either assessed for reuse in another form or disposed of from the site.

Residual waste can be an eyesore, fire hazard and has potential to impact on the environment through leachates. All residual wastes will be identified, and new residual wastes will be added to the residual waste catalogue for auditing. Residual wastes that are deemed essential or have the potential for future use will be stored in a neat and tidy manner and where possible under cover to avoid or reduce the potential for further corrosion or damage to the product.

Furthermore, if the above options cannot be satisfied, then the only alternative left is to send the surplus materials to landfill. The least sustainable option in the waste hierarchy and our last resort is landfill and incineration when energy recovery isn't possible.

SECTION 5: WASTE TYPES, SOURCES AND STREAMS

5.1. Construction Phase

Construction Waste (Figure 8) can be divided into four categories (General Solid Waste, Organic Waste, Hazardous & Industrial Waste, and Sewage) which entails waste generated during the construction phase of the proposed development, namely: Site clearance & excavation activities; construction of airside infrastructure first followed by landside infrastructure and buildings; demolition of existing infrastructure and buildings; and maintenance work required. The types of waste, materials and sources of waste have been summarized as follows:

A. General Solid Waste

Waste Materials: Soil / Sand, Concrete, Rock, Metals, Asphalt, Plastic, Wood, Bricks & masonry materials, Glass, Nails, Cement Bags etc.

Waste Sources: Demolition, land clearing & excavation; construction of new buildings & material; and maintenance work.

General Solid Waste will undergo: Collection, Identification, Handling, Sorting, Storage, Crushing as pre-treatment of the waste type prior to Transfer, Disposal, Re-Use or Recycling. Recyclables will be re-used/ recycled on site or taken to a Recycling Facility. Non-recyclables will be transferred to a Landfill.

B. Organic Waste

Waste Materials: Topsoil, Alien clearing and indigenous or general vegetation removal etc.

Waste Source: Land clearing & excavation.

Organic Waste will undergo: Collection, Identification, Handling, Sorting and Storage as pre-treatment of the waste type prior to Transfer to the Biodigester or Composting Facility.

C. Hazardous & Industrial Waste

Waste Materials: Asbestos; old fuel storage infrastructure/ equipment, hydrocarbon waste etc.

Waste Sources: Demolition, land clearing & excavation; maintenance work; accidental hydrocarbon spills and hydrocarbon waste from vehicle, equipment and machinery parts and servicing (oil cans, filters, rags etc).

Industrial Waste will be collected and temporarily be sorted on site for storage if parts could be reuse or recycled (collected for recycling). All hazardous waste will be transferred and disposed of at the Hazardous Landfill Facility.

D. Sewage (Hazardous)

Waste Materials: Sewage; Lavatory Waste etc.

Waste Sources: Existing infrastructure and portable toilets.

Sewerage Waste will undergo: Storage, Collection and Transfer initially to the Municipal WWTW until the Package Plant WWTW on site is completed.

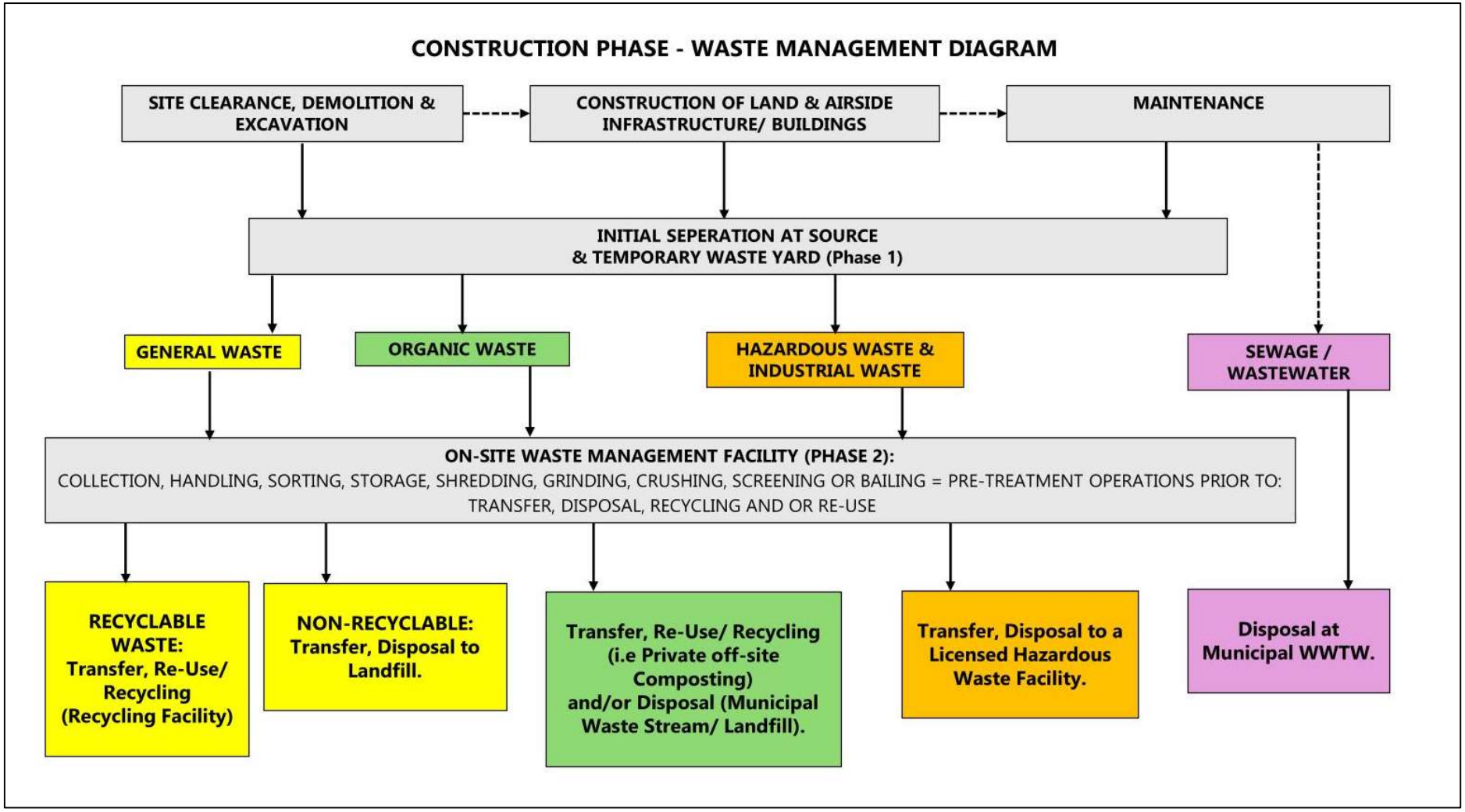


Figure 8: The lifecycle of the construction waste from the Cape Winelands Airport.

5.2. Operational Phase

The site and its associated activities will generate waste at various stages of operation. Waste generated during the operational phase can be divided into several main categories (General Solid Waste, Organic Waste, Hazardous & Industrial Waste and Sewage). The expected volume of each waste type is not available at this time and specific service providers will be contracted in to assist, remove and dispose of waste types present onsite, where necessary. The types of waste generated during the Operational Phase can be summarised into the following waste types which include waste material and source:

A. General Solid Waste (Figure 9)

Domestic waste from the airside precinct in the form of airplane users and the landside precinct in the form of restaurants, hotels and offices on site will be separated at source into general (non-hazardous), recyclable (non-hazardous), organic waste and hazardous. These waste steams will be moved to the waste management facility in the services precinct. The general waste will be collected by the service provider and disposed of at a licensed landfill. The recyclable materials will be collected from site by recycling companies for further processing. The organic waste will be used in the on-site bio-digester or composting facility.

Airplane waste from the airside precinct can be split into 2 waste streams:

- "Normal" Waste - such as magazines, plastic bottles etc. This is discarded to the designated waste storage area onsite from where it is disposed into the various waste streams e.g. recycling etc.
- Galley waste – This is and remains the airline/catering contractor's property and thus responsibility. The airport does not take responsibility for it. Although certain Airports classify this waste as Hazardous.

Waste Materials: Plastic, Paper, Cardboard, Metal, Glass etc. (Some recyclable & some non – recyclable)

Waste Sources: Terminal Waste, Tenant Waste, Airline Waste (Deplaned waste is mostly mixed), Cargo Waste, General Aviation Sector, Restaurants, Hotel, Offices, Warehousing etc.

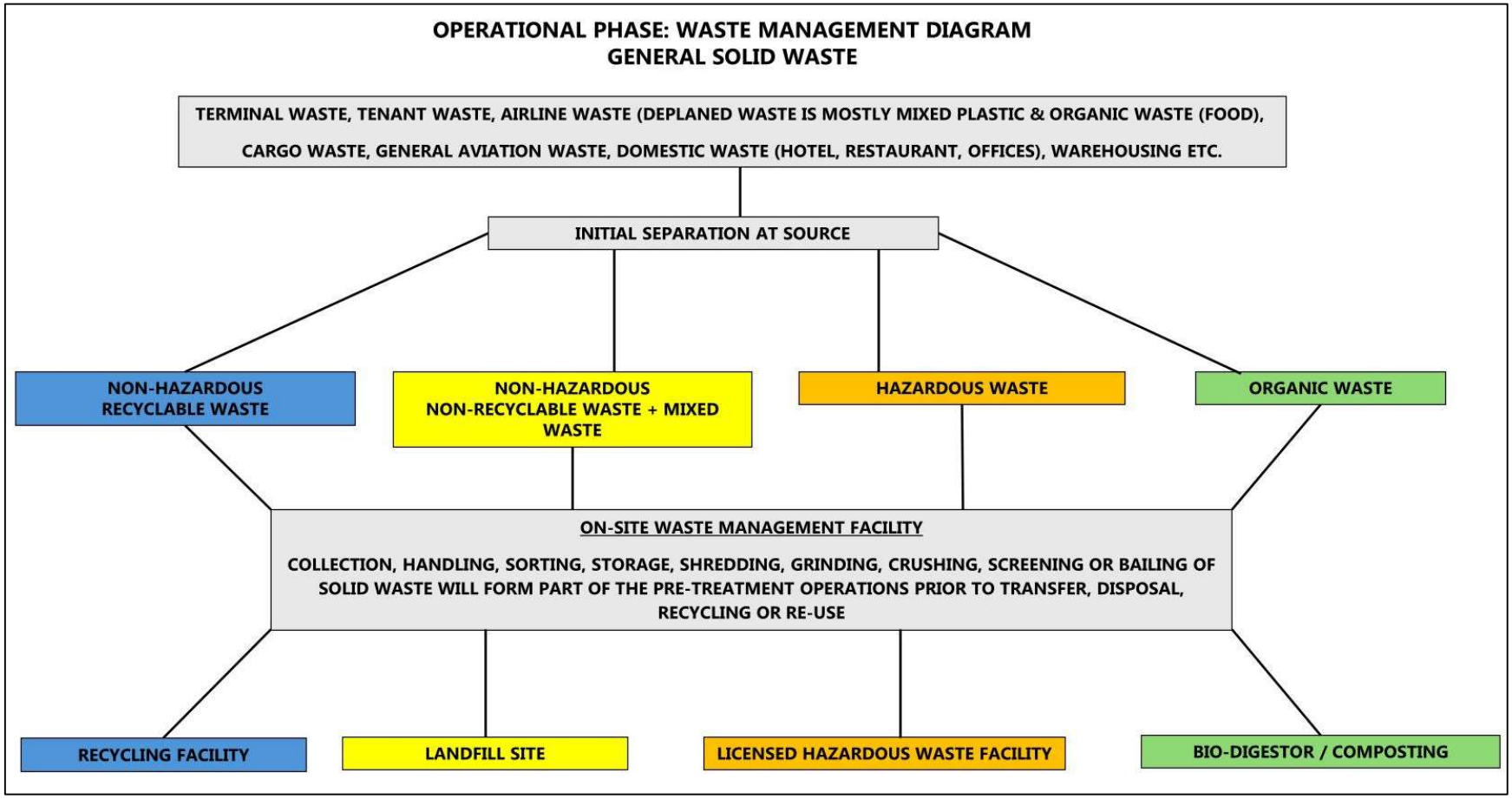


Figure 9: The lifecycle of operational general solid waste from the Cape Winelands Airport.

B. Organic Waste (Figure 10)

Garden waste from landscaping (non-hazardous) will be sent to composting site or the biodigester. Domestic waste from the restaurants, hotel and offices on site will be separated at source into general/non-recyclables (non-hazardous), recyclable (non-hazardous) and organic. The organic waste will be sent to the biodigester, on site composting facility and/or an off-site licensed composting facility.

Waste Materials: Food waste, Garden waste from landscaping etc.

Waste Sources: Terminal Waste, Tenant Waste, Arline Waste (Deplaned waste is mostly mixed), General Aviation Sector, Hotel, Residential etc.

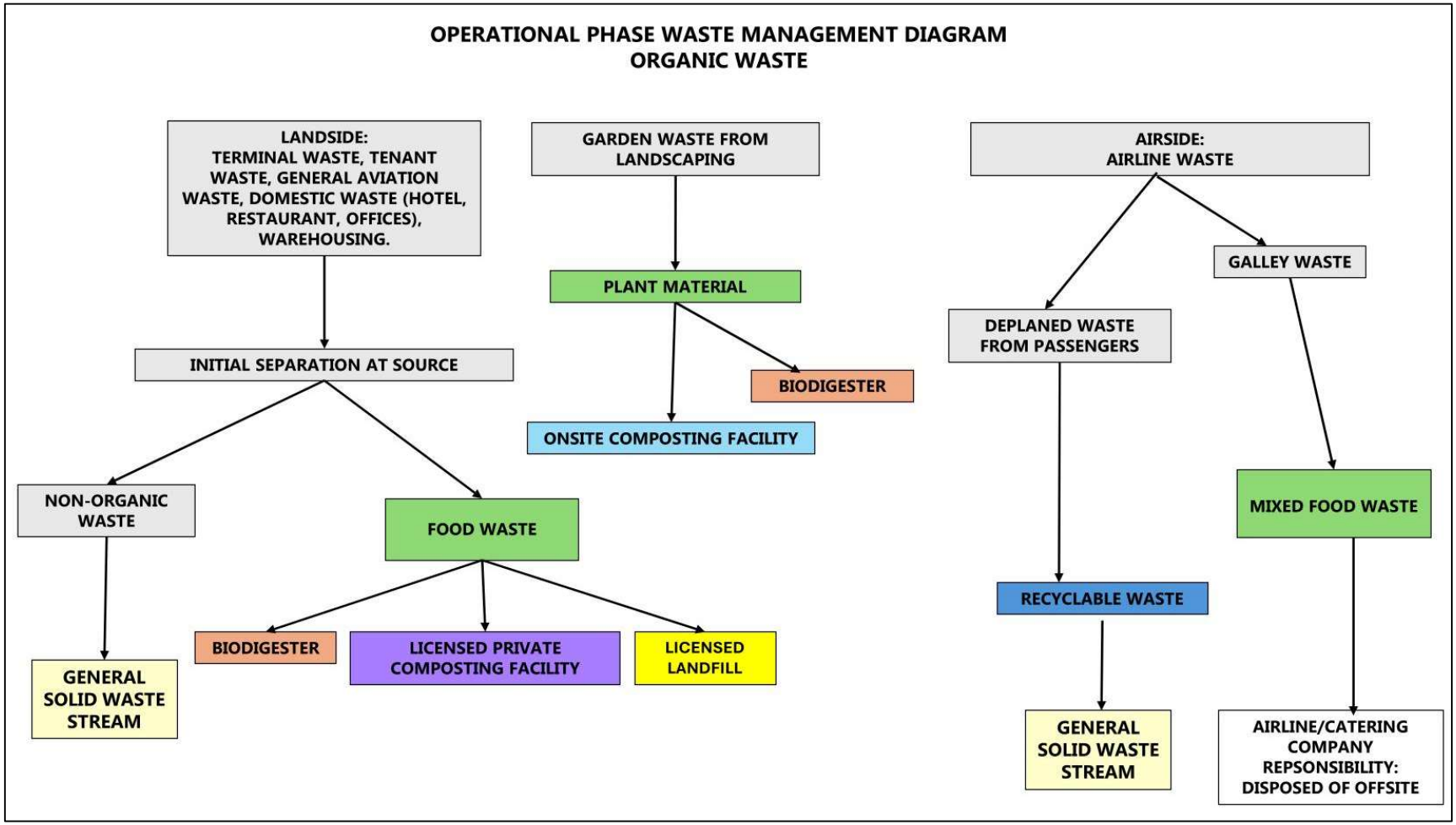


Figure 10: The lifecycle of operational organic waste from the Cape Winelands Airport.

C. Hazardous and Industrial Waste (Figure 11)

Used oils and fuels (hazardous) will be collected for re-use by recycling companies. Oil containing rags and materials (hazardous) will be disposed of to a Hazardous Landfill Facility. Any waste metals (non-hazardous) will be sent to recycling.

Waste Materials: Used oils and fuels; Oil containing rags and materials; Paint, metal work debris, chemicals/ chemical residue; Solar panels, batteries; non-recyclable glass; tyres etc.

Waste Sources: Refueling activities; Materials originating from aviation and vehicle maintenance, waste generated during various airport & industrial operations etc.

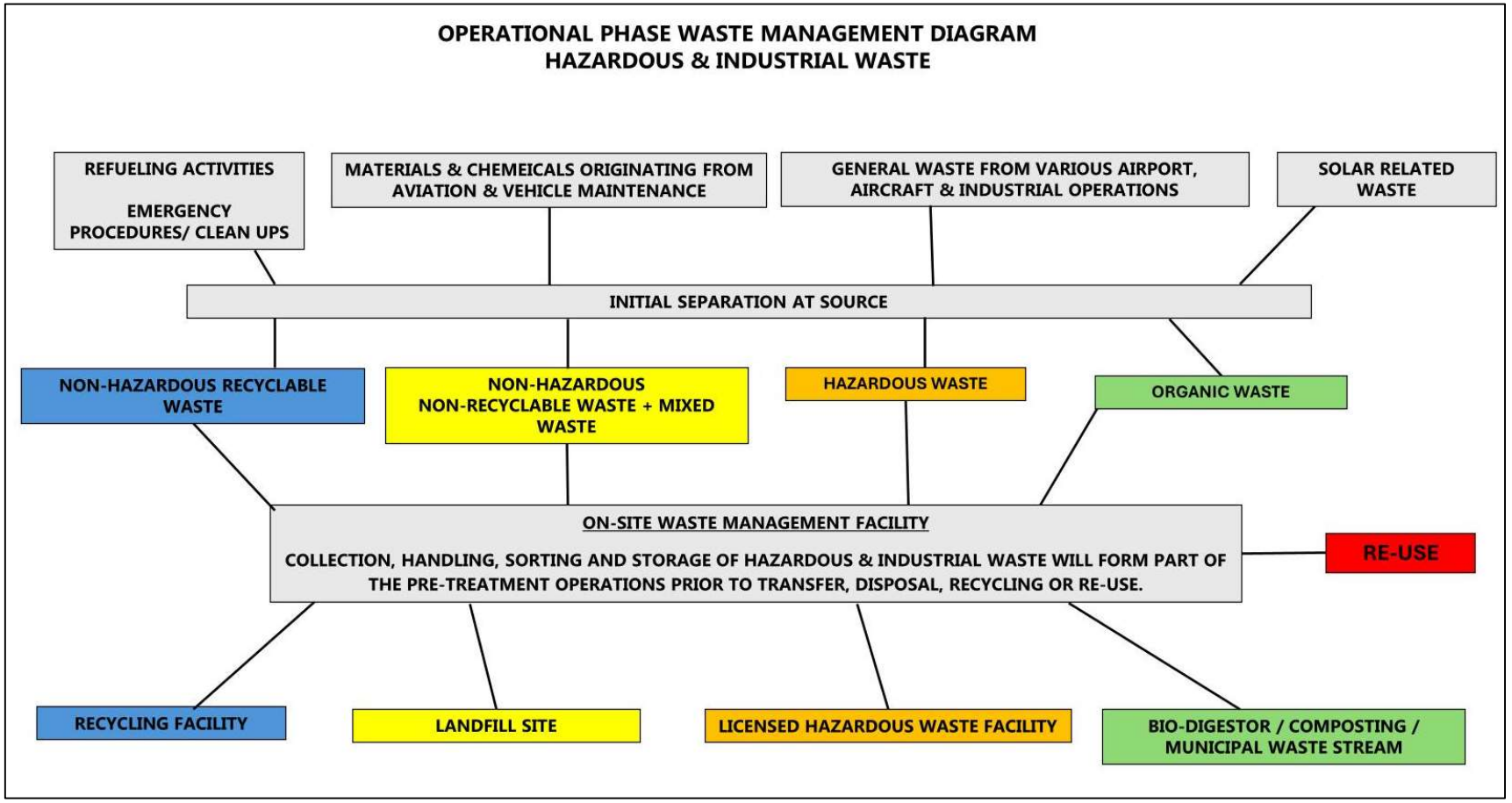


Figure 11: The lifecycle of operational hazardous and industrial waste from the Cape Winelands Airport.

D. Sewage (Hazardous) (Figure 12)

Sewage is the part of wastewater that is contaminated with feces or urine but is often used to mean any wastewater. The site will have its own wastewater treatment works (WWTW) as an alternative to the conventional City of Cape Town WWTW directly NW of the site (However, the site will have a connection to the CoCT WWTW, which would be used in emergencies or during maintenance of the on-site WWTW). The plant will generate treated sludge/ biosolids and treated effluent water. The treated effluent water will be used as a supplementary input liquid in the biodigester on site to generate electricity. The treated sludge will be disposed to landfill. The raw sewage goes through a pre-screening process where certain solids are removed. As this takes place prior to treatment, any material that is removed remains classified as hazardous. This material will need to be temporarily stored and removed by honey suckers from time to time before being disposed at a licensed hazardous waste facility. There will also be a solid component after the treatment has been undertaken. Seeing as this has been through the treatment process it is no longer regarded as hazardous and could potentially be used to feed into the biodigester. However, it will be tested and only used if proven to be non-hazardous.

Waste Materials: Sewage; lavatory waste, wastewater etc.

Waste Sources: All onsite buildings and Aircrafts etc.

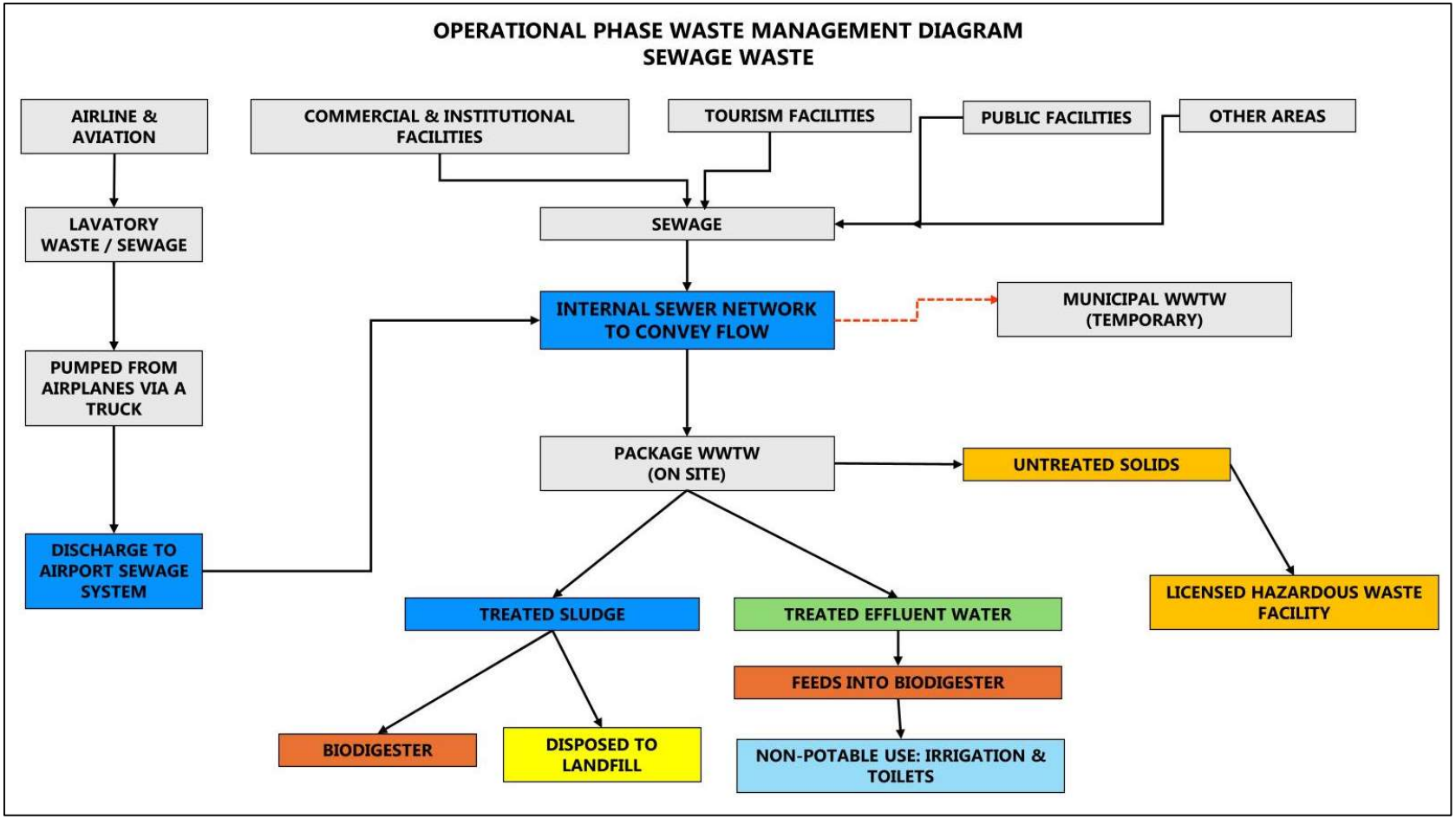


Figure 12: The lifecycle of operational sewage waste from the Cape Winelands Airport.

E. Other Waste:

- Waste input and output related to the biodigester

  The biodigester will output digestate as liquid and solid fraction. The liquid fraction can be used for irrigation on site and the solid fraction for fertilizer application to land, dependent on development of a suitable offset market. Considering the liquid and solid fraction can be reused this does not constitute waste.

- Brine from potable water treatment plant

  Brine will either go straight into the pipeline heading to the Municipal WWTW or, if the onsite Package Plant WWTW is in operation, disposing of brine into the WWTW would need to be investigated further. If neither of these options will be utilized, brine will be disposed of at a Landfill Facility.

- Spills and emergency procedures

  This relates to contaminated peat and materials used during emergency procedures to clean up for example hydrocarbon spills etc. In addition, waste as a result of training procedures e.g. firefighting residue is also as a result of emergency procedures. This will further be addressed as part of the **Emergency Response Plan (to be developed after Environmental Authorisation)**.

SECTION 6: IMPACTS AND MITIGATION MANAGEMENT

The applicant is committed to the implementation of the waste hierarchy to achieve a reduction to landfill and to contribute to a productive the waste economy. Table 1 below summarizes the Waste Types, Sources, Stream handling and Impacts if the waste hierarchy is applied of the Construction and Operational Phases at CWA.

Table 1: Waste Types, Sources, Stream handling & Impact at the CWA.

Waste Type	Materials	Source	Recommended Stream Handling	Impact
Construction Phase				
General Waste	Soil / Sand, Concrete, Rock, Metals, Asphalt, Plastic, Wood, Bricks & masonry materials, Glass, Nails, Cement Bags etc.	Land clearing, Demolition & excavation; construction of runway new buildings & material; maintenance work.	**Re-use:** Keep topsoil; Cut and Fill with on-site material; Crushing and re-use for compaction **Recycle:** Sorting Metals and wood **Disposal Landfill:** Transfer disposal of unwanted	**Off-site:** Reduce landfill to 20%; large reduction of impact on landfill space, transport reduce traffic on roads and emissions **On-Site:** Initial mobile managed waste yard, later fixed managed WMF as per recommendations and N&S – Low impact
Organic Waste	Alien clearing and indigenous vegetation removal etc.	Land clearing & excavation.	**Re-use:** Shredding (chipper) biomass, mulch use to stabilise exposed sandy areas **Composting on-site:** Organics **Composting off-site:** Transfer excess	**Off-site:** Reduce landfill to 0% total reduction of impact on landfill space, transport reduce traffic on roads and emissions **On-Site:** Managed stabilisation reduces dust impact and composting for future landscaping as per recommendations and N&S – Very Low impact

Hazardous & Industrial Waste	Asbestos; old fuel storage infrastructure/ equipment, hydrocarbon waste etc.	Demolition, land clearing & excavation; maintenance work; accidental hydrocarbon spills and hydrocarbon waste from vehicle, equipment and machinery parts and servicing (oil cans, filters, rags etc).	**Specialized:** Safe handling, storage **Recycle:** Limited **Disposal Landfill:** Licensed Hazardous Waste Facility.	**Off-Site:** No reduction in landfill unavoidable **On – site:** Low if specialized handling applies
Sewage	Sewage; Lavatory Waste etc.	Existing infrastructure and portable toilets.	Initial phases **Disposal**: CoCT WWTW Later Phases **Re-use:** On-site treatment, use treated effluent **Disposal:** Hazardous bio-solids	**Off-site:** initial phase to CoCt WWTW, capacity exists **On-site:** Manage WWTW, reduce pressure on off-site infrastructure, positive use of waste water as part of energy generation; Low impact if handled as per recommendations and N&S
Waste Type	**Materials**	**Source**	**Recommended Stream Handling Stream**	**Impact**
Operational Phase				
General Solid Waste	Plastic, Paper, Cardboard, Metal, Glass etc. (Some	Terminal Waste, Tenant Waste, Airline Waste (Deplaned	**Prevent:** Industry changes	**Off-site:** Reduce landfill to 50% large reduction of impact on landfill space,

	recyclable & some non – recyclable)	waste is mostly mixed), Cargo Waste, General Aviation Sector, Restaurants, Hotel, Offices, Warehousing etc.	**Recycle:** Handling, Sorting, Storage, Shredding, Grinding, Crushing, Screening or Bailing prior to collection **Non-Recycling:** Handling, Storage Transfer or Landfill Disposal	transport reduce traffic on roads and emissions. **On-site:** Fixed managed WMF as per recommendations and N&S – Low impact
Organic Waste	Garden waste from landscaping etc. Food waste	Terminal Waste, Tenant Waste, Arline Waste (Deplaned waste is mostly mixed), General Aviation Sector, Hotel, Residential etc.	**Re-use:** Shredding (chipper) biomass, mulch use to stabilize reduce moisture evaporation **Composting on-site:** Organics **Composting off-site:** Transfer excess **Treatment:** Biodigester	**Off-site:** Reduce landfill to 0% total reduction of impact on landfill space, transport reduce traffic on roads and emissions **On-Site:** Managed stabilization; composting for future landscaping; treatment to Biogas energy as per recommendations and N&S – Very Low impact
Hazardous and Industrial Waste	Used oils and fuels; Oil containing rags and materials; Paint, metal work debris, chemicals/ chemical residue; Solar	Refueling activities; Materials originating from aviation and vehicle maintenance; spills from training and	**Specialized:** Safe handling, storage **Recycle:** Limited	**Off-Site:** No reduction in landfill unavoidable **On – site:** Low if specialized handling applies

	panels, batteries; hydrocarbon waste etc.	emergency situations/ procedures etc.	**Disposal Landfill:** Licensed Hazardous Waste Facility.	
Sewage	Sewage; Lavatory Waste etc.	All onsite buildings; Aircrafts etc.	**Treatment:** on-site WWTW **Re-use:** use treated effluent in Biogas or irrigation or flushing of toilets **Disposal:** Hazardous bio-solids	**Off-site:** CoCT WWTW, reduction by 90% **On-site:** Managed WWTW, reduce pressure on off-site infrastructure, positive use of waste water as part of energy generation; Low impact if handled as per recommendations and N&S
Brine from Reverse Osmosis (RO) Plant	Brine	RO Plant for Potable Water.	**Disposal:** WWTW/ Landfill	**Off-site:** Low quantities **On-site:** Low quantities

The following additional impacts is possible if large quantities of waste are self-managed on-site. The N&S provide clear guidance the designs and actions to apply but additional mitigation measures have been identified to reduce the impacts on and off site:

Table 2: Impacts associated with an on-site WMF

	Impact	Activity	Proposed mitigation
1	Natural resource contamination	Natural areas located on the east of the airside precinct are separated from waste activities however, stormwater originating from the site	• Minimize the use of wash water onsite as far as possible by applying high pressure hoses. • The facility must be managed such that all runoff originating from the site is diverted into a stormwater control channel that contain detention and trapping facilities before it leaves the WMF. • All stormwater control channels in close proximity to WMF must be suitably lined to prevent seepage into groundwater.

		could contain waste and can result in pollution or waste can be dispersed by wind into the natural areas	• The overflow of stormwater channels needs to be trapped and allowed to settle in a detention pond. • The nutrient rich stormwater originating from the composting and biodigester site must be trapped and used as a moisture additive within the composting facility to enhance the composting process. • No nutrient enriched water may be released offsite. • All stormwater infrastructure must be regularly inspected and serviced to ensure design capacity and integrity is maintained. • To ensure suitable stormwater control capacity is maintained onsite, stormwater channels must be kept free from silt. The stormwater control channels must be cleared of any sedimentation (if required) during the dry season. • All water that has entered the composting and biogas areas must be treated as leachate. • To prevent nutrient rich leachate from percolating into the ground, the land areas where composting are established should be compacted to ensure that the soil drainage is poor or virtually impervious. • All wind dispersed waste must be collected on a daily basis and taken to the WMF • The WMF must have closed containers to avoid wind dispersing waste
2	Generation of atmospheric emissions and odors	Waste trucks entering and exiting the WMF transport potentially foul-smelling material. In addition, active composting, organic piles emit volatile compounds.	• All trucks or vehicles transporting waste material will be required to secure and cover all loads with shade cloth to avoid debris or plastic etc. that can blow or fall on public roads or areas. • Composting operations should process organic material on the same day to avoid stagnant heaps. • Optimizing certain variables can minimize composting emissions. The carbon-nitrogen ratio, temperature, moisture content (at least 25%), aeration, and pH must be monitored by the facility manager on a weekly basis to ensure optimal organic matter breakdown without production of excessive atmospheric emissions or odors. • All storage and operating areas need to be contained in bunkers, lined and covered where required.

			• The WMF in the services precinct is located directly opposite the City of Cape Town Fisantekraal WWTW therefore part of a node already exposed to odors where residential development is not likely.
3	Soil Erosion	The increased bare, hardened and compacted surfaces associated with the facility results in reduced surface roughness, increased run-off and increased erosion potential. Areas where stormwater runoff is concentrated are most likely to experience erosion.	• Wherever possible, ensure that the WMF surface is covered by tar, concrete or paving and areas around the stormwater system vegetated as per landscape and SWMP. • Establish and maintain suitable vegetation cover at all stormwater concentration points. These areas include road verges, the banks of stormwater channels, berms and other infrastructure that may increase surface runoff. • Should any erosion be detected, the ECO must identify the cause of such erosion and ensure that the most appropriate method of mitigation or stabilization is employed as soon as possible.
4	Generation of dust and noise	The movement of transport trucks to and from the facility will result in the generation of dust and noise.	• The level of dust and noise generated by WMF activities will be insignificant in the broader landscape, especially after the roads a surfaced. Nevertheless, it is recommended that working hours are restricted to 06:00 to 18:00 daily. • All transport vehicles and machinery/equipment used onsite must be regularly maintained and kept in good working order to prevent excessive noise. • It is recommended that a dustcart is available onsite to water down dusty roads not tarred, particularly during the dry summer months. • A suitable speed limit (40 – 60 km/h) must be enforced on all access roads. • Ensure compliance with the provisions as set out in the National Environmental Management: Air Quality Act (NEM: AQA), National Dust Control Regulations (Notice 827 of 2013) and Western Cape Noise Control Regulations (P.N. 200/2013).

5	Visual impacts	Given the location of the facility visual impacts are expected to be negligible.	• Scrape and sweep all areas where material is processed weekly to ensure that minimal waste material is present outside the contained areas
6	Consumption of resources (water)	Inefficient use of valuable freshwater for cleaning of waste bins and areas.	• Maintain all water infrastructure in a good working condition. • Use high pressure power hoses for cleaning. • Ensure that all taps remain closed when not in use. • Educate all employees on the importance of natural resources and wise water use practices. • Should any leaks occur, these must be reported immediately and repaired as soon as possible. • When emptying transport bins, ensure all material is removed manually as far as practicably possible to minimize the need for wash water.
7	Attraction Birds and Vermin.	Waste activities have the potential to attract flies.	With suitable management, this impact can be kept to a minimum. The flowing management measures should however continue to be followed: • All organic waste delivered to the site must be covered or worked immediately. • Apply roofs over waste areas to avoid attraction. • Apply containment of waste to avoid attraction. • Apply bait stations for organic pest control. • Correct management of pH and temperature within the composting rows will control the spread of pests and diseases as larva/eggs/worms/bacteria can't live at optimal composting temperatures. • Ensure that WMF does not have pooling or standing water. • Best practice pest control measures will be implemented, and a Certified Pest Control Company will be appointed at the onset of the Construction and Operational Phases to ensure that preventative measures are put in place and monitored to ensure the effectiveness of the Pest Control Schedule.

8	Leakage of potentially hazardous substances	Operation of trucks and machinery can result in leaking or spilling of fuel or oil which is hazardous for the environment.	• All transport vehicles and machinery must be confined to access roads and approved development footprints. • All transport vehicles and machinery/equipment used onsite must be regularly maintained and kept in good working order to prevent potential leaks.
9	Employment opportunities	The operation of the facility generates the opportunity to create additional direct and indirect employment opportunities.	• This is a positive impact. No mitigation required.

SECTION 7: DEVELOPMENT PHASE REQUIREMENTS

7.1. Planning and Design Requirements

Based on the above, CWA will have to register and adhere to the following Norms & Standards (N&S) due to the waste activities described above. Each of these N&S list specific criteria that need to be planned and designed for. The position of the WMF is inside the services precinct of the CWA and this precinct is located away from public operations and residential areas. The site is opposite the CoCT WWTW, a zone suitable for waste management.

Find attached under Appendix B the following specification documents that will be adhered to and included in the WMP when the N&S Application is submitted to DEA&DP: WM:

a. National Norms and Standards for the Storage of Waste (GN926 of 29 November 2013)
b. National Norms and Standards for Sorting, Shredding, Grinding, Crushing, Screening, Chipping or Baling of General Waste (GN1093 of 11 October 2017).
c. National Norms and Standards for Organic Waste Composting (GN 561 in GG 44762 of 25 June 2021) read with GN 1757 in GG 45907 of 11 February 2022.
d. National Norms and Standards for Organic Waste Treatment (GN. No. 1984 of 1 April 2022
e. National Norms and Standards for Domestic Waste and Sanitation Services", published as GN No. 982 of 8 September 2017.

7.2. Construction Phase Requirements

The N&S listed below provide specific criteria how the WMF need to be constructed. Find attached under Appendix B the following specification documents that will be adhered to and included in the WMP when the N&S Application is submitted to DEA&DP: WM:

a. National Norms and Standards for the Storage of Waste (GN926 of 29 November 2013)
b. National Norms and Standards for Sorting, Shredding, Grinding, Crushing, Screening, Chipping or Baling of General Waste (GN1093 of 11 October 2017).
c. National Norms and Standards for Organic Waste Composting (GN 561 in GG 44762 of 25 June 2021) read with GN 1757 in GG 45907 of 11 February 2022.
d. National Norms and Standards for Organic Waste Treatment (GN. No. 1984 of 1 April 2022
e. National Norms and Standards for Domestic Waste and Sanitation Services", published as GN No. 982 of 8 September 2017.

7.3. Reduce transportation of waste

- City of Cape Town (and neighbouring municipalities) registered service providers will be contracted to remove and recycle waste from the site.
- The following Landfill sites will be used to deposit waste that cannot be recycled or re-used:
  - General Waste can be transported to the Vredenburg landfill site.
  - All hazardous waste will be transported to the Vissershok site. Vissershok site is off the N7 into Frankdale Road, adjacent to Morningstar.
- Specialist Waste removal companies such as *EnviroServe* and *Wasteman* can be used for dangerous or contaminated waste.

SECTION 8: OPERATIONAL & CONSTRUCTION PHASE REQUIREMENTS AND MANAGEMENT OBJECTIVES

Section 6 of this report identified several impacts related to the operation of the WMF. Many of the impacts can be mitigated by management procedures and regarded as goals to be implementation. Management activities were described to achieve the objectives together with monitoring and target criteria.

8.1 Components of Waste Management

- Goals: The key environmental goals are set for the operation of the property.
- Objectives: These are set to meet the goals.
- Risk & Impacts: If the goal is not achieved.
- Actions: Measures put in place to achieve objectives.
- Monitoring: To check if the objectives are achieved.
- Targets: Indicators of the effectiveness of the programme.
- Remedial Action: If targets are not met.

8.2. Waste Management

The CWA will have an on-site waste management facility for waste generated during the Construction & Operational Phase of the proposed development however during the initial demolition and construction phases a mobile waste yard will be created and managed by the contractor with the location depending on logistics. As soon as the services precinct is completed and accessible then a more permanent WMF will be developed. A plan for the management of waste during construction and operational phase is detailed below.

8.2.1 Construction Phase:

As previously stated, construction practices must be measured and analyzed in order to determine the efficiency of the plan and whether further revision of the plan is required. A Method Statement, in line with this WMP, detailing specific waste management practices during construction should be prepared by the Contractor prior to the commencement of construction.

8.2.1.1 Waste Assessment / Inventory

- The EM in consultation with the WCO must develop and presented to the independent ECO, implement and maintain a waste inventory reflecting all waste generated during construction for all waste streams.
- Construction method and materials should be carefully considered in view of waste reduction, re-use, and recycling opportunities.
- Once a waste inventory has been established, targets for minimization, re-use, recycling of waste should be set.

8.2.1.2 Waste collection, handling and storage

- Each subcontractor must implement their own waste recycling system (separation @ source), i.e. separate bins or skips for food waste, plastics, paper, wood, glass cardboard, metals, concrete, brick etc.
- Portable toilets must be monitored and maintained daily.
- Waste collection bins or skips and hazardous waste containers must be provided by the principal contractor and placed at various areas around site for the storage of all waste streams.
- Initially a dedicated mobile waste yard area must be established on site for the storage of all waste streams, with final disposal to landfill the last option. The location will be determined prior to the commencement of construction, to fit into the logistics of the construction operations.
- Signage/ colour coding must be used to differentiate disposal areas for the various waste streams (i.e. paper, cardboard, metals, food waste, glass, concrete, brick etc.).
- Hazardous waste must be stored within a bunded area or contained skip constructed according to SABS requirements. The volume of waste stored in the bunds must not exceed 110% of the bund capacity.
- The location of all temporary waste storage areas must aim to minimize the potential for impact on the surrounding environment, including prevention of contaminated runoff, seepage, and avifauna and vermin control. All temporary waste storage areas must be at least 100m away from sensitive areas as identified within the site plans and pointed out by the ECO.
- Waste storage shall be in accordance with all Regulations and best-practice guidelines and under no circumstances may waste be burnt on site.
- Waste must be removed from site on a weekly basis.
- Vegetation removed from the site must be chipped, used on site to stabilize soils alternatively removed from the site and disposed of at an appropriate waste disposal facility.

- A dedicated waste management team must be appointed by the principal contractors, whom will be responsible for ensuring the continuous sorting of waste and maintenance of the area. The waste management team must be trained in all areas of waste management and monitored by the ECO during construction.
- All waste removed from site must be done so by a registered/ licensed subcontractor, who must supply information regarding how waste recycling/ disposal will be achieved. The registered subcontractor must provide waste manifests for all removals at least once a month.

8.2.1.3. Management of waste storage areas

- A central waste yard area would be established, at which waste (incl. recyclables) would be stored. Some materials would be stored in stockpiles while others would be stored in bins or skips. Stockpiles and bins would be appropriately labelled, managed and monitored.
- The position of all waste storage areas inside the yard must be located 100 meters away from sensitive areas as specified in the site plans and pointed out by the ECO.
- The waste storage area must have a suitable storm water system separating clean and dirty storm water.
- Waste storage areas attracting birds must be under roof, or the waste storage containers must be covered with tarpaulins (or similar material) to prevent the ingress of water.
- Collection bins or skips placed around site and at subcontractors' camps must be maintained and emptied on a regular basis by the principal contractor.
- Waste must be stored in designated containers and not on the ground.
- Inspections and maintenance of bunds must be undertaken daily. Bunds must be inspected for leaks or cracks in the foundation and walls.
- It is assumed that any rainwater collected inside the bund is contaminated and must be removed and stored as hazardous waste, and not released into the environment. If any leaks occur in the bund, these must be removed immediately.

8.2.1.4. Disposal

- Waste generated on site must be removed on a regular basis, as determined by the WCO and ECO. This frequency may change during construction depending on waste volumes generated at different stages of the construction process.
- Waste must be removed by a suitably qualified contractor and disposed at an appropriately licensed landfill site. Proof of appropriate disposal must be provided by the contractor.

8.2.1.5. Record keeping

- The success of the waste management plan is determined by measuring criteria such as waste volumes, cost recovery from recycling, cost of disposal. Recorded data can indicate the effect of training and education, or the need for education.

- This will provide trends and benchmarks for setting goals and standards, providing clear evidence of the success or otherwise of the plan.
- Documentation (waste manifest, certificate of issue or safe disposal) must be kept by the WCO detailing the quantity, nature, and outcome of any regulated waste for audit purposes.
- Waste management must form part of the monthly reporting requirements in terms of volumes generated, types, storage and final disposal.

8.2.2. Operational Phase:

It is expected that the operational phase will result in the production of general, organic and hazardous waste in accordance with Table 1 above. All waste generated will be required to be temporarily separated and stored at the source (S@S), in appropriate sealed containers/ areas, prior to transfer to the Waste Management Facility (WMF) on site.

The following waste management principles apply during the operational phase:

- The EM in consultation with the in-house ECO and WCO must develop, implement and maintain a waste inventory reflecting all waste generated during operation for all waste streams.
- The intent is to encourage and develop a separation system at source, that will assist in handling the waste streams.
- The waste storage area would allow for the further separation of waste streams based on their management requirements and would therefore include:
    - Wheeled bins;
    - Front lift bins;
    - Bulk bins and skips;
    - Bulk material storage bays;
    - Hazardous waste storage areas;
    - Bunded bulk storage for fuels and oils etc.;
    - Balers for cardboard/ plastic;
    - Battery storage containers;
    - The biodigester for recovery of energy from organic waste; and
    - A composting facility for processing garden and food waste.
- Quarantined Waste would be managed in accordance with the requirements of the relevant quarantine authority.
- The position of all waste storage areas is in the Services Precinct away from sensitive areas. The main waste storage area must have a suitable storm water system separating clean and dirty storm water.
- Waste storage areas must be under roof, or the waste storage containers must be covered with tarpaulins (or similar material) to prevent the ingress of water and attraction of birds and vermin.

- S@S is crucial for effective waste management. All waste must be stored in appropriate temporary storage containers (separated between different operational wastes, and contaminated or wet waste) at each operational area prior to being taken to the waste storage area for final sorting (if required).
- Recyclable waste should be further separated into appropriate bins or skips under categories as per Figure 13 (S@S).



Figure 13: Colour coded storage bins and skips for the separation of solid waste.

- Adequate waste collection bins placed in correct locations in the development and in the WMF must be supplied. Separate bins and skips should be provided for various waste streams (S@S).
- Temporary waste storage containers must be inspected for any sign of deterioration on a biannual basis.
- Recyclable waste must be removed from the waste stream and stored separately (S@S).
- Waste storage shall be in accordance with all best-practice guidelines and under no circumstance may waste be burnt on site.
- The Airport Workshop uses oils etc. Oil separators will be installed at this location and will need to be emptied/cleaned regularly.
- Hazardous waste will be removed to a licensed facility.
- General waste will be sorted and temporarily stored in various categories. Some shredding and baling of general waste will take place on site. All sorted, shredded or baled recyclable waste will be collected by recycling companies for offsite processing.
- Organic, food, garden, decomposable waste will go to composting and or a biodigester.
- A sewage package plant is proposed as an alternative to a conventional Municipal Wastewater Treatment Works. The treated sewage effluent water generated by the package plant is normally used for irrigation or toilet flushing but could also be used to supplement the biodigester.

- A biodigester and PV is proposed to reduce the need for Eskom supply. Considering the airport's location, the biodigester intends to use Biomass, supplemented by general food waste from the airport and/or other organic /decomposable waste from the area.
- The "waste" from the biodigester plant comprises "liquid fertilizer" which is planned to be used as organic agricultural fertilizer (refer to Section below).
- Vegetation removed from the site must be stored, chipped and removed to the composting facility for reuse or if appropriate to the Biodigester.
- Waste generated on site must be removed on a regular basis throughout the operational phase.
- Waste that cannot be reused or recycled must be removed by a suitably qualified contractor and disposed of at an appropriately licensed landfill site. Proof of appropriate disposal must be provided to the Waste Control Officer by the contractor.

8.3. Reduce transportation of waste

- City of Cape Town (and neighbouring municipalities) registered service providers will be contracted to remove and recycle waste from the site.
- The following Landfill sites will be used to deposit waste that cannot be recycled or re-used:
    - General Waste can be transported to the Vredenburg landfill site.
    - All hazardous waste will be transported to the Vissershok site. Vissershok site is off the N7 into Frankdale Road, adjacent to Morningstar.
- Specialist Waste removal companies such as *EnviroServe* and *Wasteman* can be used for dangerous or contaminated waste.

SECTION 9: MONITORING AND COMPLIANCE

9.1. Environmental Reporting

To ensure that the necessary environmental waste issues are adequately addressed and recorded, the following environmental reporting shall be undertaken:

- During construction the independent ECO will compile monthly reports as per the EMPr requirements, a dedicated section on waste will be included. These reports will be sent to DEA&DP monthly.
- During operations the inhouse ECO will compile monthly reports as per the EMPr requirements, a dedicated section on waste will be included. These reports will be sent to the EM monthly.
- An internal audit detailing the environmental performance of the facility must be conducted every 12 months by the owner of the waste management facility and an official report thereof must be prepared. These audit reports must be safely stored and made available to the external auditor as well as the environmental authority (upon request).
- External audits of the waste facility must be conducted every 12 months by an independent auditor (EAP) and official audit reports must be prepared documenting the findings. The external audit report must be submitted to the provincial authority upon request and must include (but is not limited to) the following
    - An indication of the compliance of the facility with the National Norms and Standards for this WMP as approved by the provincial authority:
        - National Norms and Standards for the Storage of Waste (GN926 of 29 November 2013)
        - National Norms and Standards for Sorting, Shredding, Grinding, Crushing, Screening, Chipping or Baling of General Waste (GN1093 of 11 October 2017).
        - National Norms and Standards for Organic Waste Composting (GN 561 in GG 44762 of 25 June 2021) read with GN 1757 in GG 45907 of 11 February 2022.
        - National Norms and Standards for Organic Waste Treatment (GN. No. 1984 of 1 April 2022
        - National Norms and Standards for Domestic Waste and Sanitation Services", published as GN No. 982 of 8 September 2017.
    - An indication of compliance with requirements issued by the relevant authority either at national, provincial or local level.
    - An indication of any major environmental incidents or non-compliance that occurred and details of how the incidents or non-compliance were addressed.

  - An indication of the presence of records of safe disposal certificates for all hazardous or general waste removed from the facility.
  - An indication if hazardous waste is separated from general waste and that such waste is removed by a registered waste handling company for either recycling or disposal at a registered facility.

- Incident reporting
  - All incidents must be recorded, and the appointed environmental manager/waste control officer must be notified. See Appendix C for a template of an Incident Report to serve as a guideline for the recording and addressing of emergency incidents as and when they occur.

9.2 Record Keeping

The applicants EM should keep records of the following:

- Internal and external audit reports.
- A site control register:
  - The control register must outline daily monitoring undertaken by the site manager.
  - It is recommended that the register is in a digital format as this will ensure that all records are easily accessible for internal and external auditing requirements.
  - An incident and complaints register must form part of the overall site control register.
- Reviews of the WMP,
- Amendments to the WMP
- Quantities of incoming waste types.

Records should be kept and must be made available for review on request, based on adequate motivation. Minutes of meetings on site must reflect environmental queries, complaints, actions agreed upon, dates of eventual compliance and must form part of the official environmental site record.

In addition to the summary report, the environmental manager / waste control officer shall keep photographic records of site visits and an ad hoc record of incidents or events on site, especially in the case of transgressions from WMP specifications. Such photographs are to be taken with an in-camera dating facility.

9.3 Method Statements

For identified activities the Contractor is requested to submit a method statement (MS) for comment by the EM ECO or WCO. The method statement must provide a step-by-step plan (which may include a schematic diagram etc.) to

inform the responsible person(s) on the process and actions to take in a sequential and logical manner, which aims to reduce the impact of undertaking the activity within a reasonable timeframe and cost.

The format should clearly indicate the following:

What - a brief description of the work to be undertaken;

How - a detailed description of the process of work, methods and materials;

Where - a description/sketch map of the locality of work; and

When - the sequencing of actions with due commencement dates and completion date estimates.

The Contractor must submit the method statement to the EM, ECO or WCO prior to the start of any construction activity. Work may not commence until the comments of the site manager/waste control officer have been received and taken into consideration, and the EM, ECO or WCO has approved the method statement for implementation on site.

9.4. Monitoring

The monitoring of works on site is necessary to demonstrate compliance with the specifications of the WMP and to allow for problems or issues of non-conformance to be identified and appropriate corrective measures to minimize environmental damage to be implemented.

The WMF and all waste storage containers will be inspected weekly to ensure that they are maintained in a condition appropriate for their use and containment of the specific waste.

Skips and/or bins will need to be monitored regularly to ensure that cross contamination doesn't occur. All waste removed from site including products for reuse will also be monitored to ensure no cross contamination.

Monitoring should include daily visual checks by the EM, ECO or WCO, as well as a review of site documentation. Monitoring should include photographic records as outlined in this document. An internal audit detailing the environmental performance of the facility must be conducted every 12 months by the owner of the waste management facility and an official report thereof must be prepared. These audit reports must be safely stored and made available to the external auditor as well as the environmental authority (upon request). The internal auditor shall complete the performance record at the end of each table in section 9.2 of this document, as a record of transgressions or problems experienced on site, and how they were dealt with. External audits of the waste management facility must be conducted every 24 months by an independent auditor (EAP) and official audit reports must be prepared documenting the findings.

9.5. Waste Control Sheets

The sheets below must be used by the EM, ECO or WCO as basis for the development of a Site Control Register.

a. Communication Construction and Operation

TASK	**MITIGATION AND ENVIRONMENTAL CONTROLS**	ACTION
Site Control Register	• To be updated on a regular basis	EM, ECO or WCO
Public complaints	• To be recorded in complaints register, along with records of responses to them in the Site Control Register	EM, ECO or WCO
Environmental Awareness education	• Each contractor team, tenants and operators involved with the waste management activity at CWA are to attend an introduction or annual training session.	EM, ECO or WCO
Method Statements	• All waste source point owners or tenants need to be contractually tied to waste separation at source and the procedure of collection and removal to the WMF. • Record of members attending training sessions to be kept, and updated regularly • Method statements to indicate What, How, Where and When activities are to take place. • Method statements for each relevant activity identified by ESM and ECO to be submitted prior to the start of that activity on site. • Work or waste activity is not to commence until method statement approved by ESM or ECO and Site Manager if necessary.	Contractor or Operators
COMMENTS/ UPDATE		
RECORD OF PERFORMANCE		

Acceptable		**Details of Transgression**	**Responsible Party**	**Action Taken**	**Date**
Yes	**No**				

b. Site Actions Construction

TASK	**MITIGATION AND ENVIRONMENTAL CONTROLS**	**ACTION**
Waste Stream handling	• Implement waste stream handling procedures for construction as per Table 1 above	Contractor, EM ECO, WCO

COMMENTS/ UPDATE

RECORD OF PERFORMANCE					
Acceptable		**Details of Transgression**	**Responsible Party**	**Action Taken**	**Date**
Yes	**No**				

c. Site Action Operations

TASK	MITIGATION AND ENVIRONMENTAL CONTROLS	ACTION
Waste Stream handling	• Implement waste stream handling procedures for operations as per Table 1 above	Contractor, EM ECO & WCO
COMMENTS/ UPDATE		
RECORD OF PERFORMANCE		

Acceptable		Details of Transgression	Responsible Party	Action Taken	Date
Yes	**No**				

d. General Site Procedures

TASK	MITIGATION AND ENVIRONMENTAL CONTROLS	ACTION
Avoid natural resource contamination	• Minimize the use of wash water onsite as far as possible by applying high pressure hoses. • The facility must be managed such that all runoff originating from the site is diverted into a stormwater control channel that contain detention and trapping facilities before it leaves the WMF. • All stormwater control channels in close proximity to WMF must be suitably lined to prevent seepage into groundwater. • The overflow of stormwater channels needs to be trapped and allowed to settle in a detention pond. • The nutrient rich stormwater originating from the composting and biodigester site must be trapped and used as a moisture additive within the composting facility to enhance the composting process. • No nutrient enriched water may be released offsite. • All stormwater infrastructure must be regularly inspected and serviced to ensure design capacity and integrity is maintained. • To ensure suitable stormwater control capacity is maintained onsite, stormwater channels must be kept free from silt. The stormwater control channels must be cleared of any sedimentation (if required) during the dry season. • All water that has entered the composting and biogas areas must be treated as leachate. • To prevent nutrient rich leachate from percolating into the ground, the land areas where composting are established should be compacted to ensure that the soil drainage is poor or virtually impervious. • All wind dispersed waste must be collected on a daily basis and taken to the WMF • The WMF must have closed containers to avoid wind dispersing waste	EM, ECO & WCO
Avoid the generation of	• All trucks or vehicles transporting waste material will be required to secure and cover all loads with shade cloth to	EM, ECO & WCO

atmospheric emissions and odors	avoid debris or plastic etc. that can blow or fall on public roads or areas. • Composting operations should process organic material on the same day to avoid stagnant heaps. • Optimizing certain variables can minimize composting emissions. The carbon-nitrogen ratio, temperature, moisture content (at least 25%), aeration, and pH must be monitored by the facility manager on a weekly basis to ensure optimal organic matter breakdown without production of excessive atmospheric emissions or odors. • All storage and operating areas need to be contained in bunkers, lined and covered where required. • The WMF in the services precinct is located directly opposite the City of Cape Town Fisantekraal WWTW therefore part of a node already exposed to odors where residential development is not likely.	
Avoid Soil Erosion	• Wherever possible, ensure that the WMF surface is covered by tar, concrete or paving and areas around the stormwater system vegetated as per landscape and SWMP. • Establish and maintain suitable vegetation cover at all stormwater concentration points. These areas include road verges, the banks of stormwater channels, berms and other infrastructure that may increase surface runoff. Should any erosion be detected, the ECO must identify the cause of such erosion and ensure that the most appropriate method of mitigation or stabilization is employed as soon as possible.	EM, ECO & WCO
Avoid the generation of dust and noise	• The level of dust and noise generated by WMF activities will be insignificant in the broader landscape, especially after the roads a surfaced. Nevertheless, it is recommended that working hours are restricted to 06:00 to 18:00 daily. • All transport vehicles and machinery/equipment used onsite must be regularly maintained and kept in good working order to prevent excessive noise. • It is recommended that a dustcart is available onsite to water down dusty roads not tarred, particularly during the dry summer months.	EM, ECO & WCO

	• A suitable speed limit (40 – 60 km/h) must be enforced on all access roads. Ensure compliance with the provisions as set out in the National Environmental Management: Air Quality Act (NEM: AQA), National Dust Control Regulations (Notice 827 of 2013) and Western Cape Noise Control Regulations (P.N. 200/2013).	
Avoid Visual impacts	Scrape and sweep all areas where material is processed weekly to ensure that minimal waste material is present outside the contained areas	EM, ECO & WCO
Limit Consumption of resources (water)	• Maintain all water infrastructure in a good working condition. • Use high pressure power hoses for cleaning. • Ensure that all taps remain closed when not in use. • Educate all employees on the importance of natural resources and wise water use practices. • Should any leaks occur, these must be reported immediately and repaired as soon as possible. When emptying transport bins, ensure all material is removed manually as far as practicably possible to minimize the need for wash water.	EM, ECO & WCO
Limit Attraction Birds and Vermin	With suitable management, this impact can be kept to a minimum. The flowing management measures should however continue to be followed: • All organic waste delivered to the site must be covered or worked immediately. • Apply roofs over waste areas to avoid attraction. • Apply containment of waste to avoid attraction. • Apply bait stations for organic pest control. • Correct management of pH and temperature within the composting rows will control the spread of pests and diseases as larva/eggs/worms/bacteria can't live at optimal composting temperatures. • Ensure that WMF does not have pooling or standing water • Best practice pest control measures will be implemented, and a Certified Pest Control Company will be appointed on the onset of the Construction and Operational Phases to ensure that	EM, ECO & WCO

	preventative measures are put in place and monitored to ensure the effectiveness of the Pest Control Schedule.	
Avoid Leakage of potentially hazardous substances	• All transport vehicles and machinery must be confined to access roads and approved development footprints. • All transport vehicles and machinery/equipment used onsite must be regularly maintained and kept in good working order to prevent potential leaks.	EM, ECO & WCO
COMMENTS/ UPDATE		
RECORD OF PERFORMANCE		

Acceptable		**Details of Transgression**	**Responsible Party**	**Action Taken**	**Date**
Yes	**No**				

9.6. Review of the WMP

The WMP will be reviewed by the EM and ECO on an ongoing basis. Based on observations during site inspections and issues raised at site meetings, the EM will determine whether any procedures require modification to improve the efficiency and applicability of the WMP on site. The WMP must be updated and submitted to the competent authority should any significant changes occur to the operations regarding the waste facility.

Any such changes or updates will be registered in the weekly record, as well as being included as an annexure to this document. Annexures of this nature must be distributed to all relevant parties on site.

9.7. Environmental Audits

Internal auditing will take place annually during the operational phase. A suitably qualified EAP Environmental Auditor is to be appointed, at the expense of the Applicant, to undertake external audits of compliance with the WMP. External audits of the waste facility must be conducted annually by an independent auditor and official audit reports must be prepared documenting the findings.

Objectives should be to audit compliances with the key components of the WMP, to identify main areas requiring attention and recommend priority actions. The audit should cover a cross section of issues, including implementation of environmental controls, environmental management, and environmental monitoring.

Results of the audits should inform changes required to the specifications of the WMP or additional specifications to deal with any environmental issues which arise on site and have not been dealt with the in the current document.

The national, provincial and local authorities must be given access to audit or inspect the facility if requested.

9.8. Incident reporting

Environmental incident reporting is a vital part of communication. Employees are required to report all environmental related problems, incidents, and pollution, so that the appropriate mitigation actions can be implemented timeously. See Appendix B for a template that can be used for incident reporting

The EM shall investigate the incident and record the following information:

- How the incident happened;
- The reasons the incident happened;
- How rehabilitation or clean up needs to take place;
- The nature of the impact that occurred;
- The type of work, process or equipment involved; and
- Recommendations to avoid future such incidents and/or occurrences.
- Shall inform the ECO & WCO of all incidents that were reported.
- Shall consult with the ECO & WCO for recommendations on actions to be taken or implemented where appropriate (e.g., clean-ups).

9.9. External Records and Monitoring

Records must be kept of the volumes/ mass of the different waste streams that are collected from the site throughout the life of the project. The appointed waste contractor is to provide monthly reports to the operator containing the following information:

- Monthly volumes/ mass of the different waste streams collected;
- Monthly volumes/ mass of the waste that is disposed of at a landfill site;
- Monthly volumes/ mass of the waste that is recycled; and
- Data illustrating progress compared to previous months.

This report will aid in monitoring the progress and relevance of the waste management procedures that are in place.

Monitoring the quantity and types of wastes being generated by the CWA operations will be recorded in the wastes logbook and always kept on site so that regular reviews can be undertaken.

All products that are of concern in relation to the waste being generated will be replaced were possible for products that are less wasteful and/or considered to be environmentally friendly.

The Applicant will continue to review the type of surplus materials produced and were possible, change the site design and operation to minimize products that go to landfill. Recycling or reuse of waste is a priority.

The WMP and its importance will be communicated to the whole team regularly. Business wide updates including improved recycling amounts will be communicated and discussed at management and 'toolbox' meetings.

The WMP will be analyzed to produce key performance indicators, and it will be the EM and ECO's responsibility to develop best practice solutions throughout the CWA operations and monitor them.

A **Groundwater Monitoring Plan** will be implemented to monitor potential impacts of waste sources and assist with the development of environmentally sustainable practices as part of the CWA EMPr.

The waste facility should be free from odour or emissions that are likely to cause a nuisance. An **Odour Monitoring Plan** can be developed during operations by the EM and ECO and implemented to monitor potential odour impacts associated with the various waste streams on site and assist with the development of environmentally sustainable solutions, where applicable, should this become a concern.

The **Emergency Preparedness and Response Plan** to be compiled post authorization, as a condition of approval and as stipulated in the CWA EMPr, includes the:

- Emergency response plan,
- Hazard Identification,
- Remedial Actions, and
- Preventative measures.

9.10. Operational Waste Survey

Carrying out a waste survey is an important first step in refining a waste management plan. In particular, such information is crucial to developing a recycling program. A waste survey can reveal a lot about the patterns of people in the facility as well as their use and distribution of everyday items throughout the facilities and grounds. This would however require specific knowledge of airport operations and applicable regulations, as the situations that each airport faces are unique and highly dependent on its geographical and social condition.

A waste survey by the EM should include:

- Identifying materials that can and cannot be recycled in the region.
- Locations within the airport that generate waste.
- The types of waste generated in each area (paper, scrap metal, plastic, etc.).
- Identifying materials that can be reduced, reused, and recycled.
- The quantity of waste generated by each area of the airport (airlines, administrative offices, enplaned and deplaned passengers, concessions, etc.).
- Commodity rates for recyclable materials.

- Costs associated with processing recyclables.
- Hauling, disposal, and labour costs for landfill-bound waste.

9.11. Laboratory Tests:

Once available, the digestate from the anaerobic biodigester will be analysed by the EM to determine its suitability as a liquid fertiliser, and that these results be made available to DEA&DP, the DWS and the Western Cape Department of Agriculture.

After the onsite WWTW are functional testing on the biosolids resulting from the sewage package plant will be considered before a classification of the waste can be given. The waste classification of the biosolids will also depend on an analysis provided on the chemical constituency of the biosolids, and depending on end use, the total concentration and leachable concentration tests will be conducted on the biosolids. This will determine how this waste source is handled.

SECTION 10: TRANSGRESSIONS IN TERMS OF WMP

The Applicant must comply with the requirements of this WMP on an on-going basis and any failure on his part to do so will entitle the relevant competent authorities to **take corrective action against the transgressor**.

In the event that any activities are undertaken outside the scope of the adopted WMP requirements, in terms of the action outlined within the given method statement, the person(s) responsible will potentially be subject to Section 24(F) of NEMA and that appropriate enforcement and compliance requirements will follow by the competent authority.

Transgressions relate to actions by the Applicant, contractor or contractor team members whereby damage or harm is inflicted upon the environment or any feature thereof and where any of the conditions or specifications of the WMP/ EMPr/ EA/ WULA are infringed upon.

In instances of environmental damage, the damage is, where possible, to be repaired and rehabilitated using appropriate measures, as specified and undertaken by appropriate specialists, for the account of the responsible party.

Issues of non-compliance noted by the EM/ ECO are to be communicated to relevant parties and appropriate action must be taken to rectify the situation. Issues of non-compliance must be reported in the required site visit report. The EM/ECO will advise on appropriate corrective actions when necessary.

SECTION 11: CONCLUSION

The waste management plan is prepared for the construction and operational (including maintenance) phases of the CWA, which would collate measures to manage waste and thus avoid and mitigate impacts to human health and the environment. A combination of on-site and off-site management measures would provide a range of options to reuse, recycle, recover and treat waste generated at the proposed airport. However, there are other considerations to waste management such as waste reduction, segregation of waste, disposal of waste, financial impacts of waste disposal and recording, monitoring, education and reviewing.

Construction practices and operations must be measured and analyzed to determine the efficacy of the plan and whether further revision of the plan is required. This plan should be updated should further detail regarding waste quantities and categorization become available, during the construction and/or operational stages.

APPENDIX A: SITE DEVELOPMENT PLAN AND ASSOCIATE PLANS

APPENDIX B: NORMS AND STANDARDS

APPENDIX C: INCIDENT REPORT TEMPLATE

Environmental Incident Report

Date:	**File reference number:**
Name:	
Exact location of incident:	

Section 1: Description of incident

Section 2: Remedial action required

Section 3: Relevant Documentation

Section 4: Steps to prevent recurrence

Section 5: Signatures

Environmental manager:	Date: .....
ECO:	Date: .....
Landowner:	Date: .....

APPENDIX D: CV OF EAP