



Draft Basic Assessment Report for the Mount Edgecombe Refuse Transfer Station Relocation

*A Report for Tongaat Hulett Developments on behalf of the
eThekweni Municipality*

6 June 2013

DM/WML/0041/2012
KZN/WASTE/0000106/2012



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Tongaat Hulett Developments

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Waste Management License Application for the Proposed Relocation of the Mount Edgcombe Refuse Transfer Station

Royal HaskoningDHV Reference Number:

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Authority Reference Number:

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Compiled by:

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Date:

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Location:

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Review and Approval: Prashika Reddy



Signature

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agriculture & environmental affairs

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Agriculture
& Environmental Affairs
PROVINCE OF KWAZULU-NATAL

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EIA File Reference Number:
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(if applicable)
Date Received:

DC/
KZN/EIA/

BASIC ASSESSMENT REPORT

Submitted in terms of the Environmental Impact Assessment Regulations, 2010 promulgated in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998)

This template may be used for the following applications:

- **Environmental Authorization** subject to basic assessment for an activity that is listed in Listing Notices 1 or 3, 2010 (Government Notices No. R 544 or No. R 546 dated 18 June 2010); or
- **Waste Management Licence** for an activity that is listed in terms of section 20(b) of the National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008) for which a basic assessment process as stipulated in the EIA Regulations must be conducted as part of the application (refer to the schedule of waste management activities in Category A of Government Notice No. 718 dated 03 July 2009).

Kindly note that:

1. This **basic assessment report** meets the requirements of the EIA Regulations, 2010 and is meant to streamline applications. This report is the format prescribed by the KZN Department of Agriculture & Environmental Affairs. Please make sure that this is the latest version.
2. The report must be typed within the spaces provided in the form. The size of the spaces provided is not indicative of the amount of information to be provided. The report is in the form of a table that can extend itself as each space is filled with text.
3. Where required, place a cross in the box you select.
4. An incomplete report will be returned to the applicant for revision.
5. The use of "not applicable" in the report must be done with circumspection because if it is used in respect of material information that is required by the competent authority for assessing the application, it will result in the rejection of the application as provided for in the regulations.
6. No faxed or e-mailed reports will be accepted.
7. The report must be compiled by an independent environmental assessment practitioner ("EAP").

GIBELA UMKHUMBI OLWA NOBUBHA

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8. Unless protected by law, all information in the report will become public information on receipt by the competent authority. Any interested and affected party should be provided with the information contained in this report on request, during any stage of the application process.
9. The KZN Department of Agriculture & Environmental Affairs may require that for specified types of activities in defined situations only parts of this report need to be completed.
10. The EAP must submit this basic assessment report for comment to all relevant State departments that administer a law relating to a matter affecting the environment. This provision is in accordance with Section 24 O (2) of the National Environmental Management Act 1998 (Act 107 of 1998) and such comments must be submitted within 40 days of such a request.
11. **Please note that this report must be handed in or posted to the District Office of the KZN Department of Agriculture & Environmental Affairs to which the application has been allocated (please refer to the details provided in the letter of acknowledgement for this application).**

DEPARTMENTAL REFERENCE NUMBER(S)

File reference number (Waste Management Licence):	DM/WML/0041/2012 KZN/WASTE/0000106/2012
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SECTION A: DETAILS OF THE ENVIRONMENTAL ASSESSMENT PRACTITIONER AND SPECIALISTS

1. NAME AND CONTACT DETAILS OF ENVIRONMENTAL ASSESSMENT PRACTITIONER (EAP)

Name and contact details of the EAP who prepared this report:

Business name of EAP:	Royal HaskoningDHV		
Physical address:	6 Payne Street, Pinetown, 3610		
Postal address:	PO Box 55, Pinetown		
Postal code:	3600	Cell:	083 642 7077
Telephone:	031 719 5551	Fax:	031 719 5505
E-mail:	humayrah.bassa@rhdhv.com		

2. NAMES AND EXPERTISE OF REPRESENTATIVES OF THE EAP

Names and details of the expertise of each representative of the EAP involved in the preparation of this report:

Name of representative of the EAP	Education qualifications	Professional affiliations	Experience at environmental assessments (yrs)
Humayrah Bassa	MSc Environmental Science	IAIA	2 years
Malcolm Roods	BA (Hons) Geography and Environmental Management	Certified as an EAP with the Interim Certification Board for EAPs of South Africa	12 years

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3. NAMES AND EXPERTISE OF SPECIALISTS

Names and details of the expertise of each specialist that has contributed to this report:

Name of specialist	Education qualifications	Field of expertise	Section/ s contributed to in this basic assessment report	Title of specialist report/ s as attached in Appendix D
Siva Chetty	MSc Environmental Management BSc Chemical Engineering	Environmental Engineering	E	Waste Impact Statement
Richard Kinvig	PhD	Botany	C4	Vegetation Assessment
Iyer Urban Design Studio	Urban Planners/ Architects	Urban Planning	B	Planning Assessment
SMEC South Africa	Professional Registered Engineers	Engineering Services	B	Engineering Services Report & Stormwater Management Plan
SiVEST	Environmental Scientists	Wetland Specialists	D,E	Wetland Assessment
John Phipson		Soils and Agriculture	B	Agricultural Potential Assessment
eThembeni Cultural Heritage	Archaeology	Archaeology	B	Cultural Heritage Assessment

PLEASE NOTE THAT THE APPLICANT IS TONGAAT HULETT DEVELOPMENTS (THE LANDOWNER) WHO IS UNDERTAKING THE WASTE MANAGEMENT LICENSE ON BEHALF OF THE ETHEKWINI MUNICIPALITY (THE MOUNT EDGECOMBE REFUSE TRANSFER STATION OWNER AND OPERATOR). THEREFORE, THE LICENSE WILL BE MADE OUT IN THE NAME OF THE eTHEKWINI MUNICIPALITY.

SECTION B: ACTIVITY INFORMATION

1. PROJECT TITLE

Describe the project title as provided on the application form for environmental authorization:

Waste Management License for the relocation of the Mount Edgecombe Refuse Transfer Station for the Cornubia Retail Park, eThekweni Municipality, KZN

2. PROJECT DESCRIPTION

Provide a detailed description of the project:

As part of the greater Cornubia Mixed-Use Phased Development, and the first commercial investment opportunity within Cornubia, Tongaat Hulett Developments (THD) propose to establish the Cornubia Retail Park, a retail development in Mount Edgecombe, KwaZulu-Natal. Cornubia is located within the eThekweni Municipality (eTM) and is situated north of Durban (Figure 1). The size of the proposed development is approximately 54 hectares in extent. The development site is located in Mount Edgecombe, adjacent to Flanders Drive and the M41. The Mount Edgecombe Refuse Transfer Station is located on the site at present (Figure 2).



Figure 1: Locality map of the Cornubia Retail Park within Cornubia

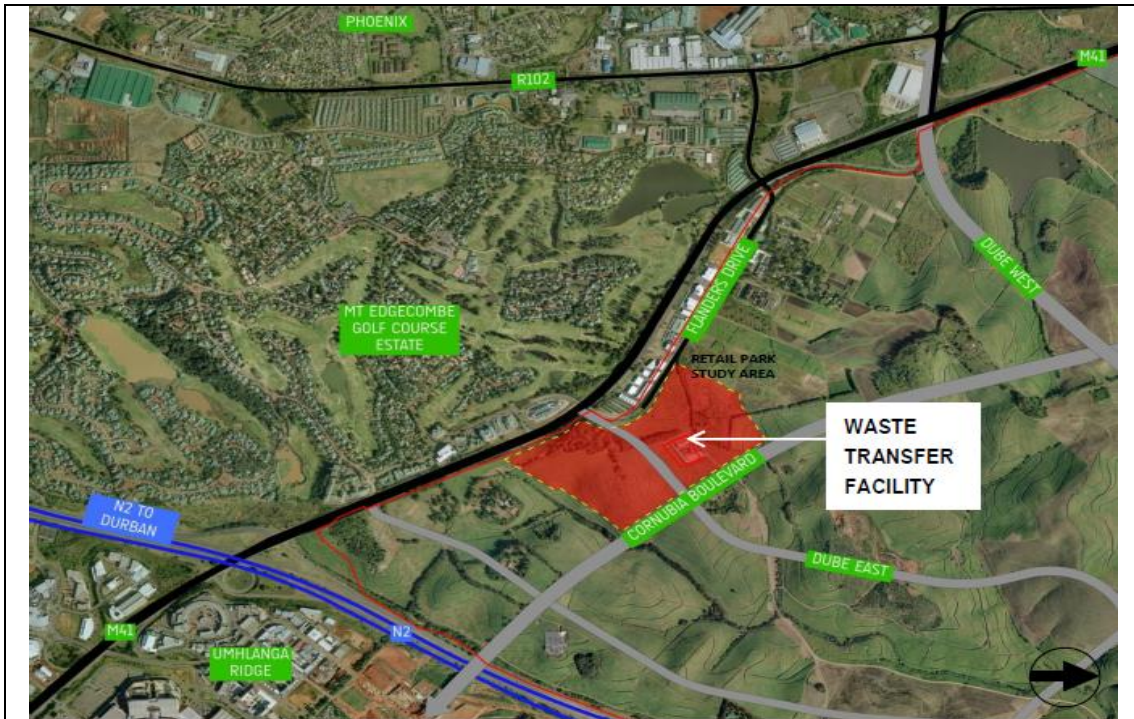


Figure 2: Locality map of the Cornubia Retail Park and the existing Mount Edgecombe Refuse Transfer Station

The proposed site falls within the overall, Municipality approved Cornubia Development Framework (Figure 3).

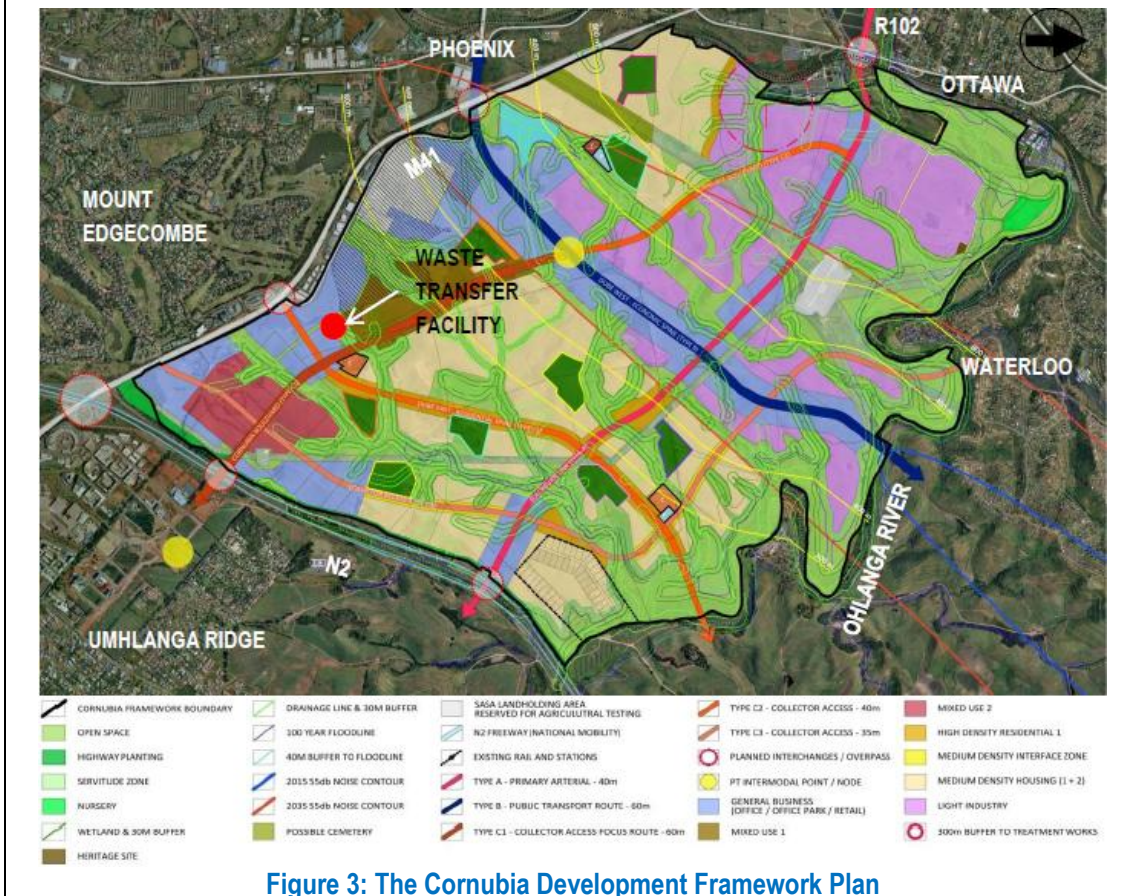


Figure 3: The Cornubia Development Framework Plan

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The approved Cornubia Development Framework measures approximately 1 331 hectares in extent and is a benchmark 'Integrated Human Settlement' development, to be established within the parameters of the National Department of Human Settlement's Breaking New Ground initiative (BNG). The development is undertaken through a partnership between the eTM and THD. The framework for Cornubia aims at developing a 'mixed use' urban settlement comprising a range of complementary land uses. Given the scale of the project, it is intended to establish a 'New Town' within the northern corridor of the eTM. One of the key objectives of the framework and significant in the context of this project is, "to contribute to building, consolidating and integrating the social and economic base of the region as well as create employment, investment and economic opportunities for the people of the area".

The Development Framework was developed taking into account current social and economic conditions which both THD and the eTM seek to influence positively, informed by the need to ensure that the development contributes to the integration and effectiveness of the City's urban structure, form and functioning, particularly in respect of the northern region. The Development Framework of Cornubia responds powerfully to the key challenges and policy thrusts articulated by National Government. It provides for a higher density, mixed-use and mixed income development that significantly responds to housing demand across a broad spectrum of market segments.

The Development Framework provides a clear indication of the developer's land use intentions for the site. The framework plan should not be seen as the definitive layout or final detailed plan for the development, but should only be used to create an understanding of the conceptual framework for the ultimate development of Cornubia and the Retail Park specifically. This Retail Park development is the first commercial phase of the Cornubia Integrated Human Settlement and is a vital component thereof from the perspective of new employment and economic opportunities. National investors are already in place and committed to proceeding with the R1.24 billion investment. The Retail Park development will then provide a major catalyst to further investment and development within the commercial precinct of the development.

The proposed Cornubia Retail Park will consist of large-scale retail and commercial buildings developed on earth-worked platforms to cater to the surrounding region. The project includes the construction of new roads and limited upgrading to existing road networks, the installation of new (and/or upgraded) services including gravity sewer lines, water pipelines, electrical cabling and stormwater attenuation. This is based upon the broad Development Framework Plan (refer to Figure 3) for the entire Cornubia Project which was approved and adopted by the eTM for the whole of Cornubia in 2011.

In order to facilitate the development of the Cornubia Retail Park, it is proposed that the existing Mount Edgecombe Refuse Transfer Station which is currently operated by the eTM and falls within the Cornubia Retail Park site be relocated within Cornubia. The Mount Edgecombe Refuse Transfer Station operates under an existing permit, permit number 16/2/7/U202/D3/Z1/P505 which was issued on the 30th of September 2005 by the Department of Water Affairs and Forestry (DWAF).

An Environmental Impact Assessment (EIA) Process (DM/0034/2012 and KZN/EIA/0000802/2012) is underway to obtain an environmental authorisation for the proposed Cornubia Retail Park Development as well as for the infrastructural requirements for the proposed relocation and construction of the new Mount Edgecombe Refuse Transfer Station. However, this Basic Assessment Report (BAR) forms part of the Waste Management License (WML) Application for the proposed relocation of the Mount Edgecombe Refuse Transfer Station. This involves the construction of a new Station and the demolition of the existing Station. It is proposed that the new Station will be constructed whilst operations continue at the existing Station as operations cannot be disrupted. Only once the new Station is completed will operations transfer to the new Station at which stage the existing station will be decommissioned and demolished.

Existing Mount Edgecombe Refuse Transfer Station

The current Station is situated along the Flanders Quarry Access Road, 200 metres from the Flanders Drive and Flanders Quarry Road junction. The existing Station is situated on Erf 27 Cornubia. The SG21 Digit Code is N0FU02170000002700000. The Station is 10 039 m² in extent and is constructed according to the dimensions provided in Figure 4. It is proposed that this Station will be deconstructed and demolished. The rehabilitation of the existing Station as per condition 12 of the existing WML will not be required as it is proposed that the site will be cleared for the construction of the Cornubia Retail Park.



Figure 4: Dimensions of the existing Mount Edgecombe Refuse Transfer Station

Waste Description and Quantities

The type of waste currently being stored and transferred at the existing Station is classified as general waste. The Mount Edgecombe Refuse Transfer Station serves the immediate catchment only. The new Station being proposed is a like-for-like development. No hazardous waste is being stored at the current Station or will be stored at the new Station. The Station will be used for the following activities:

- Storage of waste – Collection, storage and transfer of recyclables.
- Storage of waste – Collection of garden refuse, compacted and transferred off site.
- Storage of waste – Collection, compaction and transfer of general waste.

This transfer station is well equipped to process all kinds of household waste and also provides facilities for recycling paper, cans, plastic and other unwanted items. Garden refuse can also be disposed of at this site. The station services the areas of Umhlanga, Mount Edgecombe, La Lucia, Glenashley, Phoenix, Ottawa as well as informal settlements in the surrounding area. The transfer station is used to cost effectively compact household waste (to reduce the volume) and transport it for final disposal at the landfill site. All the transferred waste material to this site is compacted and sent on a daily basis to the Buffelsdraai landfill site.

The existing Station has a capacity of 205 tons/day. The new Station will have an ultimate design with the same capacity. It will be developed gradually with an initial capacity of 160 tons/day and an ultimate operational capacity of 205 tons/day. The new Station will be constructed prior to the old facility being

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decommissioned as operations cannot be disrupted during the relocation. The waste types and quantities expected to be handled at the new Station are outlined in the table below.

Table 1: Waste Types and Quantities

Type of waste	Main Source	Quantity		On-site handling process	Intended purpose and location if removed off-site
		Quantity/day	Quantity/month		
GENERAL WASTE					
Garden Waste	Domestic Residents	80 m ³	2400 m ³	Collected in 5 ½ m ³ skips, which are serviced by industrial compaction and transferred off site.	Transferred to Buffelsdraai Landfill. License No. 16/2/7/U30/D4/Z1/P473
General Waste	Domestic, commercial, light industrial	300 tons	6000 tons	Collected and compacted within containers.	Transferred to Buffelsdraai Landfill. License No. 16/2/7/U30/D4/Z1/P473
Bulk Items	Domestic residents	27 m ³	800 m ³	Hook lift vehicles used to transfer waste off site.	Transferred to Buffelsdraai Landfill. License No. 16/2/7/U30/D4/Z1/P473

The following types of waste are commonly handled at the transfer station:

- Municipal solid waste (MSW) which is generated by households, businesses, institutions, and industry. MSW typically contains a wide variety of materials including discarded containers, packaging, food wastes, and paper products. MSW includes a mixture of putrescible (easily degradable) and nonputrescible (inert) materials. Three types of MSW are commonly diverted and handled separately:
 - **Garden waste (green waste)** commonly includes leaves, grass clippings, tree trimmings, and brush.
 - **Household waste** includes empty food containers, paper, packaging and other materials generated by households.
 - **Recyclables** include discarded materials that can be reprocessed for manufacture into new products. Common recyclables include paper, newsprint, ferrous metals, plastic, glass containers, aluminium cans, and tyres.

The Mount Edgecombe Refuse Transfer Station has a staff compliment of six full time employees. These employees will continue to manage the station at its new location.

The new Station will be a like-for-like development and will handle the same quantities and types of waste for the same purposes outlined above. The transfer station will be used solely for the purpose of accepting waste from the municipal and private domestic collection vehicles from Umhlanga, Mount Edgecombe, La Lucia, Glenashley, Phoenix, Ottawa as well as informal settlements in the surrounding area within the generation area, compacting it into containers for transportation to the Buffelsdraai landfill site. Only domestic, light industrial, commercial and garden waste is and will be accepted. No industrial hazardous or liquid wastes will be accepted at the Station.

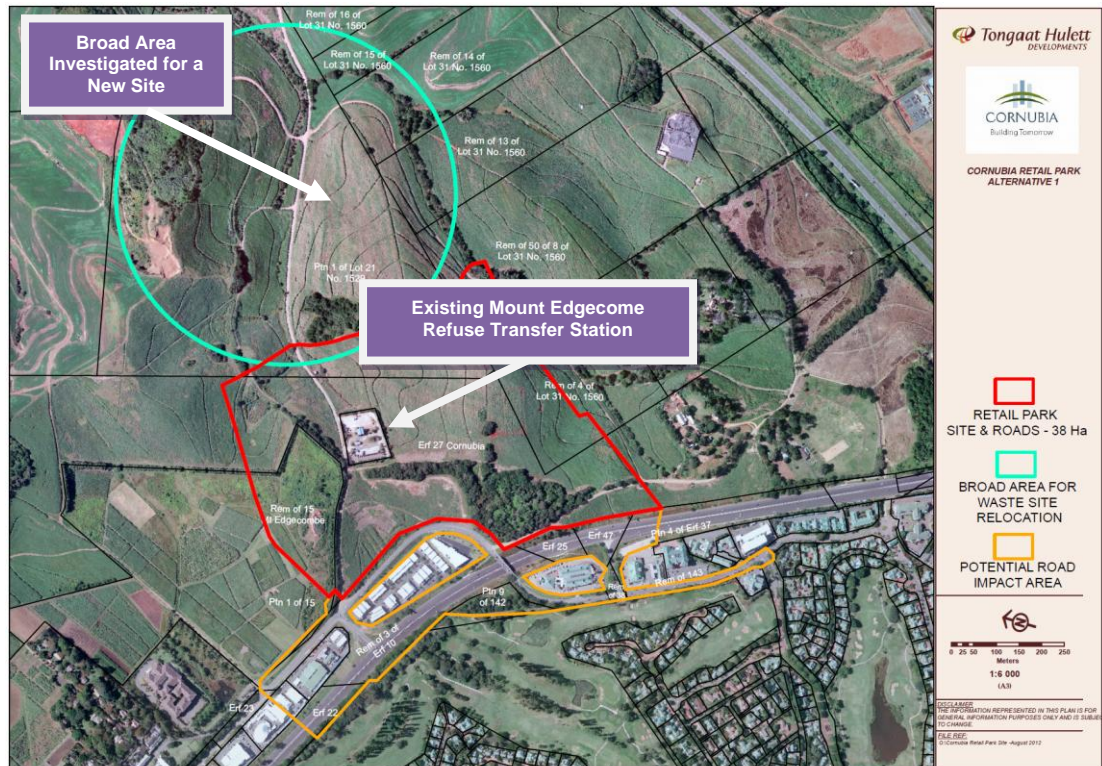
The following forms the basic infrastructural requirements for the transfer station:

- Access control and weighbridge.
- Receiving and compactor building.

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- Materials Recovery Building.
- Compactor.
- Moving frames for loading and offloading containers on the compactor.
- Stormwater System.
- Weighbridge.
- Change-rooms and ablution facilities for staff.

A broad area for the relocation of the Mount Edgecombe Refuse Transfer Station was considered (Figure 5).



Once various aspects such as topography, geology, water resources such as wetlands, vegetation, etc. were considered, two possible sites were identified for the new Station. These sites are situated on Ptn 1 of Farm Lot 21 No. 1529, Sugar Cane Road, Blackburn, 4339. The SG21 Digit Code is NOFU02170000152900001.

Alternative S1 (Preferred)

The preferred option is situated 200 m east of the existing Station (Figure 6 and 7) The site is presently accessible to vehicles by means of the Flanders Quarry Road.

The site does not require for the infilling of any wetlands and falls outside of the Cornubia Development Framework approved 30 m wetland buffers. The site does however border on dense vegetation and requires a slight realignment to the existing road which will require a wetland (drainage line) crossing. A vegetation assessment has been undertaken and all mitigatory and rehabilitative measures proposed by the specialist will be adhered to.

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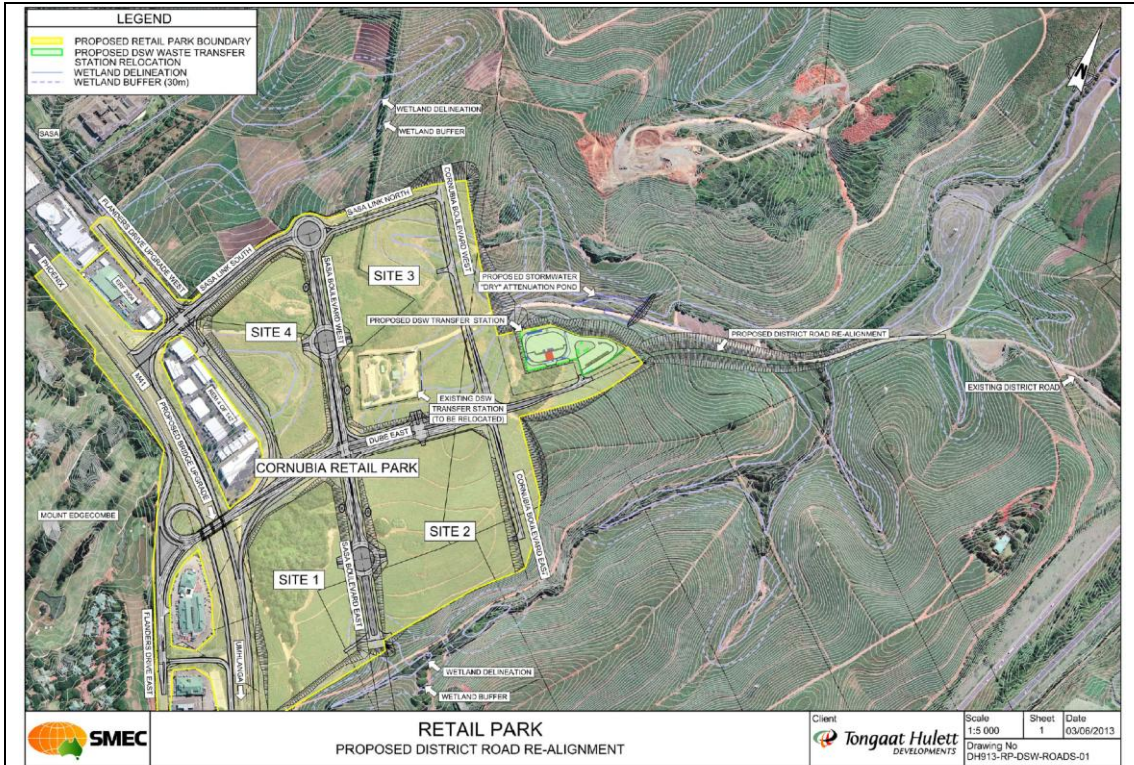


Figure 6: Preferred location of the new Mount Edgecombe Refuse Transfer Station

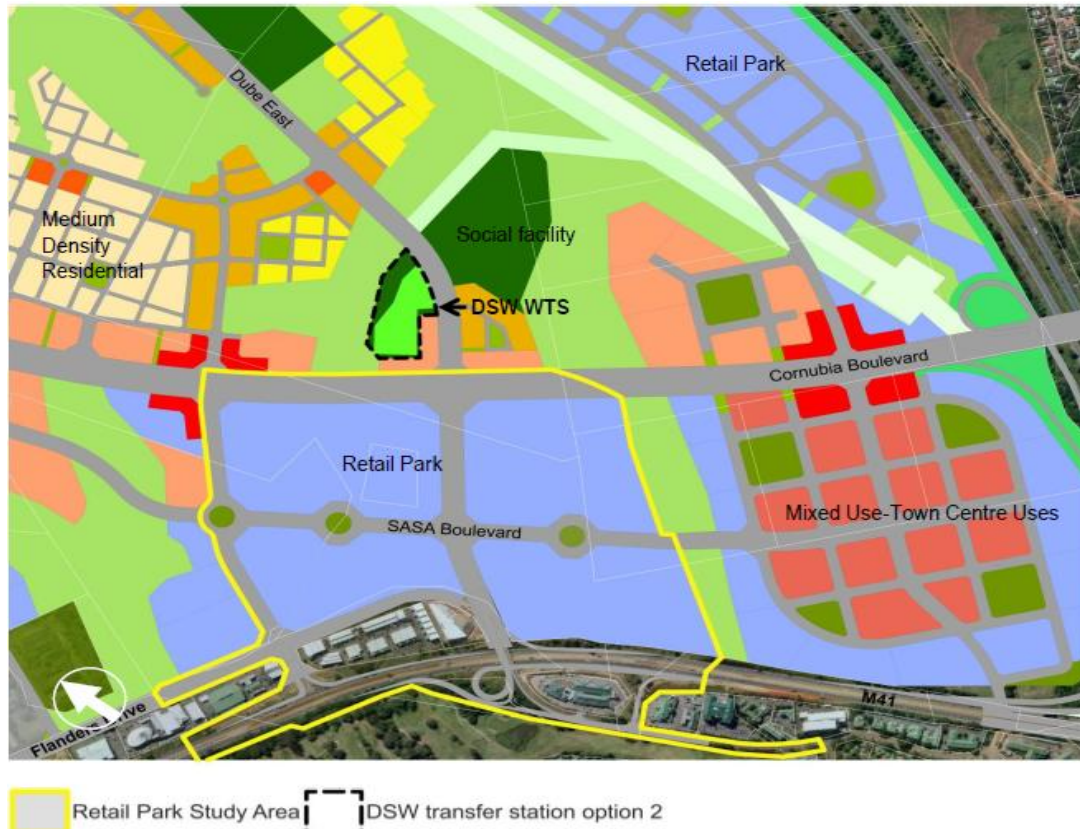


Figure7: Preferred location of the new Mount Edgecombe Refuse Transfer Station in comparison to adjacent future land uses

The site is located at the intersection of the planned Cornubia Boulevard and Dube East Intersection. This area is a highly valuable parcel of land, given its location and proximity to all future General Business and Retail development proposed. As can be seen on the plan to the right, directly opposite the facility, in blue, is the Retail Park site with the mixed use, Town Centre uses indicated as a light red hatch in close proximity. Directly opposite the new proposed Station, is a social facility cluster with Mixed Use 1 sites proposed at the intersection of Dube East and Cornubia Boulevard, serving as an interface to the Mount Edgecombe Refuse Transfer Station. The Mixed Use 1 sites will contain residential apartments with retail on the ground floor.

There are limited exclusive residential sites in very close proximity to the proposed Refuse Transfer Station with the closest one, 150 m away across a wetland zone. Whilst the facility is within a strategic zone for potential business/retail uses, its location is deemed as adequate by the urban planners and the facility can be accommodated with this area. The location of the Station in this zone is in close proximity to the existing Station.

The new facility being proposed is a like-for-like development. No hazardous waste is being stored at the current facility or will be stored at the new facility. The facility will be used for the following activities:

- Storage of waste – Collection, storage and transfer of recyclables.
- Storage of waste – Collection of garden refuse, compacted and transferred off site.
- Storage of waste – Collection, compaction and transfer of general waste.

The existing facility has a capacity of 205 tons/day. The new facility will have an ultimate design with the same capacity. It will be developed gradually with an initial capacity of 160 tons/day and an ultimate operational capacity of 205 tons/day. The new facility will be constructed prior to the old facility being decommissioned. The waste types and quantities expected to be handled are outlined in Table 1 above. The proposed layout is presented in Figure 8.

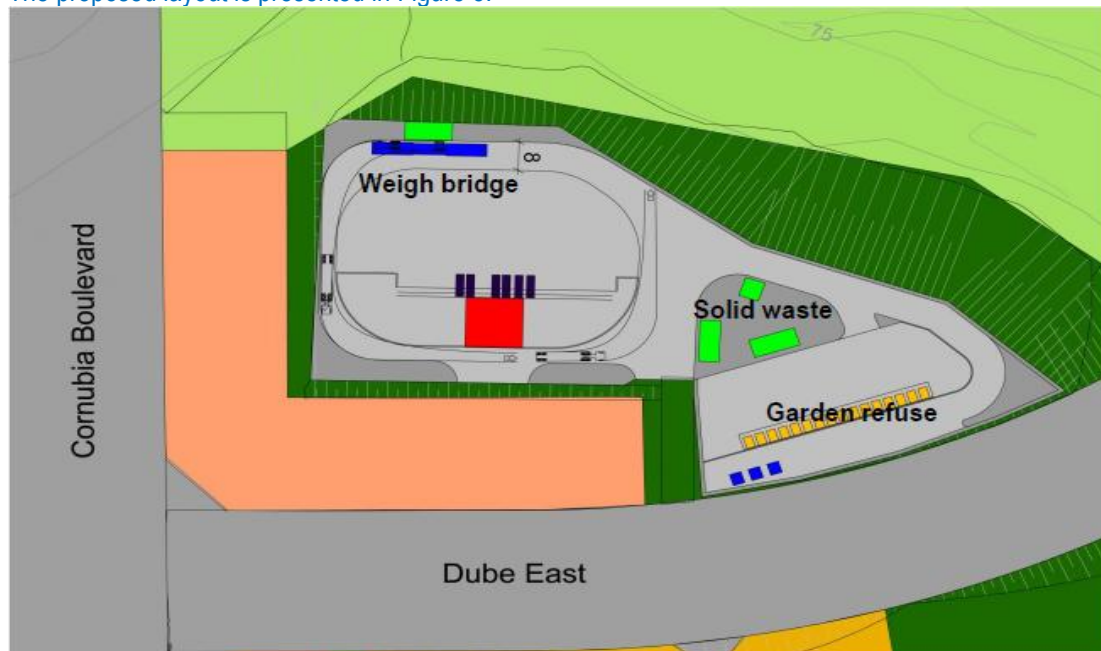


Figure 8: Proposed layout of the new Mount Edgecombe Refuse Transfer Station at the preferred site

Alternative S2

The proposed alternative is located to the north-east of the existing Station (Figures 7 and 8). The site is presently inaccessible to vehicles. This will require a temporary access road to be constructed for short-term access until the ultimate development of the Cornubia Phase 2 site. This will escalate costs and potential environmental impacts. Furthermore, the proposed access road will require the infilling of

wetlands as it is proposed to cross over an existing wetland unit. In addition, the site also borders on dense vegetation. Wetland and vegetation assessments respectively have been undertaken and all mitigatory and rehabilitative measures proposed by the specialist will be adhered to.

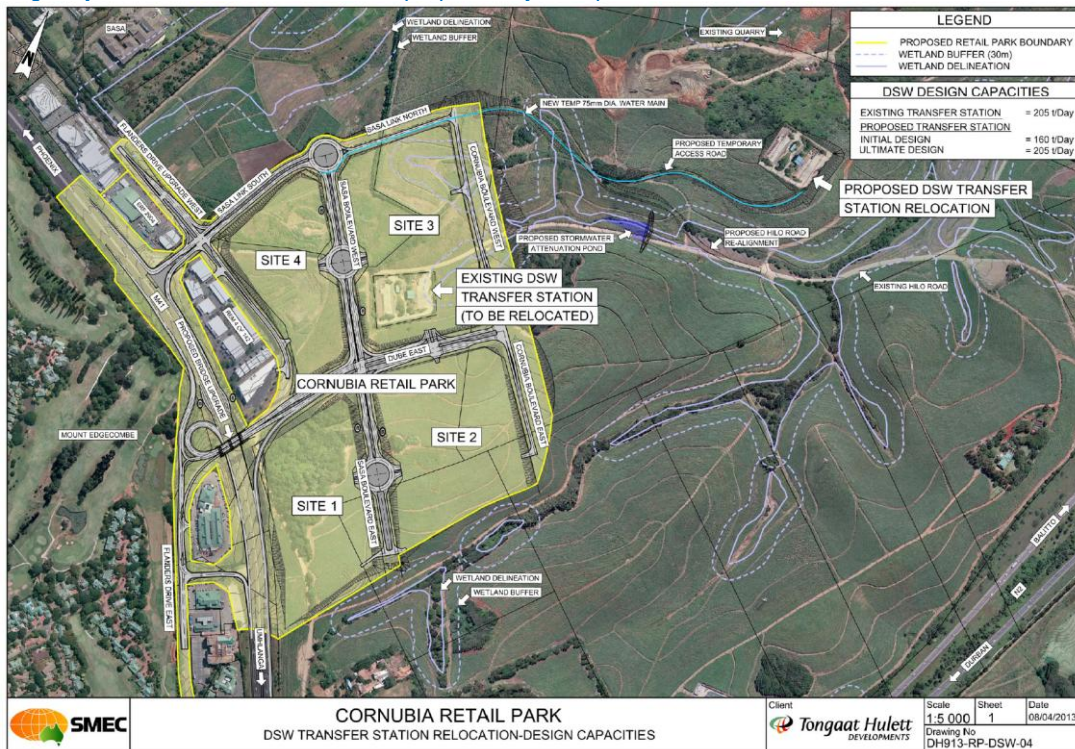


Figure 7: Alternative location of the new Mount Edgecombe Refuse Transfer Station and proposed access road

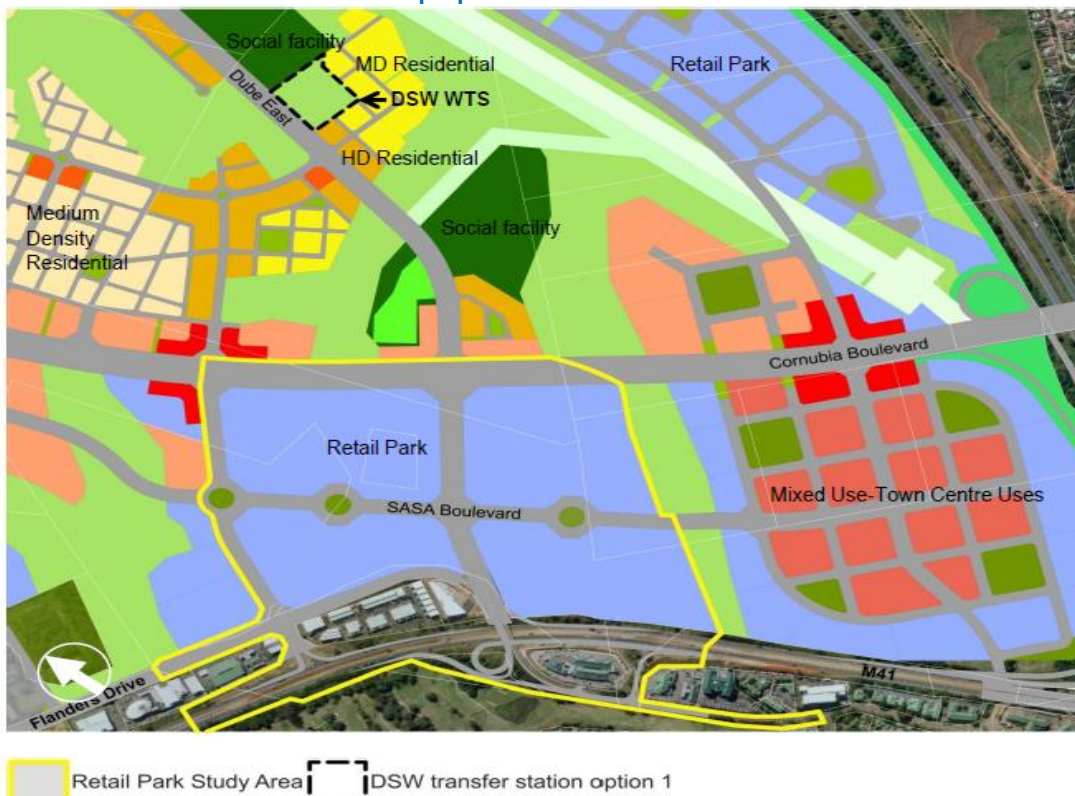


Figure 8: Alternative location of the new Mount Edgecombe Refuse Transfer Station in comparison to adjacent future land uses

The Alternative site is proposed along Dube East, bordering a social facility Cluster. The proposed uses around this Station is Medium Density Residential - GAP/Social Housing indicated as a yellow hatch on Figure 8 and in the orange hatch is High Density Residential –GAP/Social housing. Whilst the location is seemingly a good location, it straddles the Flanders Quarry boundary extent, in particular what is classified as an undevelopable area as any development within the “undevelopable” area will be subject to very high bulk earthwork costs. This will require removal of dumped elements such as old piles, large tree trunks and chunks of concrete to an unknown depth, followed by filling of suitable material to the required platform level. Essentially, it is possible to develop within this area however there are cost implications and further studies may be required. Due to the high earthwork costs, the engineers have earmarked the Flanders Quarry as an undevelopable area.

The planned residential area located in proximity to this Station is not desirable due to the limited noise pollution associated with such Stations. Visually, mitigation measures such as tree planting/screening of the Station from the residential area can be employed. Also as indicated in Figure 8, the residential backyards of sites can front the boundaries of the Station and thereby visually, it would not pose a problem as the units will face the roads.

It must be emphasised that the construction of the new Station will be a like-for-like development. The land identified for the construction of the new Station (Alternative S1 and Alternative S2) is zoned as Agricultural Land (sugarcane).

3. ACTIVITY DESCRIPTION

Describe each listed activity in Listing Notice 1 (GNR 544, 18 June 2010), Listing Notice 3 (GNR 546, 18 June 2010) or Category A of GN 718, 3 July 2009 (Waste Management Activities) which is being applied for as per the project description:

LISTED ACTIVITIES		
GNR 718 CATEGORY A ACTIVITIES		
Activity 1	The storage, including the temporary storage, of general waste at a facility that has the capacity to store in excess of 100m ³ of general waste at any one time, excluding the storage of waste in lagoons.	The proposed project includes the construction of a facility which will store garden refuse (general waste) which has the capacity in excess of 100 m ³ of such waste at any given time.
Activity 18	The construction of facilities for activities listed in Category A of this Schedule (not in isolation to associated activity).	The proposed project includes the construction of a facility which will trigger Activity 1 of Category A.
Activity 20	The decommissioning of activities listed in this Schedule.	The proposed project includes the decommissioning of an existing facility which will trigger Activity 1 of Category A.

4. FEASIBLE AND REASONABLE ALTERNATIVES

“**alternatives**”, in relation to a proposed activity, means different means of meeting the general purpose and requirements of the activity, which may include alternatives to—

- (a) the property on which or location where it is proposed to undertake the activity;
- (b) the type of activity to be undertaken;
- (c) the design or layout of the activity;

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- (d) the technology to be used in the activity;
- (e) the operational aspects of the activity; and
- (f) the option of not implementing the activity.

Describe alternatives that are considered in this report. Alternatives should include a consideration of all possible means by which the purpose and need of the proposed activity could be accomplished in the specific instance taking account of the interest of the applicant in the activity. The no-go alternative must in all cases be included in the assessment phase as the baseline against which the impacts of the other alternatives are assessed. The determination of whether site or activity (including different processes etc.) or both is appropriate needs to be informed by the specific circumstances of the activity and its environment. After receipt of this report the competent authority may also request the applicant to assess additional alternatives that could possibly accomplish the purpose and need of the proposed activity if it is clear that realistic alternatives have not been considered to a reasonable extent.

Two site alternatives have been considered for the new site. In addition, the no-go alternative has also been considered (i.e. the existing Station will continue operations at its current location). No process alternatives have been considered as this is a like-for-like development.

The following generic criteria provide guidance on the specific engineering, operation, and transportation conditions that were considered when identifying the potential sites for the new Station to ensure that they are feasible from technical, environmental, and economic perspectives. These criteria addressed the following issues:

Table 2: Criteria for Identification of New Site

CRITERIA	PREFERRED SITE	ALTERNATIVE SITE
<p>Central location to collection routes: To maximize waste collection efficiency, transfer stations should be located centrally to waste collection routes. As a rule of thumb in urban and suburban areas, transfer stations should be no more than 15 kilometres away from the end of all collection routes. Beyond that distance, collection routes might need to be altered to enable refuse to be collected and deposited at the transfer station within one operating shift.</p>	<p>Site is central to collection routes and only 200 m away from the existing site.</p>	<p>Site is central to collection routes and less than 1 km away from the existing site.</p>
<p>Access to major transportation routes: The transfer station should have direct and convenient access to truck routes, major arterials, and highways (or rail or barge access, if appropriate). For large metropolitan areas, direct access to rail lines or barges will significantly reduce the number of large transfer trailers leaving the station and travelling area roads. It is preferable to avoid routing traffic through residential areas because traffic generated by transfer stations contributes to congestion; increased risk to pedestrians; increased air emissions, wear on roads; and might contribute to litter problems.</p>	<p>Site is easily accessible to the M41 and the N2.</p>	<p>Site in close proximity to the M41 and the N2. A new access road will need to be constructed to connect to these routes.</p>

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CRITERIA	PREFERRED SITE	ALTERNATIVE SITE
<p>Site size requirements: The area required for specific transfer stations varies significantly, depending on the volume of waste to be transferred, rates at which waste will be delivered, the functions to be carried out at the site, and the types of customers the facility is intended to serve. Locating a site of sufficient size is critical to operating efficiencies and minimizing impacts on the surrounding community. Engineering input can establish preliminary size criteria based on a conceptual design.</p>	<p>Site is within the same development footprint as the existing site which has been adequate for the requirements of the facility.</p>	<p>Site is slightly smaller than the existing site which has been adequate for the requirements of the facility.</p>
<p>Sufficient space for onsite roadways, queuing, and parking: Transfer stations typically have onsite roadways to move vehicles around various parts of the transfer site. Waste collection trucks can be up to 40 feet long. Transfer trailers that move waste to a disposal facility are typically 15 to 25 meters long. These vehicles need wide roadways with gradual slopes and curves to manoeuvre efficiently and safely. Also, the site will need space for parking transfer vehicles and to allow incoming and outgoing traffic to form lines without backing up onto public roads.</p>	<p>Site is within the same development footprint as the existing site which has been adequate for the space requirements of the facility.</p>	<p>Site is slightly smaller than the existing site which has been adequate for the space requirements of the facility.</p>
<p>Truck and traffic compatibility: Transfer stations often receive surges of traffic when collection vehicles have finished their routes. Transfer station traffic varies locally, but tends to peak twice a day. The first peak is often near the middle of the day or shift, and the second at the end of the day or shift. Therefore, the best sites for transfer stations are located away from areas that have midday traffic peaks and/or school bus and pedestrian traffic.</p>	<p>Site located adjacent to future commercial land uses.</p>	<p>Site located adjacent to future residential land uses.</p>
<p>Space for recycling, composting, and public education: A transfer station could be sited in areas also conducive to recycling or composting activities. Many transfer stations are designed to enable residents and businesses to drop off recyclables and yard waste in addition to trash. Some transfer stations incorporate education centres or interpretive trails focusing on waste prevention. These types of facilities offer increased utility to the community.</p>	<p>Sufficient space provided for.</p>	<p>Sufficient space provided for.</p>
<p>Buffer space: To mitigate impact on the surrounding community, a transfer station should be located in an area that provides separation from sensitive adjoining land uses such as residences. Buffers can be natural or constructed and can take many forms, including open spaces, fences, sound walls, trees, berms, and</p>	<p>Site located adjacent to future commercial land uses. Buffers in the form of landscaping and fencing will be provided for.</p>	<p>Site located adjacent to future residential land uses. Buffers in the form of landscaping and fencing will be provided for.</p>

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CRITERIA	PREFERRED SITE	ALTERNATIVE SITE
landscaping.		
Gently sloping topography: Transfer stations often are multilevel buildings that need to have vehicle access at several levels. Completely flat sites need ramps or bridges constructed to allow vehicle access to upper levels (or areas excavated to allow access to lower levels). Sites with moderately sloping terrain can use topography to their advantage, allowing access to the upper levels from the higher parts of the natural terrain and access to lower levels from the lower parts. Sites with steep slopes might require extra costs associated with earthmoving and retaining walls.	Topography is sufficient for the station.	Topography is sufficient for the station.
Access to utilities: Transfer stations generally require electricity to operate equipment, such as balers and compactors; lighting; water for facility cleaning, restrooms, and drinking; and sanitary sewer systems for waste-water disposal. Some smaller transfer stations use wells for water supply, and some, especially in more rural settings, use septic systems or truck.	Utilities provided for via the construction of the adjacent Cornubia Retail Park.	Access to utilities will be more problematic in the short-term.

Sections B 5 – 15 below should be completed for each alternative.

5. ACTIVITY POSITION

Indicate the position of the activity using the latitude and longitude of the centre point of the site for each alternative site. The co-ordinates should be in degrees, minutes and seconds. List alternative sites were applicable.

	Latitude (S):			Longitude (E):		
Alternative:						
Alternative S1 ¹ (preferred or only site alternative)	29°	42 '	24.83"	31°	3'	25.12"
Alternative S2 (if any)	29°	42 '	13.48"	31°	3'	34.33"
Alternative S3 (if any)						

¹ "Alternative S.." refer to site alternatives.

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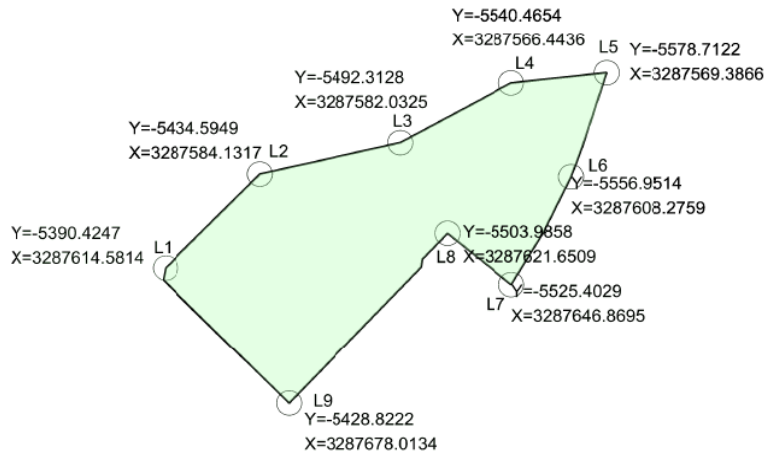


Figure 9: Co-ordinates for Alternative S1 (Preferred) (WGS 84)

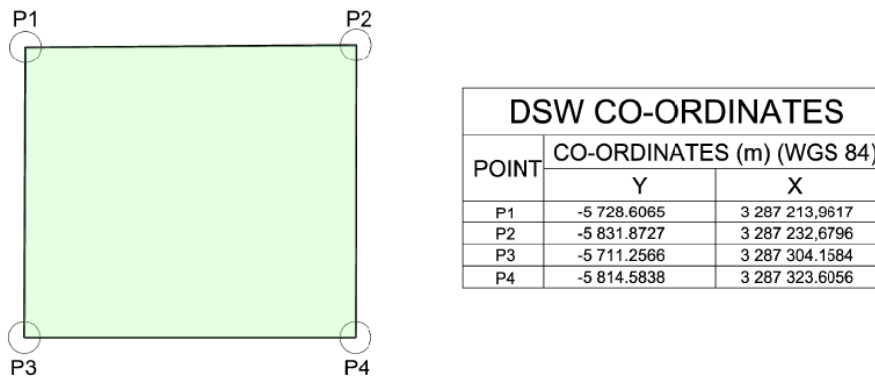


Figure 10: Co-ordinates for Alternative S2 (WGS 84)

In the case of linear activities:

Alternative:

Latitude (S):

Longitude (E):

Alternative S1 (preferred or only route alternative)

- Starting point of the activity
- Middle point of the activity
- End point of the activity

Alternative S2 (if any)

- Starting point of the activity
- Middle point of the activity
- End point of the activity

Alternative S3 (if any)

- Starting point of the activity
- Middle point of the activity
- End point of the activity

For route alternatives that are longer than 500m, please provide an addendum with co-ordinates taken every 500m along the route for each alternative alignment.

6. PHYSICAL SIZE OF THE ACTIVITY

Indicate the physical size of the preferred activity/technology as well as alternative activities/technologies (footprints):

Alternative:

Alternative A1² (preferred activity alternative)

Alternative A2 (if any)

Alternative A3 (if any)

Existing Station to be decommissioned

or, for linear activities:

Alternative:

Alternative A1 (preferred activity alternative)

Alternative A2 (if any)

Alternative A3 (if any)

Size of the activity:

10 601.4 m ²
9 800 m ²
10 039.2 m ²

Length of the activity:

--

Indicate the size of the alternative sites or servitudes (within which the above footprints will occur):

Alternative:

Alternative A1 (preferred activity alternative)

Alternative A2 (if any)

Alternative A3 (if any)

Size of the site/servitude:

10 601.4 m ²
9 800 m ²

7. SITE ACCESS

ALTERNATIVE S1

Does ready access to the site exist?

If NO, what is the distance over which a new access road will be built

Describe the type of access road planned:

	NO
	unknown

A temporary access road will need to be constructed. This access road will cross over a wetland. This road is detailed in Appendix A.

Include the position of the access road on the site plan and required map, as well as an indication of the road in relation to the site.

ALTERNATIVE S2

Does ready access to the site exist?

	NO
--	----

² "Alternative A.." refer to activity, process, technology or other alternatives.

If NO, what is the distance over which a new access road will be built

660 m

Describe the type of access road planned:

A temporary access road will need to be constructed. This access road will cross over a wetland. This road is detailed Figure 7 and Appendix A.

Include the position of the access road on the site plan and required map, as well as an indication of the road in relation to the site.

8. SITE OR ROUTE PLAN

A detailed site or route plan(s) must be prepared for each alternative site or alternative activity. It must be attached as Appendix A to this report.

The site or route plans must indicate the following:

- 8.1. the scale of the plan which must be at least a scale of 1:500;
- 8.2. the property boundaries and numbers/ erf/ farm numbers of all adjoining properties of the site;
- 8.3. the current land use as well as the land use zoning of each of the properties adjoining the site or sites;
- 8.4. the exact position of each element of the application as well as any other structures on the site;
- 8.5. the position of services, including electricity supply cables (indicate above or underground), water supply pipelines, boreholes, street lights, sewage pipelines, storm water infrastructure and telecommunication infrastructure;
- 8.6. walls and fencing including details of the height and construction material;
- 8.7. servitudes indicating the purpose of the servitude;
- 8.8. sensitive environmental elements within 100 metres of the site or sites including (but not limited thereto):
 - rivers, streams, drainage lines or wetlands;
 - the 1:100 year flood line (where available or where it is required by DWA);
 - ridges;
 - cultural and historical features;
 - areas with indigenous vegetation including protected plant species (even if it is degraded or infested with alien species);
- 8.9. for gentle slopes the 1 metre contour intervals must be indicated on the plan and whenever the slope of the site exceeds 1:10, the 500mm contours must be indicated on the plan; and
- 8.10. the positions from where photographs of the site were taken.

9. SITE PHOTOGRAPHS

Colour photographs from the centre of the site must be taken in at least the eight major compass directions with a description of each photograph. Photographs must be attached under Appendix B to this report. It must be supplemented with additional photographs of relevant features on the site, if applicable.

10. FACILITY ILLUSTRATION

A detailed illustration of the facility must be provided at a scale of 1:200 and attached to this report as Appendix C. The illustrations must be to scale and must represent a realistic image of the planned activity/ies.

11. ACTIVITY MOTIVATION

SAME FOR ALTERNATIVE S1 & S2

11.1. Socio-economic value of the activity

What is the expected capital value of the activity on completion?	R15 million
What is the expected yearly income that will be generated by or as a result of the activity?	Unknown
Will the activity contribute to service infrastructure?	YES
Is the activity a public amenity?	YES
How many new employment opportunities will be created in the development phase of the activity?	Approximately 20
What is the expected value of the employment opportunities during the development phase?	Unknown
What percentage of this will accrue to previously disadvantaged individuals?	100 %
How many permanent new employment opportunities will be created during the operational phase of the activity?	0
What is the expected current value of the employment opportunities during the first 10 years?	Unknown
What percentage of this will accrue to previously disadvantaged individuals?	Unknown

11.2. Need and desirability of the activity

Motivate and explain the need and desirability of the activity (including demand for the activity):

It is necessary to relocate the existing Mount Edgecombe Refuse Transfer Station to allow for the development of the proposed Cornubia Retail Park. The 'no-go' option which involves the existing Station to continue operating at its current location will limit the development potential of the Retail Park.

The Retail Park is the first pure commercial investment opportunity within the Cornubia Integrated Human Settlement and will provide an important catalyst for further investment and development in support of the extensive new housing under construction.

The proposed Retail Park is a new investment of R1.24 billion. It has the potential to provide more than 2 000 construction related employment opportunities and more than 1 500 permanent employment opportunities. In addition, it is expected that R20 million in new rates per annum will be received from the development and over R300 million in annual taxes and Value Added Tax (VAT).

The proposed Retail Park responds to the prime accessibility and visibility of the emerging corridor creating a positive interface for Cornubia. The prime location of the Cornubia Retail Park site with Durban together with the diverse mix of uses creates an ideal opportunity for the people within Cornubia and those that surround this area to access a full set of urban and economic opportunities. There is substantial interest shown for retail and commercial offerings in the region. There has been strong

interest by private sector for business and retail park development within Cornubia particularly along the M41 on land that is predominantly under Tongaat Hulett ownership.

The high visibility and good location along the M41 makes the Retail Park site highly desirable. The study area therefore is strategically placed and plays an important role in the future growth of the corridor. Due to the development undertaken to date, there are no opportunities available for such a destination retail development in the surrounding area. The development will therefore complement the existing retail and commercial development on the Umhlanga Ridge and serve to create a broader economic node for the region.

Similarly to the Cornubia Industrial and Business Estate in regard to the significance of the confidence shown in Cornubia from a private sector and investment perspective, the Cornubia Retail Park provides a major additional impetus and further confirmation of the confidence and expectation in the potential of Cornubia as an Integrated Human Settlement. The benefit of this major investment, in this location is substantial and will only serve to position Cornubia as an aspirational and exciting development to be part of.

The location of the Cornubia Retail Park Project is ideally positioned to ensure that the following key objectives can be achieved:

- Make a key contribution to building, consolidating and integrating the social and economic base of the northern portion of eThekweni;
- Ensure a sustainable mixed use, inclusionary mixed income development that maximises economic opportunities for future residents and investment;
- Create value by maximising the potential of the land through public-private partnerships so that the development of the land delivers a positive and a balanced economic, environmental and social return that is both financially sustainable and contributes to redressing inequalities; and
- To use the opportunity for creating substantial black economic empowerment opportunities in property development ownership and urban management.

Further to this, the option of decommissioning the existing Station and not constructing the new Station is not feasible or practical due to the important function that the Station provides.

Refuse transfer stations play an important role in a community's total waste management system, serving as the link between a community's solid waste collection program and a final waste disposal facility. While facility ownership, sizes, and services offered vary significantly among transfer stations, they all serve the same basic purpose — consolidating waste from multiple collection vehicles into larger, high-volume transfer vehicles for more economical shipment to distant disposal sites. In its simplest form, a transfer station is a facility with a designated receiving area where waste collection vehicles discharge their loads.

The waste is compacted, then loaded into larger vehicles (usually transfer trailers, but intermodal containers, railcars, and barges are also used) for long-haul shipment to a final disposal site—typically a landfill, waste-to-energy plant, or a composting facility. No long-term storage of waste or treatment of waste occurs at a transfer station; waste is quickly consolidated and loaded into a larger vehicle and moved off site, usually in a matter of hours.

Only a facility that receives some portion of its waste directly from collection vehicles, then consolidates and reloads the waste onto larger vehicles for delivery to a final disposal facility, is considered a transfer station. Therefore, it can be seen that there is a distinction between a transfer station and a landfill site or waste treatment facility.

The nationwide trend in solid waste disposal has been toward construction of larger, more remote, regional landfills. Economic considerations, heavily influenced by regulatory and social forces, are

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compelling factors leading to this result. The primary reason for using a transfer station is to reduce the cost of transporting waste to disposal facilities. Consolidating smaller loads from collection vehicles into larger transfer vehicles reduces hauling costs by enabling collection crews to spend less time travelling to and from distant disposal sites and more time collecting waste. This also reduces fuel consumption and collection vehicle maintenance costs, plus produces less overall traffic, air emissions, and road wear. In addition, a transfer station also provides:

- An opportunity to screen waste prior to disposal.
- Flexibility in selecting waste disposal options.
- An opportunity to serve as a convenience centre for public use.

At many transfer stations, workers screen incoming wastes on conveyor systems, tipping floors, or in receiving pits. Waste screening has two components: separating recyclables from the waste stream and identifying any wastes that might be inappropriate for disposal (e.g., hazardous wastes or materials, white goods, whole tires, auto batteries, or infectious waste). Identifying and removing recyclables reduces the weight and volume of waste sent for final disposal and, depending on local recycling markets, might generate revenue. Screening for inappropriate wastes is more efficient at the transfer station than the landfill. Waste transfer stations also offer more flexibility in terms of disposal options. Decision-makers have the opportunity to select the most cost-effective and/or environmentally protective disposal sites, even if they are more distant. They can consider multiple disposal facilities, secure competitive disposal fees, and choose a desired method of disposal (e.g., land-filling or incineration). Finally, transfer stations often include convenience centres open to public use. These centres enable individual citizens to deliver waste directly to the transfer station facility for ultimate disposal. Some convenience centres offer programs to manage yard waste, bulky items, household hazardous waste, and recyclables. These multipurpose convenience centres are assets to the community because they assist in achieving recycling goals, increase the public's knowledge of proper materials management, and divert materials that would otherwise burden existing disposal capacity.

Indicate any benefits that the activity will have for society in general:

The relocation of the Mount Edgecombe Refuse Transfer Station will enable the development of the Cornubia Retail Park which could serve as a catalyst to induce future private sector investment within this area and will generate much needed employment opportunities for people of Cornubia and surrounds. Since the Medium Density residential development is already under construction with approximately 2 500 units envisaged in the short term, the development of the study area may contribute in creating much needed employment opportunities in the area. Initial feasibility studies indicated that the precinct would be able to provide a number of temporary and permanent jobs as well as contribute significantly to the rates base of the City.

The Mount Edgecombe Refuse Transfer Station is necessary as it is well equipped to process all kinds of household waste and also provides facilities for recycling paper, cans, plastic and other unwanted items. Garden refuse can also be disposed of at this site. The Station collects household and garden waste and compacts it for transportation to landfill. The Station services the areas of Umhlanga, Mt Edgecombe, La Lucia, Glenashley, Phoenix, Ottawa as well as informal settlements in the surrounding area. It improves the efficiency of waste disposal and reduces transportation costs as outlined above.

Indicate any benefits that the activity will have for the local communities where the activity will be located:

The proposed development will provide employment opportunities to the local community both during the construction and operational phases. In addition, the Station enables the efficient transfer of general waste from the region to landfill. Moreover, the relocation of the Station will enable the Cornubia Retail Park to be developed which will have significant employment opportunities to the local communities.

12. APPLICABLE LEGISLATION, POLICIES AND/OR GUIDELINES

List all legislation, policies and/or guidelines of any sphere of government that are relevant to the application as contemplated in the EIA regulations, if applicable:

Title of legislation, policy or guideline:	Administering authority:	Date:
2010 EIA Regulations under NEMA	National & Provincial	August 2010
National Environmental Management: Waste Act (Act 59 of 2008)	National & Provincial	2008
Constitution of the Republic of South Africa (108 of 1966)	National, Provincial and Local Government	1996
National Environmental Management Act (No 107 of 1998 (as amended))	National and Provincial	1998
National Water Act (No 36 of 1998) and regulations	Department of Water Affairs	1998
National Environmental Management: Air Quality Act (No 39 of 2004)	National & Provincial	2004
National Environmental Management: Biodiversity Act (10 of 2004)	National & Provincial	2004
Occupational Health and Safety Act (No 85 of 1973)	National & Provincial	1993
Hazardous Substances Act (No 15 of 1973)	National & Provincial	1973
Conservation of Agricultural Resources Act (Act No.43 of 1983)	National & Provincial	1983
National Heritage Resources Act (No. 25 of 1999)	National & Provincial	1999
National Forests Act (Act No. 84 of 1998)	National & Provincial	1998

13. WASTE, EFFLUENT, EMISSION AND NOISE MANAGEMENT

SAME FOR ALTERNATIVE S1 & S2

13.1. Solid waste management

Will the activity produce solid construction waste during the construction/initiation phase?

YES	
Unknown	

If yes, what estimated quantity will be produced per month?

How will the construction solid waste be disposed of? (describe)

Waste skips/bins will be provided throughout the construction site with separate skips/bins made available for road construction debris and solid waste. Solid waste that is unsuitable for re-use for construction will be transported to a registered landfill site to avoid the pollution of surrounding areas and roads, as well as to minimize nuisance impacts such as dust and odours.

A detailed Waste Management Plan for the demolition waste is provided in the EMP (Appendix F).

Where will the construction solid waste be disposed of? (provide details of landfill site)

All waste will be collected and disposed of at an approved waste disposal and/or recycling facilities. It is expected that general waste will be disposed of at the Buffelsdraai Landfill site, License No. 16/2/7/U30/D4/Z1/P473 and hydraulic/hazardous waste will be disposed off at a ROSE registered facility.

Will the activity produce solid waste during its operational phase?

If yes, what estimated quantity will be produced per month?

This is a Municipal Waste Transfer Station and therefore waste will not be produced during the operational phase but collected and transferred to landfill.

NO	
----	--

How will the solid waste be disposed of? (provide details of landfill site)

Where will the solid waste be disposed if it does not feed into a municipal waste stream (describe)?

If the solid waste (construction or operational phases) will not be disposed of in a registered landfill site or be taken up in a municipal waste stream, then the applicant should consult with the competent authority to determine the further requirements of the application.

Can any part of the solid waste be classified as hazardous in terms of the relevant legislation? YES NO

If yes, contact the KZN Department of Agriculture & Environmental Affairs to obtain clarity regarding the process requirements for your application.

Is the activity that is being applied for a solid waste handling or treatment facility? YES NO

If yes, contact the KZN Department of Agriculture & Environmental Affairs to obtain clarity regarding the process requirements for your application.

13.2. Liquid effluent

Will the activity produce effluent, other than normal sewage, that will be disposed of in a municipal sewage system? YES NO

If yes, what estimated quantity will be produced per month?

Will the activity produce any effluent that will be treated and/or disposed of on site? YES NO

If yes, contact the KZN Department of Agriculture & Environmental Affairs to obtain clarity regarding the process requirements for your application.

Will the activity produce effluent that will be treated and/or disposed of at another facility? YES NO

If yes, provide the particulars of the facility:

Facility name:

Contact

person:

Postal

address:

Postal code:

Telephone:

E-mail:

Cell:

Fax:

Describe the measures that will be taken to ensure the optimal reuse or recycling of waste water, if any:

13.3. Emissions into the atmosphere

Will the activity release emissions into the atmosphere? YES NO

If yes, is it controlled by any legislation of any sphere of government? YES NO

If yes, contact the KZN Department of Agriculture & Environmental Affairs to obtain clarity regarding the process requirements for your application.

If no, describe the emissions in terms of type and concentration:

It is not expected that an Air Quality Emissions License will be required for this activity as there will only be limited dust liberation and emissions during construction and demolition phase due to the off loading of construction material such as sand and cement and movement of construction vehicles. Limited potential for odour due to the storage of general waste. Detailed mitigation measures are forwarded in the EMPr (Appendix F).

13.4. Generation of noise

Will the activity generate noise?

YES	
YES	

If yes, is it controlled by any legislation of any sphere of government?

If yes, the applicant should consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA.

If no, describe the noise in terms of type and level:

Noise levels should be regulated by local municipal by-laws. Noise generation will be forthcoming as a result of the construction and deconstruction phase. Noise will be limited to working hours (07h00 to 17h00) and will comprise of excavators and other machinery. Noise should also be generated during operations due to heavy machinery. Ambient noise levels are unlikely to exceed 75 dB for extended periods. Detailed noise management measures are detailed in the EMPr (Appendix F).

14. WATER USE

SAME FOR ALTERNATIVE S1 & S2

Please indicate the source(s) of water that will be used for the activity by ticking the appropriate box(es):

<input checked="" type="checkbox"/> municipal	
---	--

If water is to be extracted from groundwater, river, stream, dam, lake or any other natural feature, please indicate the volume that will be extracted per month:

Does the activity require a water use permit from the Department of Water Affairs?

If YES, please submit the necessary application to the Department of Water Affairs and attach proof thereof to this report.

15. ENERGY EFFICIENCY

SAME FOR ALTERNATIVE S1 & S2

Describe the design measures, if any, that have been taken to ensure that the activity is energy efficient:

The contractor will be advised to transport all construction materials on site at the same time where possible and the collection of waste material conducted simultaneous with other activities to reduce the amount fuel usage for such transportation.

Describe how alternative energy sources have been taken into account or been built into the design of the activity, if any:

No activities are anticipated that will lend themselves to design measures for alternative energy sources during the construction, deconstruction or operational phase of the project.

SECTION C: SITE/ AREA/ PROPERTY DESCRIPTION

Important notes:

- For linear activities (pipelines, etc) as well as activities that cover very large sites, it may be necessary to complete this section for each part of the site that has a significantly different environment. In such cases please complete copies of Section C and indicate the area, which is covered by each copy No. on the Site Plan.

Section C Copy No.
(e.g. A):

- Subsections 1 - 6 below must be completed for each alternative.

1. GRADIENT OF THE SITE

Indicate the general gradient of the site.

Alternative S1:

1:15 – 1:10

Alternative S2 (if any):

1:10 – 1:7,5

Alternative S3 (if any):

2. LOCATION IN LANDSCAPE

Indicate the landform(s) that best describes the site (Please cross the appropriate box).

Alternative S1 (preferred site):

Undulating plain/low hills

Alternative S2 (if any):

Undulating plain/low hills

Alternative S3 (if any):

3. GROUNDWATER, SOIL AND GEOLOGICAL STABILITY OF THE SITE

Has a specialist been consulted for the completion of this section? NO

If YES, please complete the following:

Name of the specialist: [REDACTED]

Qualification(s) of the specialist: [REDACTED]

Postal address: [REDACTED]

Postal code: [REDACTED]

Telephone: [REDACTED] Cell: [REDACTED]

E-mail: [REDACTED] Fax: [REDACTED]

Are there any rare or endangered flora or fauna species (including red data species) present on any of the alternative sites? NO

If YES, specify and explain: [REDACTED]

Are there any special or sensitive habitats or other natural features present on any of the alternative sites? NO

If YES, specify and explain: [REDACTED]

Are any further specialist studies recommended by the specialist? NO

If YES, specify: [REDACTED]

If YES, is such a report(s) attached in Appendix D? [REDACTED]

Signature of specialist: _____ Date: _____

Is the site(s) located on any of the following (cross the appropriate boxes)?

	Alternative S1:	Alternative S2 (if any):	Alternative S3 (if any):
Shallow water table (less than 1.5m deep)	NO	NO	NO
Dolomite, sinkhole or doline areas	NO	NO	NO
Seasonally wet soils (often close to water bodies)	NO	NO	NO
Unstable rocky slopes or steep slopes with loose soil	NO	NO	NO
Dispersive soils (soils that dissolve in water)	NO	NO	NO
Soils with high clay content (clay fraction more than 40%)	NO	NO	NO
Any other unstable soil or geological feature	NO	NO	NO
An area sensitive to erosion	NO	NO	NO

If you are unsure about any of the above or if you are concerned that any of the above aspects may be an issue of concern in the application, an appropriate specialist should be appointed to assist in the completion of this section. (Information in respect of the above will often be available as part of the project information or at the planning sections of local authorities. Where it exists, the 1:50 000 scale Regional Geotechnical Maps prepared by the Council for Geo Science may also be consulted).


4. GROUNDCOVER

Has a specialist been consulted for the completion of this section? YES

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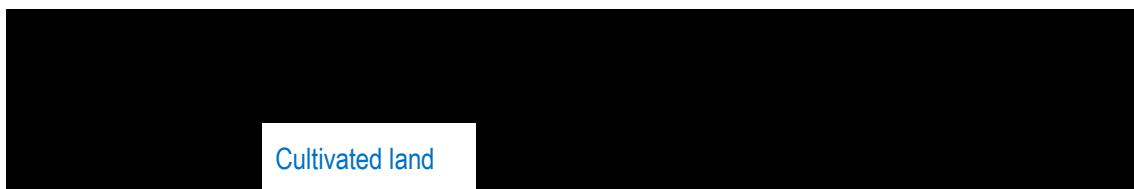
If YES, please complete the following:

Name of the specialist:	Dr. Richard Kinvig (SiVEST)		
Qualification(s) of the specialist:	Pr.Sci.Nat		
Postal address:	PO Box 707, Msunduzi, KwaZulu-Natal		
Postal code:	3231		
Telephone:	033 347 1600	Cell:	083 463 2919
E-mail:	richardk@sivest.co.za	Fax:	033 347 5762
Are there any rare or endangered flora or fauna species (including red data species) present on any of the alternative sites?			NO
If YES, specify and explain:	[REDACTED]		
Are there any special or sensitive habitats or other natural features present on any of the alternative sites?			NO
If YES, specify and explain:	[REDACTED]		
Are any further specialist studies recommended by the specialist?		YES	
If YES, specify:	Detailed Vegetation Assessment		
If YES, is such a report(s) attached in Appendix D?		YES	



Signature of specialist: _____ Date: June 2013

The location of all identified rare or endangered species or other elements should be accurately indicated on the site plan(s).



If any of the boxes marked with an "E" is ticked, please consult an appropriate specialist to assist in the completion of this section if the environmental assessment practitioner doesn't have the necessary expertise.

5. LAND USE CHARACTER OF SURROUNDING AREA

SAME FOR ALTERNATIVE S1 & S2

Cross the land uses and/or prominent features that **currently** occur within a 500m radius of the site and give a description of how this influences the application or may be impacted upon by the application:

Land use character			Description
Natural area		NO	
Low density residential		NO	
Medium density residential		NO	
High density residential		NO	
Informal residential		NO	
Retail commercial & warehousing		NO	

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Light industrial		NO	
Medium industrial		NO	
Heavy industrial		NO	
Power station		NO	
Office/consulting room		NO	
Military or police base/station/compound		NO	
Spoil heap or slimes dam		NO	
Quarry, sand or borrow pit	YES		Old Flanders Quarry
Dam or reservoir		NO	
Hospital/medical centre		NO	
School/ creche		NO	
Tertiary education facility		NO	
Church		NO	
Old age home		NO	
Sewage treatment plant		NO	
Train station or shunting yard		NO	
Railway line		NO	
Major road (4 lanes or more)		NO	
Airport		NO	
Harbour		NO	
Sport facilities		NO	
Golf course		NO	
Polo fields		NO	
Filling station		NO	
Landfill or waste treatment site		NO	
Plantation		NO	
Agriculture	YES		Sugarcane cultivation
River, stream or wetland	YES		Wetlands (outside the 30 m buffer)
Nature conservation area		NO	
Mountain, hill or ridge		NO	
Museum		NO	
Historical building		NO	
Protected Area		NO	
Graveyard		NO	
Archaeological site		NO	
Other land uses (describe)		NO	

6. CULTURAL/ HISTORICAL FEATURES

SAME FOR ALTERNATIVE S1 & S2

Are there any signs of culturally or historically significant elements, as defined in section 2 of the National Heritage Resources Act, 1999, (Act No. 25 of 1999), including archaeological or palaeontological sites, on or within 20m of the site?

NO

If YES, contact a specialist recommended by AMAFA to conduct a heritage impact assessment. The heritage impact assessment must be attached as an appendix to this report.

Briefly explain the recommendations of the specialist:

GIBELA UMKHUMBI OLWA NOBUBHA

Will any building or structure older than 60 years be affected in any way?
Is it necessary to apply for a permit in terms of the National Heritage Resources Act, 1999 (Act 25 of 1999)?

NO

NO

If YES, please submit the necessary application to AMAFA and attach proof thereof to this report.

SECTION D: PUBLIC PARTICIPATION

1. ADVERTISEMENT

The person conducting a public participation process must take into account any guidelines applicable to public participation as contemplated in section 24J of the Act and must give notice to all potential interested and affected parties of the application which is subjected to public participation by—

- (a) fixing a notice board (of a size at least 60cm by 42cm; and must display the required information in lettering and in a format as may be determined by the competent authority) at a place conspicuous to the public at the boundary or on the fence of—
 - (i) the site where the activity to which the application relates is or is to be undertaken; and
 - (ii) any alternative site mentioned in the application;
- (b) giving written notice to—
 - (i) the owner or person in control of that land if the applicant is not the owner or person in control of the land;
 - (ii) the occupiers of the site where the activity is or is to be undertaken or to any alternative site where the activity is to be undertaken;
 - (iii) owners and occupiers of land adjacent to the site where the activity is or is to be undertaken or to any alternative site where the activity is to be undertaken;
 - (iv) the municipal councillor of the ward in which the site or alternative site is situated and any organisation of ratepayers that represent the community in the area;
 - (v) the local and district municipality which has jurisdiction in the area;
 - (vi) any organ of state having jurisdiction in respect of any aspect of the activity (as identified in the application form for the environmental authorization of this project); and
 - (vii) any other party as required by the competent authority;
- (c) placing an advertisement in—
 - (i) one local newspaper; or
 - (ii) any official *Gazette* that is published specifically for the purpose of providing public notice of applications or other submissions made in terms of these Regulations;
- (d) placing an advertisement in at least one provincial newspaper or national newspaper, if the activity has or may have an impact that extends beyond the boundaries of the metropolitan or district municipality in which it is or will be undertaken: Provided that this paragraph need not be complied with if an advertisement has been placed in an official *Gazette* referred to in subregulation 54(c)(ii); and
- (e) using reasonable alternative methods, as agreed to by the competent authority, in those instances where a person is desiring of but unable to participate in the process due to—

- (i) illiteracy;
- (ii) disability; or
- (iii) any other disadvantage.

2. CONTENT OF ADVERTISEMENTS AND NOTICES

A notice board, advertisement or notices must:

- (a) indicate the details of the application which is subjected to public participation; and
- (b) state—
 - (i) that an application for environmental authorization has been submitted to the KZN Department of Agriculture & Environmental Affairs in terms of the EIA Regulations, 2010;(ii)
 - (iii) a brief project description that includes the nature and location of the activity to which the application relates;
 - (iv) where further information on the application can be obtained; and
 - (iv) the manner in which and the person to whom representations in respect of the application may be made.

3. PLACEMENT OF ADVERTISEMENTS AND NOTICES

Where the proposed activity may have impacts that extend beyond the municipal area where it is located, a notice must be placed in at least one provincial newspaper or national newspaper, indicating that an application will be submitted to the competent authority in terms of these regulations, the nature and location of the activity, where further information on the proposed activity can be obtained and the manner in which representations in respect of the application can be made, unless a notice has been placed in any *Gazette* that is published specifically for the purpose of providing notice to the public of applications made in terms of the EIA regulations.

Advertisements and notices must make provision for all alternatives.

4. DETERMINATION OF APPROPRIATE PROCESS

The EAP must ensure that the public participation process is according to that prescribed in regulation 54 of the EIA Regulations, 2010, but may deviate from the requirements of subregulation 54(2) in the manner agreed by the KZN Department of Agriculture & Environmental Affairs as appropriate for this application. Special attention should be given to the involvement of local community structures such as Ward Committees, ratepayers associations and traditional authorities where appropriate.

Please note that public concerns that emerge at a later stage that should have been addressed may cause the competent authority to withdraw any authorisation it may have issued if it becomes apparent that the public participation process was inadequate.

5. COMMENTS AND RESPONSE REPORT

The practitioner must record all comments and respond to each comment of the public before this application is submitted. The comments and responses must be captured in a comments and response report as prescribed in the EIA regulations (regulation 57 in the EIA Regulations, 2010) and be attached as Appendix E to this report.

6. PARTICIPATION BY DISTRICT, LOCAL AND TRADITIONAL AUTHORITIES

District, local and traditional authorities (where applicable) are all key interested and affected parties in each application and no decision on any application will be made before the relevant local authority is provided with the opportunity to give input. The planning and the environmental sections of the local authority must be informed of this application and provided with an opportunity to comment.

Has any comment been received from the district municipality?

YES

If "YES", briefly describe the feedback below (also attach any correspondence to and from this authority with regard to this application):

Concerns regarding the broad area identified for the new site and the appropriateness of such a refuse station in comparison to planned adjacent future uses. The correspondence is attached in Appendix E and cognisance of this concern was taken in the identification of the two sites and is addressed in the Planning Report (Appendix D). Further to this, they have asked for possible leachate impacts to be mitigated for and addressed in the EMP which it has been.

Has any comment been received from the local municipality?

YES

If "YES", briefly describe the feedback below (also attach any correspondence to and from this authority with regard to this application):

eThekweni Municipality – same as above.

Has any comment been received from a traditional authority?

NO

If "YES", briefly describe the feedback below (also attach any correspondence to and from this authority with regard to this application):

7. CONSULTATION WITH OTHER STAKEHOLDERS

Any stakeholder that has a direct interest in the site or property, such as servitude holders and service providers, should be informed of the application and be provided with the opportunity to comment.

Has any comment been received from stakeholders?

NO

If "YES", briefly describe the feedback below (also attach copies of any correspondence to and from the stakeholders to this application):

No comments have being received as yet; however this will happen after the comment period has elapsed. Comments received will be included in the final BAR.

SECTION E: IMPACT ASSESSMENT

The assessment of impacts must adhere to the requirements in the EIA Regulations, 2010, and should take applicable official guidelines into account. The issues raised by interested and affected parties should also be addressed in the assessment of impacts.

1. ISSUES RAISED BY INTERESTED AND AFFECTED PARTIES

List the main issues raised by interested and affected parties.

Concern regarding the future proposed adjacent land uses to the new identified refuse transfer station sites and management of leachate.

Response from the practitioner to the issues raised by the interested and affected parties (A full response must be given in the Comments and Response Report that must be attached as Appendix E to this report):

- This is noted and detailed planning assessment has been done (included in Appendix D).
- Lechate management is addressed in the EMPr.

SUMMARY OF WASTE RELATED IMPACTS AND MITIGATION MEASURES ASSESSED IN THIS SECTION

Noise Nuisances

Transfer stations can be a significant source of noise, which might be a nuisance to neighbours. Heavy truck traffic and the operation of heavy-duty facility equipment are the primary sources of noise from a transfer station. Offsite traffic noise in the station's vicinity will be perceived as noise from the station itself.

Equipment noise includes engines, backup alarms (beepers), hydraulic power units, and equipment buckets and blades, banging and scraping on concrete and steel surfaces. The unloading of waste or recyclables (particularly glass) onto a tipping floor, pit, steel drop box, or trailer can also create substantial noise, depending on the type of waste, fall distance, and surface. Good facility design and operations can help reduce noise emanating from the station.

Mitigation Measures

Construction/ Planning Phase:

- Use concrete walls and structures, which absorb sound better than metal structures.
- Install double-glazed windows which contain noise better than single-glazed windows.
- Install shielding or barriers, such as trees, berms, or walls, around the facility to block and absorb noise. Size of the shielding, distance to receptors, and shielding materials all determine effectiveness. Walls can be made from concrete, stone, brick, wood, plastic, metal, or earth. Vegetate berms with grasses, shrubs, or trees to further mitigate noise and increase aesthetics. Barriers should be continuous, with no breaks, and long enough to protect the intended receptors.
- Wing walls, usually constructed of concrete, on transfer buildings can also block noise from trucks entering and exiting the building and noise from interior operations.
- Insulate transfer building walls with sound-absorbing materials.
- Locate administrative buildings between sources of noise and community.
- Orientate transfer building openings (i.e., doors) away from receptors.

Operational Practices:

- Keep doors closed during operating hours, except when vehicles are entering or exiting.
- Use the lowest allowable setting on vehicle backup alarms, or use visual warning devices if

state and local regulations allow.

- Establish operating hours that avoid early morning or late night operations.
- Set facility noise level limits (e.g., 55 decibels at the site boundary) and adhere to them.

Odour Nuisance

MSW, food waste, and certain yard wastes such as grass have a high potential for odour generation. Odours might increase during warm or wet weather. Thus, transfer stations handling these wastes need to address odour management based on current and projected adjacent land uses.

Mitigation Measures

- Remove all waste at the end of each operating day. Do not allow any waste to remain on site overnight.
- Designing floors for easy cleanup, including a concrete surface with a positive slope to drainage systems. Eliminating crevices, corners, and flat surfaces, which are hard to keep clean and where waste residue can accumulate.
- Sealing concrete and other semiporous surfaces to prevent absorption of odour-producing residues.
- Minimizing onsite waste storage, both in the facility and in the loaded trailers, by immediately loading odorous or potentially odorous wastes into transfer trailers and quickly transferring them to the landfill site.
- Frequently clean/wash down the tipping floor or surge pit.
- Removing all waste from the tipping floor or pit at the end of each operating day, then cleaning those areas to remove remaining residues.
- Install ventilation systems with air filters or scrubbers.
- Plant vegetative barriers, such as trees, to absorb and disperse odours.
- Use odour vestibules on truck entrances and exits. Odour vestibules are 2-door systems in which the outer door closes before inner door opens to prevent odours from escaping.
- Install plastic curtains on entrances and exits to contain odours when doors are opened to allow vehicles to enter or exit.
- Use biofilters – which pass malodorous air through organic matter, such as wood chips, mulch, or soil – to capture odour molecules. Bacteria in biofilters consume and neutralize odour molecules.
- Set up a community “odour complaint” register and respond as necessary.
- Practicing other “good housekeeping” measures, including regularly cleaning and disinfecting containers, equipment, and other surfaces that come into contact with waste.

Dust Nuisance

Air emissions at transfer stations result from dusty wastes delivered to the transfer station, exhaust (particularly diesel) from mobile equipment such as trucks and loaders, driving on unpaved or dusty surfaces, and cleanup operations such as street sweeping.

Mitigation Measures

Dust from Vehicles:

- Pave all roads on site, or lay gravel as a less expensive option.
- Clean facility roads frequently with street-sweeping equipment.
- Wash waste collection vehicles before they leave the transfer station to remove dust-generating dirt and debris.

Dust from Waste Handling Operations:

- Install plastic curtains over building openings.
- Keep station doors closed during operating hours, except when trucks are entering or exiting.
- Install misting systems over tipping areas to “knock down” dust particles. Misting system operations should be adjusted seasonally or as the dryness of the waste dictates.

Vectors

Vectors are organisms that have the potential to transmit disease such as rats, mice, cockroaches and other insects. Vectors of concern at transfer stations can include rodents, insects, and scavenging birds. Much of the concern surrounding vectors is associated with general nuisance factors, but this issue justifies diligent attention.

Mitigation Measures

- Seal or screen openings that allow rodents and insects to enter the building, such as door and window frames, vents, and masonry cracks. Also check for and repair chewed insulation at points where utility structures, such as wires and pipes, enter the transfer building.
- Treat insect breeding areas and eliminate as many of these breeding areas as possible. Implement practices that do not create new breeding areas.
- Implement practices that reduce the likeliness of attracting vectors (e.g., remove all waste at the end of the operating day, wash tipping areas daily, and pick up litter and other debris daily).
- Hire a professional licensed pest control company with expertise and experience in controlling specific vector populations, if necessary.
- Cleaning the tipping floor regularly and maintaining good housekeeping practices.

Litter

Stray pieces of waste are likely to become litter in and around the facility. In jurisdictions that do not have or do not enforce regulations to cover customer vehicles, the litter problem is often most prevalent on routes leading to the station. Dry, light materials such as plastic grocery bags can be blown from the backs or tops of vehicles, or from the tipping area to the facility's outside areas.

Mitigation Measures

- Require all incoming and outgoing loads to be covered.
- Ensure that all incoming and outgoing trucks are leak-proof to avoid leachate spills on public streets.
- Implement daily litter inspections and pickup at the facility and on surrounding streets.
- Install a perimeter fence to prevent windblown litter from leaving the site.

Stormwater Discharge and Leachate

Rainfall and wash-down water flows from roofs, roads, parking lots, and landscaped areas at a transfer station, eventually reaching natural or constructed stormwater drainage systems. Runoff might also percolate into the groundwater system. Keeping surface water free of runoff contamination from waste, mud, and fuel and oil that drips from vehicles is important to maintaining the quality of both the surface and groundwater systems. Transfer station development typically results in the addition of new impervious surfaces (i.e. paved surfaces) that increase the total quantity of runoff and can contribute to flooding potential.

When the runoff and waste make contact, it is considered potentially contaminated and is known as "leachate. Transfer station design and operation should ensure that contaminated water is collected separately, then properly managed on site or discharged to the sewer. Most transfer stations send some amount of wastewater to sewer systems. In addition to leachate, wastewater from daily cleaning of the waste handling areas and the facility's restrooms and support areas typically are discharged to the sewer.

Mitigation Measures

- Covering waste handling and storage areas that drain to the sanitary sewer system. This reduces the amount of rainfall contributing to the total volume of sewer flow.
- Removing as much debris from the tipping floor as possible by mechanical means (e.g. scraping or sweeping) before hosing the floor down.
- Installing drain covers on floor drains. During normal operations, floor drains should be covered

to prevent spilled liquid wastes from entering the sewer system. Covers can be opened or removed during floor cleaning.

- Installing low-flow toilets, showers, and faucets.
- Responding promptly to exterior spills to prevent waste materials from entering the surface water system.
- Cleaning up liquid spills such as oils, paints, and pesticides with absorbent material rather than hosing them into drains. Although transfer stations generally do not accept these liquids, they might find their way into the waste stream in small quantities.
- Using secondary containment around temporary storage areas for batteries, and suspect materials.

Deconstruction/Demolition Impacts

During the deconstruction and demolition of the existing Station, there will be large quantities of waste that will be produced and will need to be managed and disposed of appropriately.

Mitigation Measure

- A Waste Management Plan should be developed as part the of the Environmental Management Programme (EMPr).

2. IMPACTS THAT MAY RESULT FROM THE PLANNING AND DESIGN, CONSTRUCTION, OPERATIONAL, DECOMMISSIONING AND CLOSURE PHASES AS WELL AS PROPOSED MANAGEMENT OF IDENTIFIED IMPACTS AND PROPOSED MITIGATION MEASURES

The following parameters are used to describe the impact/issues in this assessment:

1. Nature

A brief written statement of the environmental aspect being impacted upon by a particular action or activity.

2. Extent

The area over which the impact will be expressed. Typically, the severity and significance of an impact have different scales and as such bracketing ranges are often required. This is often useful during the detailed assessment phase of a project in terms of further defining the determined significance or intensity of an impact.

- **Site (1)** – Within the construction site.
- **Local (2)** – Within a radius of 2 km of the construction site.
- **Regional (3)** – the scale applies to impacts on a provincial level and parts of neighbouring provinces.
- **National (4)** – the scale applies to impacts that will affect the whole South Africa.

3. Duration

Indicates what the lifetime of the impact will be.

- **Short-term (1)** – less than 5 years.
- **Medium-term (2)** – between 5 and 15 years.
- **Long-term (3)** – between 15 and 30 years.
- **Permanent (4)** – over 30 years and resulting in a permanent and lasting change that will always be there.

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4. Intensity

Describes whether an impact is destructive or benign.

- **Very High (4)** - Natural, cultural and social functions and processes are altered to extent that they permanently cease.
- **High (3)** - Natural, cultural and social functions and processes are altered to extent that they temporarily cease.
- **Moderate (2)** - Affected environment is altered, but natural, cultural and social functions and processes continue albeit in a modified way.
- **Low (1)** - Impact affects the environment in such a way that natural, cultural and social functions and processes are not affected.

5. Probability

Describes the likelihood of an impact actually occurring.

- **Improbable (1)** - Likelihood of the impact materialising is very low.
- **Possible (2)** - The impact may occur.
- **Highly Probable (3)** - Most likely that the impact will occur.
- **Definite (4)** - Impact will certainly occur.

6. Cumulative

In relation to an activity, means the impact of an activity that in itself may not be significant but may become significant when added to the existing and potential impacts eventuating from similar or diverse activities or undertakings in the area.

7. Significance

Significance is determined through a synthesis of impact characteristics. Significance is an indication of the importance of the impact in terms of both physical extent and time scale, and therefore indicates the level of mitigation required. The total number of points scored for each impact indicates the level of significance of the impact.

Low impact (4 - 6 points)	A low impact has no permanent impact of significance. Mitigation measures are feasible and are readily instituted as part of a standing design, construction or operating procedure.
Medium impact (7 - 9 points)	Mitigation is possible with additional design and construction inputs.
High impact (10 - 12 points)	The design of the site may be affected. Mitigation and possible remediation are needed during the construction and/or operational phases. The effects of the impact may affect the broader environment.
Very High impact (13 - 16 points)	Permanent and important impacts. The design of the site may be affected. Intensive remediation is needed during construction and/or operational phases. Any activity which results in a "very high impact" is likely to be a fatal flaw.
Status	Denotes the perceived effect of the impact on the affected area.
Positive (+)	Beneficial impact.
Negative (-)	Deleterious or adverse impact.
Neutral (/)	Impact is neither beneficial nor adverse.

2.1. IMPACTS THAT MAY RESULT FROM THE PLANNING AND DESIGN PHASE

a. Site alternatives

List the potential impacts associated with site alternatives that are likely to occur during the planning and design phase:

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Alternative S1 (preferred alternative: relocation to the immediate east of existing location) – Planning and Design Phase

Potential impacts:	Significance rating of impacts:	Proposed mitigation:	Significance rating of impacts after mitigation:
Direct Impacts			
<p>1. Flora: Placement of Station near/on areas of dense vegetation will cause loss of vegetation.</p>	<p>Extent: Site (-1) Duration: Long-term (-3) Intensity: Moderate (-2) Probability of Occurrence: Definite (-4)</p> <p><u>Significance Rating:</u> <u>High (-10)</u></p>	<ul style="list-style-type: none"> The footprint created by construction activities must be kept to a minimum wherever possible and stripped areas re-vegetated with indigenous vegetation as soon as construction activities cease in that particular area. Weeds and alien vegetation should be removed and prevented from spreading with control measures. A specialist ecologist will be on site during the construction period to ensure that sensitive areas are not encroached on. The rehabilitation and landscaping plan prepared for the entire Cornubia development will be applicable and must be implemented. 	<p>Extent: Site (-1) Duration: Medium-term (-2) Intensity: Low (-1) Probability of Occurrence: Highly Probable (-3)</p> <p><u>Significance Rating:</u> <u>Medium (-7)</u></p>
<p>2. Wetland: Possible sedimentation into wetland areas due to increased stormwater run-off resulting in a decline in water quality.</p>	<p>Extent: Local (-2) Duration: Long-term (-3) Intensity: Moderate (-2) Probability of Occurrence: Possible (-2)</p> <p><u>Significance Rating:</u> <u>Medium (-9)</u></p>	<ul style="list-style-type: none"> A natural vegetation buffer of 30 metres will be implemented around the wetlands. Stormwater run-off should be appropriately managed so as not to alter the timing and intensity of flows entering the wetland under the natural condition. Include the use of temporary attenuation ponds and temporary berms or furrows to direct flows to less sensitive areas. 	<p>Extent: Local (-2) Duration: Long-term (-3) Intensity: Low (-1) Probability of Occurrence: Unlikely (-1)</p> <p><u>Significance Rating:</u> <u>Medium (-7)</u></p>
<p>3. Leachate: Leachate generation from waste at the tipping area contaminating rain water.</p>	<p>Extent: Local (-2) Duration: Long-term (-3) Intensity: Moderate (-2) Probability of Occurrence: Possible (-2)</p> <p><u>Significance Rating:</u> <u>Medium (-9)</u></p>	<ul style="list-style-type: none"> The site must be established in such a way to minimise leachate formation – i.e. the entire site must be on hardened, concrete surfaces. In addition, waste must not be stored for a period exceeding 24 hours to reduce the likelihood of leachate formation. A designed lining system, which ensures low-permeability, limits the movement of leachate into groundwater. Liners are made from low-permeability soils (typical clays) or synthetic materials (e.g. plastic). 	<p>Extent: Local (-2) Duration: Long-term (-3) Intensity: Low (-1) Probability of Occurrence: Unlikely (-1)</p> <p><u>Significance Rating:</u> <u>Medium (-7)</u></p>

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Potential impacts:	Significance rating of impacts:	Proposed mitigation:	Significance rating of impacts after mitigation:
		<p>The Station can be designed with more than one liner, and a mix of liner types may be used. The area where tipping is to occur must be lined to limit the potential for leachate formation.</p> <ul style="list-style-type: none"> Leachate collection systems must be installed above the liner at the tipping areas. 	
Indirect Impacts			
<p>4. Land Use: Located in a region whereby future adjacent land uses will be commercial/ industrial resulting in compatibility with the surrounding land uses.</p>	<p>Extent: Local (+2) Duration: Long-term (+3) Intensity: Moderate (+2) Probability of Occurrence: Highly Probable (+3)</p> <p><u>Significance Rating:</u> <u>High (+10)</u></p>	<ul style="list-style-type: none"> None proposed. 	<p>Extent: Local (+2) Duration: Long-term (+3) Intensity: Moderate (+2) Probability of Occurrence: Highly Probable (+3)</p> <p><u>Significance Rating:</u> <u>High (+10)</u></p>
<p>5. Noise Nuisance: Transfer stations can be a significant source of noise, which might be a nuisance to neighbours.</p>	<p>Extent: Local (-2) Duration: Long-term (-3) Intensity: Moderate (-2) Probability of Occurrence: Possible (-2)</p> <p><u>Significance Rating:</u> <u>Medium (-9)</u></p>	<ul style="list-style-type: none"> Use concrete walls and structures, which absorb sound better than metal structures. Install shielding or barriers, such as trees, berms, or walls, around the facility to block and absorb noise. Size of the shielding, distance to receptors, and shielding materials all determine effectiveness. Walls can be made from concrete, stone, brick, wood, plastic, metal, or earth. Vegetate berms with grasses, shrubs, or trees to further mitigate noise and increase aesthetics. Barriers should be continuous, with no breaks, and long enough to protect the intended receptors. Insulate transfer building walls with sound-absorbing materials. 	<p>Extent: Local (-2) Duration: Long-term (-3) Intensity: Low (-1) Probability of Occurrence: Unlikely (-1)</p> <p><u>Significance Rating:</u> <u>Medium (-7)</u></p>
<p>6. Dust Nuisance: Transfer stations can be a source of dust from truck movement and operations.</p>	<p>Extent: Local (-2) Duration: Long-term (-3) Intensity: Moderate (-2) Probability of Occurrence:</p>	<ul style="list-style-type: none"> Pave all roads on site, or lay gravel as a less expensive option. 	<p>Extent: Local (-2) Duration: Long-term (-3) Intensity: Low (-1) Probability of Occurrence:</p>

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Potential impacts:	Significance rating of impacts:	Proposed mitigation:	Significance rating of impacts after mitigation:
	Possible (-2) <u>Significance Rating:</u> <u>Medium (-9)</u>		Unlikely (-1) <u>Significance Rating:</u> <u>Medium (-7)</u>
Cumulative Impacts			

Alternative S2 (relocation to the north east of existing location) – Planning and Design Phase

Potential impacts:	Significance rating of impacts:	Proposed mitigation:	Significance rating of impacts after mitigation:
Direct Impacts			
1. Flora: Placement of Station near/on areas of dense vegetation will cause loss of vegetation.	Extent: Site (-1) Duration: Long-term (-3) Intensity: Moderate (-2) Probability of Occurrence: Definite (-4) <u>Significance Rating:</u> <u>High (-10)</u>	<ul style="list-style-type: none"> The footprint created by construction activities must be kept to a minimum wherever possible and stripped areas re-vegetated with indigenous vegetation as soon as construction activities cease in that particular area. Weeds and alien vegetation should be removed and prevented from spreading with control measures. A specialist ecologist will be on site during the construction period to ensure that sensitive areas are not encroached on. The rehabilitation and landscaping plan prepared for the entire Cornubia development will be applicable and must be implemented. 	Extent: Site (-1) Duration: Medium-term (-2) Intensity: Low (-1) Probability of Occurrence: Highly Probable (-3) <u>Significance Rating:</u> <u>Medium(-7)</u>
2. Wetland: Altering of wetland area for the proposed access road crossing and possible sedimentation into wetland areas due to increased stormwater run-off resulting in a decline in water quality.	Extent: Local (-2) Duration: Permanent (-4) Intensity: High (-3) Probability of Occurrence: Definite (-4) <u>Significance Rating:</u> <u>Very High (-13)</u>	<ul style="list-style-type: none"> A natural vegetation buffer of 30 metres will be implemented to the wetlands except for the road crossing. Stormwater run-off should be appropriately managed so as not to alter the timing and intensity of flows entering the wetland under the natural condition. Include the use of temporary attenuation ponds and 	Extent: Local (-2) Duration: Long-term (-3) Intensity: Medium (-2) Probability of Occurrence: Highly Probable (-3) <u>Significance Rating:</u> <u>High (-10)</u>

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Potential impacts:	Significance rating of impacts:	Proposed mitigation:	Significance rating of impacts after mitigation:
		temporary berms or furrows to direct flows to less sensitive areas.	
3. Access: A temporary access road will need to be constructed increasing environmental impacts with regard to geology, soils, topography, stormwater runoff, dust and wetland impacts.	Extent: Local (-2) Duration: Permanent (-4) Intensity: High (-3) Probability of Occurrence: Definite (-4) <u>Significance Rating:</u> <u>Very High (-13)</u>	<ul style="list-style-type: none"> Temporary access and haulage routes must be designed prior to construction commencing to ensure that the most preferable access and haulage routes are implemented. Use should be made of existing roads as far as possible. 	Extent: Local (-2) Duration: Long-term (-3) Intensity: Medium (-2) Probability of Occurrence: Highly Probable (-3) <u>Significance Rating:</u> <u>High (-10)</u>
4. Leachate: Leachate generation from waste at the tipping area contaminating rain water.	Extent: Local (-2) Duration: Long-term (-3) Intensity: Moderate (-2) Probability of Occurrence: Possible (-2) <u>Significance Rating:</u> <u>Medium (-9)</u>	<ul style="list-style-type: none"> The site must be established in such a way to minimise leachate formation – i.e. the entire site must be on hardened, concrete surfaces. In addition, waste must not be stored for a period exceeding 24 hours to reduce the likelihood of leachate formation. A designed lining system, which ensures low-permeability limit the movement of leachate into ground water. Liners are made from low-permeability soils (typical clays) or synthetic materials (e.g. plastic). The Station can be designed with more than one liner, and a mix of liner types may be used. The area where tipping is to occur must be lined to limit the potential for leachate formation. Leachate collection systems must be installed above the liner at the tipping areas. 	Extent: Local (-2) Duration: Long-term (-3) Intensity: Low (-1) Probability of Occurrence: Unlikely (-1) <u>Significance Rating:</u> <u>Medium (-7)</u>
Indirect Impacts			
5. Land-Use: Located in a region whereby future adjacent land uses will be residential resulting in incompatibility with the surrounding land uses and possible nuisances such as	Extent: Local (-2) Duration: Long-term (-3) Intensity: Moderate (-2) Probability of Occurrence: Highly Probable (-3)	<ul style="list-style-type: none"> None proposed. 	Extent: Local (-2) Duration: Long-term (-3) Intensity: Moderate (-2) Probability of Occurrence: Highly Probable (-3)

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Potential impacts:	Significance rating of impacts:	Proposed mitigation:	Significance rating of impacts after mitigation:
noise.	<u>Significance Rating:</u> <u>High (-10)</u>		<u>Significance Rating:</u> <u>High (-10)</u>
6. Noise Nuisance: Transfer stations can be a significant source of noise, which might be a nuisance to neighbours.	Extent: Local (-2) Duration: Long-term (-3) Intensity: Moderate (-2) Probability of Occurrence: Highly Probable (-3) <u>Significance Rating:</u> <u>High (-10)</u>	<ul style="list-style-type: none"> • Use concrete walls and structures, which absorb sound better than metal structures. • Install shielding or barriers, such as trees, berms, or walls, around the facility to block and absorb noise. Size of the shielding, distance to receptors, and shielding materials all determine effectiveness. Walls can be made from concrete, stone, brick, wood, plastic, metal, or earth. Vegetate berms with grasses, shrubs, or trees to further mitigate noise and increase aesthetics. Barriers should be continuous, with no breaks, and long enough to protect the intended receptors. • Insulate transfer building walls with sound-absorbing materials. 	Extent: Local (-2) Duration: Long-term (-3) Intensity: Low (-1) Probability of Occurrence: Possible (-2) <u>Significance Rating:</u> <u>Medium (-8)</u>
7. Dust Nuisance: Transfer stations can be a source of dust from truck movement and operations.	Extent: Local (-2) Duration: Long-term (-3) Intensity: Moderate (-2) Probability of Occurrence: Possible (-2) <u>Significance Rating:</u> <u>Medium (-9)</u>	<ul style="list-style-type: none"> • Pave all roads on site, or lay gravel as a less expensive option. 	Extent: Local (-2) Duration: Long-term (-3) Intensity: Low (-1) Probability of Occurrence: Unlikely (-1) <u>Significance Rating:</u> <u>Medium (-7)</u>
Cumulative Impacts			

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SUMMARY OF IMPACTS AND AVERAGE POINTS ALLOCATED TO EACH SITE ALTERNATIVE DURING THE PLANNING AND DESIGN PHASE

IMPACTS	Site Alternative to the immediate East (Preferred Alternative) - Without Mitigation	Site Alternative to the immediate East (Preferred Alternative) - With Mitigation	Site Alternative to the North East (Alternative 2) - Without Mitigation	Site Alternative to the North East (Alternative 2) - With Mitigation
Direct Impacts				
Flora: Encroachment on vegetation	-10	-7	-10	-7
Wetland: Erosion and sedimentation	-9	-7	-13	-10
Access	-	-	-13	-10
Leachate	-9	-7	-9	-7
Average Total	-9.3	-7	-11.3	-8.5
Indirect Impacts				
Compatibility with adjacent future Land Use	+10	+10	-10	-10
Noise Nuisance	-9	-7	-10	-8
Dust Nuisance	-8	-7	-9	-7
Average Total	-8.5	-7	-9.6	-8.3
Cumulative Impacts				

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No-go alternative (compulsory)
Direct Impacts
<ul style="list-style-type: none"> The biodiversity on the site will not be impacted on and lost. However the biodiversity of the site is disturbed and as the site is located within the Cornubia Framework which is a developed area and the impact is not foreseen to be significant. None of the negative impacts listed above will occur. No improved infrastructure. Less developable space for the Cornubia Retail Park resulting in reduced socio-economic potential.
Indirect Impacts
<ul style="list-style-type: none"> Loss of employment opportunities and socio-economic benefits. Loss of revenue in rates payments. Reduced likelihood of wetland contamination.
Cumulative Impacts
<ul style="list-style-type: none"> From a socio-economic perspective, the land will remain vacant and there will be a loss of development opportunities and job creation.

Indicate mitigation measures to manage the potential impacts listed above:

Alternative S1	Alternative S2
See above	

b. Process, technology, layout or other alternatives

List the impacts associated with any process, technology, layout or other alternatives that are likely to occur during the planning and design phase (please list impacts associated with each alternative separately):

Alternative A1 (preferred alternative)

Alternative A2 (if any)

No-go alternative (compulsory)

Indicate mitigation measures to manage the potential impacts listed above:

Alternative A1:

Alternative A2:

2.2. IMPACTS THAT MAY RESULT FROM THE CONSTRUCTION/DECONSTRUCTION PHASE

a. Site alternatives

List the potential impacts associated with site alternatives that are likely to occur during the construction phase:

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Alternative S1 (preferred alternative: relocation to the immediate east of existing location) – Construction Phase

Potential impacts:	Significance rating of impacts:	Proposed mitigation:	Significance rating of impacts after mitigation:
Direct Impacts			
<p>1. Topography and Soils: The direct impact on landforms with the establishment of the new refuse transfer station is mainly one of disruption of surface soils. Potential erosion impacts are anticipated to be limited to the construction phase during site clearing activities.</p>	<p>Extent: Local (-2) Duration: Medium-term (-2) Intensity: Moderate (-2) Probability of Occurrence: Possible (-2) Significance Rating: Medium (-8)</p>	<ul style="list-style-type: none"> Disturbed areas of natural vegetation as well as cut and fills must be rehabilitated immediately to prevent soil erosion. Limit construction, maintenance- and inspection activities to dry periods in order to curb occurrence/ augmentation of erosion in areas of existing erosion. No vehicles should be allowed to cross wetlands in any area other than an approved crossing, taking care to prevent any impact (particularly erosion) in surrounding habitat. Remove and store topsoil separately in areas where excavation/degradation takes place. Topsoil should be used for rehabilitation purposes in order to facilitate re-growth of species that occur naturally in the area. 	<p>Extent: Local (-2) Duration: Short-term (-1) Intensity: Low (-1) Probability of Occurrence: Possible (-2) Significance Rating: Low (-6)</p>
<p>2. Water Resources: Pollution of groundwater and surface water resources.</p>	<p>Extent: Local (-2) Duration: Medium-term (-2) Intensity: Moderate (-2) Probability of Occurrence: Possible (-2) Significance Rating: Medium (-8)</p>	<ul style="list-style-type: none"> Waste water should be directed into the proper systems. Sewage water should not be channelled through surface water bodies or be allowed to flow freely or stagnate on the soil surface. Adequate sanitary facilities and ablutions must be provided for construction workers. Use and or storage of materials, fuels and chemicals which could potentially leak into the ground must be controlled. Further detailed mitigation measures are included in the EMPr (Appendix F). 	<p>Extent: Local (-2) Duration: Short-term (-1) Intensity: Low (-1) Probability of Occurrence: Possible (-2) Significance Rating: Low (-6)</p>
<p>3. Flora: Destruction of vegetation and protected tress.</p>	<p>Extent: Site (-1) Duration: Long-term (-3) Intensity: Moderate (-2) Probability of Occurrence:</p>	<ul style="list-style-type: none"> All individuals / stands of protected trees must be clearly and visibly marked prior to the start of construction or maintenance procedures. A DAFF Permit must be obtained for the relocation of these trees to the Cornubia 	<p>Extent: Local (-1) Duration: Medium-term (-2) Intensity: Low (-1) Probability of Occurrence:</p>

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Potential impacts:	Significance rating of impacts:	Proposed mitigation:	Significance rating of impacts after mitigation:
	Definite (-4) <u>Significance Rating:</u> <u>High (-10)</u>	nursery. It is recommended that a walk-through of the approved site be conducted prior to construction activities commencing. <ul style="list-style-type: none"> Disturbance of vegetation must be limited to areas of construction. Removal of vegetation / plants shall be avoided until such time as soil stripping is required and similarly exposed surfaces must be re-vegetated or stabilised as soon as is practically possible. The establishment and re-growth of alien vegetation must be controlled after the removal of grass. All declared aliens must be identified and managed in accordance with the Conservation of Agricultural Resources Act, 1983 (Act No.43 of 1983). Further detailed mitigation measures are included in the EMPr (Appendix F). 	Highly Probable (-3) <u>Significance Rating:</u> <u>Medium (-7)</u>
4. Wetlands: Altering of wetlands to accommodate the access road crossing.	Extent: Site (-1) Duration: Permanent (-4) Intensity: High (-3) Probability of Occurrence: Definite (-4) <u>Significance Rating:</u> <u>High (-12)</u>	<ul style="list-style-type: none"> A natural vegetation buffer of 30 metres will be implemented to the wetlands except for the road crossing. Stormwater run-off should be appropriately managed so as not to alter the timing and intensity of flows entering the wetland under the natural condition. Include the use of temporary attenuation ponds and temporary berms or furrows to direct flows to less sensitive areas. 	Extent: Site (-1) Duration: Long-term (-3) Intensity: Medium (-2) Probability of Occurrence: Highly Probable (-3) <u>Significance Rating:</u> <u>Medium (-9)</u>

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Potential impacts:	Significance rating of impacts:	Proposed mitigation:	Significance rating of impacts after mitigation:
<p>5. Waste: Waste generation during the construction phase will have a negative impact on the environment, if not controlled adequately. Waste includes: general construction rubble, hazardous waste (used oil, cement and concrete etc.).</p>	<p>Extent: Local (-2) Duration: Medium-term (-2) Intensity: Moderate (-2) Probability of Occurrence: Possible (-2) <u>Significance Rating: Medium (-8)</u></p>	<ul style="list-style-type: none"> • Where possible, construction waste on site must be reused or recycled. • Disposal of waste must be in accordance with relevant legislative requirements. • The Contractor must familiarise themselves with the definitions of waste and the handling, storage and transport of it as prescribed in the applicable environmental legislation. • Burning of waste material will not be permitted. • Further detailed mitigation measures are included in the EMPr (Appendix F). 	<p>Extent: Local (-2) Duration: Short-term (-1) Intensity: Low (-1) Probability of Occurrence: Possible (-2) <u>Significance Rating: Low (-6)</u></p>
<p>6. Dust: Dust emissions will vary from day to day depending on the phase of construction, the level of activity, and the prevailing meteorological conditions. The following possible sources of fugitive dust have been identified as activities which could potentially generate dust during construction operations at the site: vehicle activities associated with the transport of equipment to the site; preparation of the surface areas which may be required prior to the set up of new infrastructure; and the removal of construction equipment from site after the set up of new equipment.</p>	<p>Extent: Local (-2) Duration: Medium-term (-2) Intensity: Moderate (-2) Probability of Occurrence: Possible (-2) <u>Significance Rating: Medium (-8)</u></p>	<ul style="list-style-type: none"> • Frequent and effective dust-suppression is advised, particularly along dirt roads. Dust must be suppressed on the construction site during dry periods by the regular application of water. Water used for this purpose must be used in quantities that will not result in the generation of run-off. 	<p>Extent: Local (-2) Duration: Short-term (-1) Intensity: Low (-1) Probability of Occurrence: Possible (-2) <u>Significance Rating: Low (-6)</u></p>

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Potential impacts:	Significance rating of impacts:	Proposed mitigation:	Significance rating of impacts after mitigation:
<p>7. Noise: During the construction phase there is likely to be an increase in noise pollution. The following possible sources of noise could potentially generate noise pollution during construction: construction activities (excavating and site clearing); construction vehicles; and construction staff.</p>	<p>Extent: Local (-2) Duration: Medium-term (-2) Intensity: Moderate (-2) Probability of Occurrence: Possible (-2) <u>Significance Rating: Medium (-8)</u></p>	<ul style="list-style-type: none"> Surrounding communities and adjacent landowners are to be notified upfront of noisy construction activities. Provide all equipment with standard silencers. Maintain silencer units on vehicles and equipment in good working order. Construction staff working in areas where the 8-hour ambient noise levels exceed 60 dBA should wear ear protection equipment 	<p>Extent: Local (-2) Duration: Short-term (-1) Intensity: Low (-1) Probability of Occurrence: Possible (-2) <u>Significance Rating: Low (-6)</u></p>
<p>8. Heritage: Disturbance of sites of archaeological, historical and cultural significance.</p>	<p>Extent: Site (-1) Duration: Short-term (-1) Intensity: Low (-1) Probability of Occurrence: Unlikely (-1) <u>Significance Rating: Low (-4)</u></p>	<ul style="list-style-type: none"> There were no sites or objects of archaeological, historical and cultural significance identified, however, if during construction any possible finds are made, the operations must be stopped and a qualified archaeologist be contacted for an assessment of the find. It is advisable that an information section on cultural resources be included in the SHEQ training given to contractors involved in surface earthmoving activities. These sections must include basic information on: <ul style="list-style-type: none"> Heritage; Graves; Archaeological finds; and Historical Structures. The archaeologist needs to evaluate the finds on site and make recommendations towards possible mitigation measures. 	<p>Extent: Site (-1) Duration: Short-term (-1) Intensity: Low (-1) Probability of Occurrence: Unlikely (-1) <u>Significance Rating: Low(-4)</u></p>
<p>9. Traffic: Increased traffic congestion due to construction vehicles.</p>	<p>Extent: Site (-1) Duration: Long-term (-4) Intensity: High (-3) Probability of Occurrence: Highly Probable (-3) <u>Significance Rating: High (-11)</u></p>	<ul style="list-style-type: none"> Construction vehicles to avoid peak hour traffic. 	<p>Extent: Local (-2) Duration: Medium-term (-2) Intensity: Moderate (-2) Probability of Occurrence: Possible (-2) <u>Significance Rating: Medium (-8)</u></p>

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Potential impacts:	Significance rating of impacts:	Proposed mitigation:	Significance rating of impacts after mitigation:
Indirect Impacts			
10. Socio-economic: Employment opportunities during construction/ deconstruction activities.	Extent: Local (+2) Duration: Medium-term (+2) Intensity: Moderate (+2) Probability of Occurrence: Definite (+4) <u>Significance Rating:</u> <u>High (+10)</u>	<ul style="list-style-type: none"> The principles of gender equality, maximising local employment should be implemented in the provision and establishment of jobs. Jobs for the maintenance of infrastructure and services will be created following the completion of the development. These jobs might be made available to existing labour there creating long term employment. Service contractors could have access to other developments or projects in the area thereby creating long term employment. 	Extent: Local (+2) Duration: Medium-term (+2) Intensity: Moderate (+2) Probability of Occurrence: Definite (+4) <u>Significance Rating:</u> <u>High (+10)</u>
Cumulative Impacts			
11. Flora: Increase in local and regional fragmentation/ isolation of habitat.	Extent: Local (-2) Duration: Medium-term (-2) Intensity: Moderate (-2) Probability of Occurrence: Possible (-2) <u>Significance Rating: Medium (-8)</u>	<ul style="list-style-type: none"> Cumulative impacts associated with this type of development will lead to initial, incremental or augmentation of existing types of environmental degradation, including impacts on the air, soil and water present within available habitat. Pollution of these elements might not always be immediately visible or readily quantifiable, but incremental or fractional increases might rise to levels where biological attributes could be affected adversely on a local or regional scale. In most cases are these effects are not bound and is dispersed, or diluted over an area that is much larger than the actual footprint of the causal factor. 	Extent: Local (-2) Duration: Medium-term (-2) Intensity: Moderate (-2) Probability of Occurrence: Possible (-2) <u>Significance Rating:</u> <u>Medium (-8)</u>

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Alternative S2 (relocation to the north east of existing location) – Construction Phase

Potential impacts:	Significance rating of impacts:	Proposed mitigation:	Significance rating of impacts after mitigation:
Direct Impacts			
1. Topography and Soils: The direct impact on landforms with the establishment of the new refuse transfer station is mainly one of disruption of surface soils. Potential erosion impacts are anticipated to be limited to the construction phase during site clearing activities.	Extent: Local (-2) Duration: Medium-term (-2) Intensity: Moderate (-2) Probability of Occurrence: Possible (-2) <u>Significance Rating: Medium (-8)</u>	<ul style="list-style-type: none"> Disturbed areas of natural vegetation as well as cut and fills must be rehabilitated immediately to prevent soil erosion. Limit construction, maintenance- and inspection activities to dry periods in order to curb occurrence/ augmentation of erosion in areas of existing erosion. No vehicles should be allowed to cross wetlands in any area other than an approved crossing, taking care to prevent any impact (particularly erosion) in surrounding habitat. Remove and store topsoil separately in areas where excavation/degradation takes place. Topsoil should be used for rehabilitation purposes in order to facilitate re-growth of species that occur naturally in the area. 	Extent: Local (-2) Duration: Short-term (-1) Intensity: Low (-1) Probability of Occurrence: Possible (-2) <u>Significance Rating: Low (-6)</u>
2. Water Resources: Pollution of groundwater and surface water resources.	Extent: Local (-2) Duration: Medium-term (-2) Intensity: Moderate (-2) Probability of Occurrence: Possible (-2) <u>Significance Rating: Medium (-8)</u>	<ul style="list-style-type: none"> Wastewater should be directed into the proper systems. Sewage water should not be channelled through surface water bodies or be allowed to flow freely or stagnate on the soil surface. Adequate sanitary facilities and ablutions must be provided for construction workers. Use and or storage of materials, fuels and chemicals which could potentially leak into the ground must be controlled. Further detailed mitigation measures are included in the EMPr (Appendix F). 	Extent: Local (-2) Duration: Short-term (-1) Intensity: Low (-1) Probability of Occurrence: Possible (-2) <u>Significance Rating: Low (-6)</u>
3. Wetlands: Altering of wetlands to accommodate the access road crossing.	Extent: Local (-2) Duration: Permanent (-4) Intensity: High (-3) Probability of Occurrence: Definite (-4)	<ul style="list-style-type: none"> A natural vegetation buffer of 30 metres will be implemented to the wetlands except for the road crossing. Stormwater run-off should be appropriately managed so as not to alter the timing and intensity of flows entering the wetland under the natural condition. 	Extent: Local (-2) Duration: Long-term (-3) Intensity: Medium (-2) Probability of Occurrence: Highly Probable (-3)

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Potential impacts:	Significance rating of impacts:	Proposed mitigation:	Significance rating of impacts after mitigation:
	<u>Significance Rating:</u> <u>Very High (-13)</u>	<ul style="list-style-type: none"> • Include the use of temporary attenuation ponds and temporary berms or furrows to direct flows to less sensitive areas. 	<u>Significance Rating:</u> <u>High (-10)</u>
4. Flora: Destruction of vegetation and protected trees.	Extent: Site (-1) Duration: Long-term (-3) Intensity: Moderate (-2) Probability of Occurrence: Definite (-4) <u>Significance Rating: High (-10)</u>	<ul style="list-style-type: none"> • All individuals / stands of protected trees must be clearly and visibly marked prior to the start of construction or maintenance procedures. A DAFF Permit must be obtained for the relocation of these trees to the Cornubia nursery. It is recommended that a walk-through of the approved site be conducted prior to construction activities commencing. • Disturbance of vegetation must be limited to areas of construction. • Removal of vegetation / plants shall be avoided until such time as soil stripping is required and similarly exposed surfaces must be re-vegetated or stabilised as soon as is practically possible. • The establishment and re-growth of alien vegetation must be controlled after the removal of grass. All declared aliens must be identified and managed in accordance with the Conservation of Agricultural Resources Act, 1983 (Act No.43 of 1983). • Further detailed mitigation measures are included in the EMP (Appendix F). 	Extent: Local (-1) Duration: Medium-term (-2) Intensity: Low (-1) Probability of Occurrence: Highly Probable (-3) <u>Significance Rating: Medium (-7)</u>

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Potential impacts:	Significance rating of impacts:	Proposed mitigation:	Significance rating of impacts after mitigation:
<p>5. Waste: Waste generation during the construction phase will have a negative impact on the environment, if not controlled adequately. Waste includes: general construction rubble, hazardous waste (used oil, cement and concrete etc.).</p>	<p>Extent: Local (-2) Duration: Medium-term (-2) Intensity: Moderate (-2) Probability of Occurrence: Possible (-2) <u>Significance Rating: Medium (-8)</u></p>	<ul style="list-style-type: none"> • Where possible, construction waste on site must be reused or recycled. • Disposal of waste must be in accordance with relevant legislative requirements. • The Contractor must familiarise themselves with the definitions of waste and the handling, storage and transport of it as prescribed in the applicable environmental legislation. • Burning of waste material will not be permitted. • Further detailed mitigation measures are included in the EMPr (Appendix F). 	<p>Extent: Local (-2) Duration: Short-term (-1) Intensity: Low (-1) Probability of Occurrence: Possible (-2) <u>Significance Rating: Low (-6)</u></p>
<p>6. Dust: Dust emissions will vary from day to day depending on the phase of construction, the level of activity, and the prevailing meteorological conditions. The following possible sources of fugitive dust have been identified as activities which could potentially generate dust during construction operations at the site: vehicle activities associated with the transport of equipment to the site; preparation of the surface areas which may be required prior to the set up of new infrastructure; and the removal of construction equipment from site after the set up of new equipment.</p>	<p>Extent: Local (-2) Duration: Medium-term (-2) Intensity: Moderate (-2) Probability of Occurrence: Possible (-2) <u>Significance Rating: Medium (-8)</u></p>	<ul style="list-style-type: none"> • Frequent and effective dust-suppression is advised, particularly along dirt roads. Dust must be suppressed on the construction site during dry periods by the regular application of water. Water used for this purpose must be used in quantities that will not result in the generation of run-off. 	<p>Extent: Local (-2) Duration: Short-term (-1) Intensity: Low (-1) Probability of Occurrence: Possible (-2) <u>Significance Rating: Low (-6)</u></p>

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Potential impacts:	Significance rating of impacts:	Proposed mitigation:	Significance rating of impacts after mitigation:
<p>7. Noise: During the construction phase there is likely to be an increase in noise pollution. The following possible sources of noise could potentially generate noise pollution during construction: construction activities (excavating and site clearing); construction vehicles; and construction staff.</p>	<p>Extent: Local (-2) Duration: Medium-term (-2) Intensity: Moderate (-2) Probability of Occurrence: Possible (-2)</p> <p><u>Significance Rating: Medium (-8)</u></p>	<ul style="list-style-type: none"> Surrounding communities and adjacent landowners are to be notified upfront of noisy construction activities. Provide all equipment with standard silencers. Maintain silencer units on vehicles and equipment in good working order. Construction staff working in areas where the 8-hour ambient noise levels exceed 60 dBA should wear ear protection equipment. 	<p>Extent: Local (-2) Duration: Short-term (-1) Intensity: Low (-1) Probability of Occurrence: Possible (-2)</p> <p><u>Significance Rating: Low (-6)</u></p>
<p>8. Heritage: Disturbance of sites of archaeological, historical and cultural significance.</p>	<p>Extent: Site (-1) Duration: Short-term (-1) Intensity: Low (-1) Probability of Occurrence: Unlikely (-1)</p> <p><u>Significance Rating: Low (-4)</u></p>	<ul style="list-style-type: none"> There were no sites or objects of archaeological, historical and cultural significance identified, however, if during construction any possible finds are made, the operations must be stopped and a qualified archaeologist be contacted for an assessment of the find. It is advisable that an information section on cultural resources be included in the SHEQ training given to contractors involved in surface earthmoving activities. These sections must include basic information on: <ul style="list-style-type: none"> Heritage; Graves; Archaeological finds; and Historical Structures. The archaeologist needs to evaluate the finds on site and make recommendations towards possible mitigation measures. 	<p>Extent: Site (-1) Duration: Short-term (-1) Intensity: Low (-1) Probability of Occurrence: Unlikely (-1)</p> <p><u>Significance Rating: Low (-4)</u></p>
<p>9. Traffic: Increased traffic congestion due to construction vehicles.</p>	<p>Extent: Site (-1) Duration: Long-term (-4) Intensity: High (-3) Probability of Occurrence: Highly Probable (-3)</p> <p><u>Significance Rating: High (-11)</u></p>	<ul style="list-style-type: none"> Construction vehicles to avoid peak hour traffic. 	<p>Extent: Local (-2) Duration: Medium-term (-2) Intensity: Moderate (-2) Probability of Occurrence: Possible (-2)</p> <p><u>Significance Rating: Medium (-8)</u></p>

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Potential impacts:	Significance rating of impacts:	Proposed mitigation:	Significance rating of impacts after mitigation:
Indirect Impacts			
10. Socio-economic: Employment opportunities during construction/ deconstruction activities.	Extent: Local (+2) Duration: Medium-term (+2) Intensity: Moderate (+2) Probability of Occurrence: Definite (+4) <u>Significance Rating:</u> <u>High (+10)</u>	<ul style="list-style-type: none"> The principles of gender equality, maximising local employment should be implemented in the provision and establishment of jobs. Jobs for the maintenance of infrastructure and services will be created following the completion of the development. These jobs might be made available to existing labour there creating long term employment. Service contractors could have access to other developments or projects in the area thereby creating long term employment. 	Extent: Local (+2) Duration: Medium-term (+2) Intensity: Moderate (+2) Probability of Occurrence: Definite (+4) <u>Significance Rating:</u> <u>High (+10)</u>
Cumulative Impacts			
11. Flora: Increase in local and regional fragmentation/ isolation of habitat.	Extent: Local (-2) Duration: Medium-term (-2) Intensity: Moderate (-2) Probability of Occurrence: Possible (-2) <u>Significance Rating: Medium (-8)</u>	<ul style="list-style-type: none"> Cumulative impacts associated with this type of development will lead to initial, incremental or augmentation of existing types of environmental degradation, including impacts on the air, soil and water present within available habitat. Pollution of these elements might not always be immediately visible or readily quantifiable, but incremental or fractional increases might rise to levels where biological attributes could be affected adversely on a local or regional scale. In most cases are these effects are not bound and is dispersed, or diluted over an area that is much larger than the actual footprint of the causal factor. 	Extent: Local (-2) Duration: Medium-term (-2) Intensity: Moderate (-2) Probability of Occurrence: Possible (-2) <u>Significance Rating:</u> <u>Medium (-8)</u>

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SUMMARY OF IMPACTS AND AVERAGE POINTS ALLOCATED TO EACH SITE ALTERNATIVE DURING THE CONSTRUCTION PHASE

IMPACTS	Site Alternative to the immediate East (Preferred Alternative) - Without Mitigation	Site Alternative to the immediate East (Preferred Alternative) - With Mitigation	Site Alternative to the North East (Alternative 2) - Without Mitigation	Site Alternative to the North East (Alternative 2) - With Mitigation
Direct Impacts				
Topography and Soils	-8	-6	-8	-6
Water Resources	-8	-6	-8	-6
Wetlands	-12	-9	-13	-10
Flora	-10	-7	-10	-7
Waste	-8	-6	-8	-6
Dust	-8	-6	-8	-6
Noise	-8	-6	-8	-6
Heritage	-4	-4	-4	-4
Traffic	-11	-8	-11	-8
Average Total	-8.6	-6.4	-8.7	-6.6
Indirect Impacts				
Socio-economic	+10	+10	+10	+10
Average Total	-	-	-	-
Cumulative Impacts				
Flora: loss of vegetation	-8	-8	-8	-8
Average Total	-8	-8	-8	-8

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No-go alternative (compulsory)	
Direct Impacts	
<ul style="list-style-type: none"> • The biodiversity on the site will not be impacted on and lost. However the biodiversity of the site is disturbed and as the site is located within the Cornubia Framework which is a developed area and the impact is not foreseen to be significant. • None of the negative impacts listed above will occur. • No improved infrastructure. • Less developable space for the Cornubia Retail Park resulting in reduced socio-economic potential. 	
Indirect Impacts	
<ul style="list-style-type: none"> • Loss of employment opportunities and socio-economic benefits. • Loss of revenue in rates payments. • Reduced likelihood of wetland contamination. 	
Cumulative Impacts	
<ul style="list-style-type: none"> • From a socio-economic perspective, the land will remain vacant and there will be a loss of development opportunities and job creation. 	

Indicate mitigation measures to manage the potential impacts listed above:

Alternative S1	Alternative S2
	<i>See above</i>

b. Process, technology, layout or other alternatives

List the impacts associated with process, technology, layout or other alternatives that are likely to occur during the construction phase (please list impacts associated with each alternative separately):

Alternative A1 (preferred alternative)

Alternative A2

No-go alternative (compulsory)

Indicate mitigation measures to manage the potential impacts listed above:

Alternative A1:	Alternative A2:

2.3. IMPACTS THAT MAY RESULT FROM THE OPERATIONAL PHASE

a. Site alternatives

List the potential impacts associated with site alternatives that are likely to occur during the operational phase:

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Alternative S1 (preferred alternative: relocation to the immediate east of existing location) – Operational Phase

Potential impacts:	Significance rating of impacts:	Proposed mitigation:	Significance rating of impacts after mitigation:
Direct Impacts			
1. Odour: Impact of odours associated with general waste storage and compaction.	Extent: Local (-2) Duration: Long-term (-3) Intensity: Moderate (-2) Probability: Highly Probable (-3) <u>Significance Rating:</u> <u>High (-10)</u>	<ul style="list-style-type: none"> Waste must be transferred on a daily basis. No waste should be stored for a period exceeding 24 hours from the time of arrival. Minimizing onsite waste storage is encouraged, both in the facility and in the loaded trailers, by immediately loading odorous or potentially odorous wastes into transfer trailers and quickly transferring them to the landfill site. Concrete and other semiporous surfaces must be sealed to prevent absorption of odour-producing residues. The tipping floor or surge pit must be frequently cleaned/washed down. All waste from the tipping floor or pit must be removed at the end of each operating day, and these areas must then be cleaned to remove remaining residues. “Good housekeeping” measures, including regularly cleaning and disinfecting containers, equipment, and other surfaces that come into contact with waste must be practised. A community “odour complaint” register must be kept on site. 	Extent: Local (-2) Duration: Medium-term (-3) Intensity: Low (-1) Probability: Possible (-2) <u>Significance Rating:</u> <u>Medium (-7)</u>
2. Dust: Dust from operations.	Extent: Site (-1) Duration: Long-term (-3) Intensity: Moderate (-2) Probability: Possible (-2) <u>Significance Rating: Medium (-8)</u>	<ul style="list-style-type: none"> Station facility doors should be kept closed during operating hours, except when trucks are entering or exiting. A community “dust complaint” register must be kept on site. 	Extent: Local (-2) Duration: Short-term (-1) Intensity: Low (-1) Probability: Improbable (-1) <u>Significance Rating: Low (-5)</u>
3. Leachate: Possible impact of leachate on local water resources: wetlands and rivers.	Extent: Local (-2) Duration: Short-term (-1) Intensity: Low (-1)	<ul style="list-style-type: none"> The Refuse Transfer Station will be situated a safe distance away from river courses and wetlands. Site staff to ensure all waste is stored on impermeable 	Extent: Local (-2) Duration: Short-term (-1) Intensity: Low (-1)

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Potential impacts:	Significance rating of impacts:	Proposed mitigation:	Significance rating of impacts after mitigation:
	Probability: Probable (-2) Significance Rating: Low (-6)	surfaces. • Further measures provided in the EMPr.	Probability: Improbable (-1) Significance Rating: Low (-5)
4. Visual: Visual Impact of landfill operations.	Extent: Local (-2) Duration: Long-term (-3) Intensity: Moderate (-2) Probability: Highly probable (-3) Significance Rating: High (-10)	• The Refuse Transfer Station will be sited within a future commercial/industrial zone to minimise visual intrusion. Site is securely fenced.	Extent: Local (-2) Duration: Long-term (-3) Intensity: Moderate (-2) Probability: Possible (-2) Significance Rating: Medium (-9)
5. Fires and Dumping: Risk of fires and scavenging.	Extent: Site (-1) Duration: Long-term (-3) Intensity: Moderate (-2) Probability: Highly Probable (-3) Significance Rating: Medium (-9)	• The Refuse Transfer Station must be securely fenced with licensed operating conditions. • Site under operational supervision.	Extent: Site (-1) Duration: Long-term (-3) Intensity: Moderate (-2) Probability: Possible (-2) Significance Rating: Medium (-8)
6. Noise: Noise from machinery and waste compacting.	Extent: Local (-2) Duration: Long-term (-3) Intensity: Moderate (-2) Probability: Highly Probable (-3) Significance Rating: High (-10)	• Mechanical activity will be confined to internal area of transfer site. • Keep doors closed during operating hours, except when vehicles are entering or exiting. • Use the lowest allowable setting on vehicle backup alarms, or use visual warning devices if state and local regulations allow. • Establish operating hours that avoid early morning or late night operations. • Set facility noise level limits (e.g, 60 dBa at the site boundary) and adhere to them.	Extent: Site (-1) Duration: Long-term (-3) Intensity: Low (-2) Probability: Possible (-2) Significance Rating: Medium (-8)
7. Vectors: Breeding of vectors as a result of waste accumulation.	Extent: Site (-1) Duration: Long-term (-3) Intensity: Moderate (-2) Probability: Possible (-2) Significance Rating: Medium (-8)	• Animal breeding areas must be identified and treated and eliminate as many of these breeding areas as possible. • Practises that reduce the likeliness of attracting vectors must be implemented (e.g., remove all waste at the end of the operating day, wash tipping areas daily, pick up litter and other debris daily).	Extent: Local (-2) Duration: Short-term (-1) Intensity: Low (-1) Probability: Improbable (-1) Significance Rating: Low (-5)

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Potential impacts:	Significance rating of impacts:	Proposed mitigation:	Significance rating of impacts after mitigation:
		<ul style="list-style-type: none"> Hire a professional licensed pest control company with expertise and experience in controlling specific vector populations, if necessary. 	
8. Litter: Windblown litter to surrounding areas.	Extent: Site (-1) Duration: Long-term (-3) Intensity: Low (-1) Probability: Possible (-2) <u>Significance Rating:</u> <u>Medium (-7)</u>	<ul style="list-style-type: none"> Require all incoming and outgoing loads to be covered. Ensure that all incoming and outgoing trucks are leak-proof to avoid leachate spills on public streets. Implement daily litter inspections and pickup at the facility and on surrounding streets. Install a perimeter fence to prevent windblown litter from leaving the site. 	Extent: Local (-2) Duration: Short-term (-1) Intensity: Low (-1) Probability: Improbable (-1) <u>Significance Rating:</u> <u>Low (-5)</u>
Indirect Impacts			
Cumulative Impacts			
9. Carbon Footprint and Emissions	Extent: Local (-2) Duration: Long-term (-3) Intensity: Moderate (-2) Probability: Highly Probable (-3) <u>Significance Rating: High (-10)</u>	<ul style="list-style-type: none"> Refuse Transfer Station in close proximity to existing commercial and residential precinct means optimum travel distances in terms of carbon footprint. 	Extent: Site (-1) Duration: Long-term (-3) Intensity: Low (-1) Probability: Possible (-2) <u>Significance Rating: Medium (-7)</u>

Alternative S2 (relocation to the north east of existing location) – Operational Phase

Potential impacts:	Significance rating of impacts:	Proposed mitigation:	Significance rating of impacts after mitigation:
Direct Impacts			
1. Odour: Impact of odours associated with general waste storage and compaction.	Extent: Local (-2) Duration: Long-term (-3) Intensity: Moderate (-2) Probability: Highly Probable (-3) <u>Significance Rating: High (-10)</u>	<ul style="list-style-type: none"> Waste must be transferred on a daily basis. No waste should be stored for a period exceeding 24 hours from the time of arrival. Minimizing onsite waste storage is encouraged, both in the facility and in the loaded trailers, by immediately loading odorous or potentially odorous wastes into transfer trailers and quickly 	Extent: Local (-2) Duration: Medium-term (-3) Intensity: Moderate (-2) Probability: Possible (-2) <u>Significance Rating: Medium (-9)</u>

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Potential impacts:	Significance rating of impacts:	Proposed mitigation:	Significance rating of impacts after mitigation:
		<p>transferring them to the landfill site.</p> <ul style="list-style-type: none"> • Concrete and other semiporous surfaces must be sealed to prevent absorption of odour-producing residues. • The tipping floor or surge pit must be frequently cleaned/washed down. • All waste from the tipping floor or pit must be removed at the end of each operating day, and these areas must then be cleaned to remove remaining residues. "Good housekeeping" measures, including regularly cleaning and disinfecting containers, equipment, and other surfaces that come into contact with waste must be practised. • A community "odour complaint" register must be kept on site. 	
2. Dust: Dust from operations.	<p>Extent: Site (-1) Duration: Long-term (-3) Intensity: Moderate (-2) Probability: Possible (-2)</p> <p>Significance Rating: Medium (-8)</p>	<ul style="list-style-type: none"> • Station facility doors should be kept closed during operating hours, except when trucks are entering or exiting. • A community "dust complaint" register must be kept on site. 	<p>Extent: Local (-2) Duration: Short-term (-1) Intensity: Low (-1) Probability: Improbable (-1)</p> <p>Significance Rating: Low (-5)</p>
3. Leachate: Possible impact of leachate on local water resources: wetlands and rivers	<p>Extent: Local (-2) Duration: Short-term (-1) Intensity: Low (-1) Probability: Probable (-2)</p> <p>Significance Rating: Low (-6)</p>	<ul style="list-style-type: none"> • The Refuse Transfer Station will be situated a safe distance away from river courses and wetlands. • Site staff to ensure all waste is stored on impermeable surfaces. • Refer to the EMPr for further mitigation measures. 	<p>Extent: Local (-2) Duration: Short term (-1) Intensity: Low (-1) Probability: Improbable (-1)</p> <p>Significance Rating: Low (-5)</p>
4. Visual: Visual Impact of landfill operations.	<p>Extent: Local (-2) Duration: Long-term (-3) Intensity: Moderate (-2) Probability: Highly Probable (-3)</p> <p>Significance Rating: High (-10)</p>	<ul style="list-style-type: none"> • The Refuse Transfer Station is sited adjacent to a future residential area. Site is securely fenced. 	<p>Extent: Local (-2) Duration: Long-term (-3) Intensity: Moderate (-2) Probability: Highly Probable (-3)</p> <p>Significance Rating: High(-10)</p>

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Potential impacts:	Significance rating of impacts:	Proposed mitigation:	Significance rating of impacts after mitigation:
5. Fires and Dumping: Risk of fires and scavenging.	Extent: Site (-1) Duration: Long-term (-3) Intensity: Moderate (-2) Probability: Highly Probable (-3) <u>Significance Rating: Medium (-9)</u>	<ul style="list-style-type: none"> The Refuse Transfer Station must be securely fenced with licensed operating conditions. Site under operational supervision. 	Extent: Site (-1) Duration: Long-term (-3) Intensity: Moderate (-2) Probability: Possible (-2) <u>Significance Rating: Medium (-8)</u>
6. Noise: Noise from machinery and waste compacting.	Extent: Local (-2) Duration: Long-term (-3) Intensity: Moderate (-2) Probability: Highly Probable (-3) <u>Significance Rating: High (-10)</u>	<ul style="list-style-type: none"> The Refuse Transfer Station is near a future residential precinct. Mechanical activity will be confined to internal area of transfer site. Keep doors closed during operating hours, except when vehicles are entering or exiting. Use the lowest allowable setting on vehicle backup alarms, or use visual warning devices if state and local regulations allow. Establish operating hours that avoid early morning or late night operations. Set facility noise level limits (e.g., 55 decibels at the site boundary) and adhere to them. 	Extent: Local (-2) Duration: Long term (-3) Intensity: Moderate (-2) Probability: Highly probable (-3) <u>Significance Rating: High (-10)</u>
7. Vectors: Breeding of vectors as a result of waste accumulation.	Extent: Site (-1) Duration: Long-term (-3) Intensity: Moderate (-2) Probability: Possible (-2) <u>Significance Rating: Medium (-8)</u>	<ul style="list-style-type: none"> Animal breeding areas must be identified and treated and eliminate as many of these breeding areas as possible. Practises that reduce the likeliness of attracting vectors must be implemented (e.g. remove all waste at the end of the operating day, wash tipping areas daily, pick up litter and other debris daily). Hire a professional licensed pest control company with expertise and experience in controlling specific vector populations, if necessary. 	Extent: Local (-2) Duration: Short-term (-1) Intensity: Low (-1) Probability: Improbable (-1) <u>Significance Rating: Low (-5)</u>
8. Litter: Windblown litter to surrounding areas.	Extent: Site (-1) Duration: Long-term (-3) Intensity: Low (-1) Probability: Possible (-2)	<ul style="list-style-type: none"> Require all incoming and outgoing loads to be covered. Implement daily litter inspections and pickup at the facility and on surrounding streets. Install a perimeter fence to prevent windblown litter 	Extent: Local (-2) Duration: Short-term (-1) Intensity: Low (-1) Probability: Improbable (-1)

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Potential impacts:	Significance rating of impacts:	Proposed mitigation:	Significance rating of impacts after mitigation:
	Significance Rating: Medium (-7)	from leaving the site.	Significance Rating: Low (-5)
Indirect Impacts			
Cumulative Impacts			
9. Carbon Footprint and Emissions	Extent: Local (-2) Duration: Long-term (-3) Intensity: Moderate (-2) Probability: Highly Probable (-3) Significance Rating: High (-10)	<ul style="list-style-type: none"> The Refuse Transfer Station is in close proximity to existing commercial and residential precinct means optimum travel distances in terms of carbon footprint. No mitigation proposed. 	Extent: Site (-1) Duration: Long-term (-3) Intensity: Low (-1) Probability: Possible (-2) Significance Rating: Medium (-7)

SUMMARY OF IMPACTS AND AVERAGE POINTS ALLOCATED TO EACH SITE ALTERNATIVE DURING THE OPERATIONAL PHASE

IMPACTS	Site Alternative to the immediate East (Preferred Alternative) - Without Mitigation	Site Alternative to the immediate East (Preferred Alternative) - With Mitigation	Site Alternative to the North East (Alternative 2) - Without Mitigation	Site Alternative to the North East (Alternative 2) – With Mitigation
Direct Impacts				
Odour	-10	-7	-10	-9
Dust	-8	-5	-8	-5
Leachate	-6	-5	-6	-5
Visual	-10	-9	-10	-10
Fires and Dumping	-9	-8	-9	-8
Noise	-10	-8	-10	-10
Vectors	-8	-5	-8	-5
Litter	-7	-5	-7	-5
Average Total	-8.5	-6.5	-8.5	-7.1
Indirect Impacts				
Cumulative Impacts				
Carbon Footprint and Emissions	-10	-7	-10	-7
Average Total	-10	-7	-10	-7

Basic Assessment Report

No-go alternative (compulsory)

Direct Impacts
<ul style="list-style-type: none"> • The biodiversity on the site will not be impacted on and lost. However the biodiversity of the site is disturbed and as the site is located within the Cornubia Framework which is a developed area and the impact is not foreseen to be significant. • None of the negative impacts listed above will occur. • Less developable space for the Cornubia Retail Park resulting in reduced socio-economic potential.
Indirect Impacts
<ul style="list-style-type: none"> • Loss of employment opportunities and socio-economic benefits. • Loss of revenue in rates payments.
Cumulative Impacts
<ul style="list-style-type: none"> • From a socio-economic perspective, the land will remain vacant and there will be a loss of development opportunities and job creation.

Indicate mitigation measures to manage the potential impacts listed above:

Alternative S1

Alternative S2

See above

b. Process, technology, layout or other alternatives

List the impacts associated with process, technology, layout or other alternatives that are likely to occur during the operational phase (please list impacts associated with each alternative separately):

Alternative A1 (preferred alternative)

Alternative A2

No-go alternative (compulsory)

Indicate mitigation measures to manage the potential impacts listed above:

Alternative A1

Alternative A2

2.4. IMPACTS THAT MAY RESULT FROM THE DECOMMISSIONING OR CLOSURE PHASE

a. Site alternatives

List the potential impacts associated with site alternatives that are likely to occur during the decommissioning or closure phase:

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Existing Mount Edgecombe Refuse Transfer Station – Decommissioning/Closure

Potential impacts:	Significance rating of impacts:	Proposed mitigation:	Significance rating of impacts after mitigation:
Direct Impacts			
1. Waste: When the existing Station is decommissioned, there will be waste generated from the deconstruction that will not be used the new Station.	Extent: Local (-2) Duration: Medium-term (-2) Intensity: Moderate (-2) Probability of Occurrence: Possible (-2) <u>Significance Rating: Medium (-8)</u>	<ul style="list-style-type: none"> Disposal of waste must be in accordance with relevant legislative requirements. Waste must be disposed of in the appropriate manner at a licensed disposal site. The Waste Management Plan provided in the EMPr must be complied with. 	Extent: Local (-2) Duration: Short-term (-1) Intensity: Low (-1) Probability of Occurrence: Possible (-2) <u>Significance Rating: Low (-6)</u>
2. Erosion: Erosion of exposed surfaces where there was originally infrastructure.	Extent: Local (-2) Duration: Medium-term (-2) Intensity: Moderate (-2) Probability of Occurrence: Possible (-2) <u>Significance Rating: Medium (-8)</u>	<ul style="list-style-type: none"> The decommissioning of the existing Station will be developed with the Cornubia Retail Park, therefore, long-term rehabilitation is not required. However, in the short-term vegetation should be planted to avoid erosion. Should the establishment of the Cornubia Retail Park not occur, long-term rehabilitation must be implemented. Recommended rehabilitation is in the form of active re-vegetation of affected areas, including areas where surface disturbances resulted from construction. All areas of incomplete construction should be completed and prepared for final rehabilitation and re-vegetation; Erosion monitoring and control should be conducted. This should be in the form of inspections subsequent to rains. Topsoil should be replaced in all areas that were eroded. It is critical that adequate topsoil remains in construction areas, implying that topsoil might need to be supplemented in some areas until such time that a layer of vegetation has stabilised the soil. 	Extent: Local (-2) Duration: Short-term (-1) Intensity: Low (-1) Probability of Occurrence: Possible (-2) <u>Significance Rating: Low (-6)</u>
3. Dust: Dust emissions will vary from day to day depending on the phase of construction, the level of activity, and the prevailing meteorological	Extent: Local (-2) Duration: Medium-term (-2) Intensity: Moderate (-2) Probability of Occurrence: Possible (-2)	<ul style="list-style-type: none"> Frequent and effective dust-suppression is advised, particularly along dirt roads. Dust must be suppressed on the construction site during dry periods by the regular application of water. Water used for this purpose must be used in quantities that will not result in the generation of 	Extent: Local (-2) Duration: Short-term (-1) Intensity: Low (-1) Probability of Occurrence: Possible (-2)

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Potential impacts:	Significance rating of impacts:	Proposed mitigation:	Significance rating of impacts after mitigation:
conditions. The following possible sources of fugitive dust have been identified as activities which could potentially generate dust during decommissioning operations at the site: vehicle activities associated with the transport of equipment to the site; preparation of the surface areas which may be required prior to the set up of new infrastructure; and the removal of construction equipment from site after the set up of new equipment.	<u>Significance Rating: Medium (-8)</u>	run-off.	<u>Significance Rating: Low (-6)</u>
4. Noise: During the construction phase there is likely to be an increase in noise pollution. The following possible sources of noise could potentially generate noise pollution during construction: construction activities (excavating and site clearing); construction vehicles; and construction staff.	Extent: Local (-2) Duration: Medium-term (-2) Intensity: Moderate (-2) Probability of Occurrence: Possible (-2) <u>Significance Rating: Medium (-8)</u>	<ul style="list-style-type: none"> Surrounding communities and adjacent landowners are to be notified upfront of noisy construction activities. Provide all equipment with standard silencers. Maintain silencer units on vehicles and equipment in good working order. Construction staff working in areas where the 8-hour ambient noise levels exceed 60 dBA should wear ear protection equipment. 	Extent: Local (-2) Duration: Short-term (-1) Intensity: Low (-1) Probability of Occurrence: Possible (-2) <u>Significance Rating: Low (-6)</u>
Indirect Impacts			
5. Socio-economic: Employment opportunities during deconstruction activities.	Extent: Local (+2) Duration: Medium-term (+2) Intensity: Moderate (+2) Probability of Occurrence: Definite (+4)	<ul style="list-style-type: none"> The principles of gender equality, maximising local employment should be implemented in the provision and establishment of jobs. Jobs for the maintenance of infrastructure and services will be created following the completion of the development. These jobs might be made available to existing labour there creating long term employment. 	Extent: Local (+2) Duration: Medium-term (+2) Intensity: Moderate (+2) Probability of Occurrence: Definite (+4)

Basic Assessment Report

Potential impacts:	Significance rating of impacts:	Proposed mitigation:	Significance rating of impacts after mitigation:
	<u>Significance Rating:</u> <u>High (+10)</u>	<ul style="list-style-type: none"> Service contractors could have access to other developments or projects in the area thereby creating long-term employment. 	<u>Significance Rating:</u> <u>High (+10)</u>
Cumulative Impacts			

Alternative S1 & Alternative S2 – Decommissioning/Closure (impacts are the same for both sites)

Potential impacts:	Significance rating of impacts:	Proposed mitigation:	Significance rating of impacts after mitigation:
Direct Impacts			
1. Waste: When the existing Station is decommissioned, there will be waste generated from the deconstruction that will not be used the new Station.	Extent: Local (-2) Duration: Medium-term (-2) Intensity: Moderate (-2) Probability of Occurrence: Possible (-2) <u>Significance Rating: Medium (-8)</u>	<ul style="list-style-type: none"> Disposal of waste must be in accordance with relevant legislative requirements. Waste must be disposed of in the appropriate manner at a licensed disposal site. 	Extent: Local (-2) Duration: Short-term (-1) Intensity: Low (-1) Probability of Occurrence: Possible (-2) <u>Significance Rating: Low (-6)</u>
2. Erosion: Erosion of surfaces where there was originally infrastructure.	Extent: Local (-2) Duration: Medium-term (-2) Intensity: Moderate (-2) Probability of Occurrence: Possible (-2) <u>Significance Rating: Medium (-8)</u>	<ul style="list-style-type: none"> Recommended rehabilitation is in the form of active re-vegetation of affected areas, including areas where surface disturbances resulted from construction. All areas of incomplete construction should be completed and prepared for final rehabilitation and re-vegetation; All areas where topsoil was removed should be landscaped in order to reflect surrounding conditions. Erosion monitoring and control should be conducted. This should be in the form of inspections subsequent to rains. Topsoil should be replaced in all areas that were eroded. It is critical that adequate topsoil remains in construction areas, implying that topsoil might need to be supplemented in some areas until such time that a layer of vegetation has stabilised the soil. 	Extent: Local (-2) Duration: Short-term (-1) Intensity: Low (-1) Probability of Occurrence: Possible (-2) <u>Significance Rating: Low (-6)</u>

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Potential impacts:	Significance rating of impacts:	Proposed mitigation:	Significance rating of impacts after mitigation:
<p>3. Dust: Dust emissions will vary from day to day depending on the phase of decommissioning, the level of activity, and the prevailing meteorological conditions. The following possible sources of fugitive dust have been identified as activities which could potentially generate dust during decommissioning operations at the site: vehicle activities associated with the transport of equipment to the site; preparation of the surface areas which may be required prior to the set up of new infrastructure; and the removal of construction equipment from site after the set up of new equipment.</p>	<p>Extent: Local (-2) Duration: Medium-term (-2) Intensity: Moderate (-2) Probability of Occurrence: Possible (-2) <u>Significance Rating: Medium (-8)</u></p>	<ul style="list-style-type: none"> Frequent and effective dust-suppression is advised, particularly along dirt roads. Dust must be suppressed on the construction site during dry periods by the regular application of water. Water used for this purpose must be used in quantities that will not result in the generation of run-off. 	<p>Extent: Local (-2) Duration: Short-term (-1) Intensity: Low (-1) Probability of Occurrence: Possible (-2) <u>Significance Rating: Low (-6)</u></p>
<p>4. Noise: During the construction phase there is likely to be an increase in noise pollution. The following possible sources of noise could potentially generate noise pollution during decommissioning: decommissioning activities (excavating and site clearing); construction vehicles; and construction staff.</p>	<p>Extent: Local (-2) Duration: Medium-term (-2) Intensity: Moderate (-2) Probability of Occurrence: Possible (-2) <u>Significance Rating: Medium (-8)</u></p>	<ul style="list-style-type: none"> Surrounding communities and adjacent landowners are to be notified upfront of noisy construction activities. Provide all equipment with standard silencers. Maintain silencer units on vehicles and equipment in good working order. Construction staff working in areas where the 8-hour ambient noise levels exceed 60 dBA should wear ear protection equipment 	<p>Extent: Local (-2) Duration: Short-term (-1) Intensity: Low (-1) Probability of Occurrence: Possible (-2) <u>Significance Rating:Low (-6)</u></p>

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Potential impacts:	Significance rating of impacts:	Proposed mitigation:	Significance rating of impacts after mitigation:
Indirect Impacts			
5. Socio-economic: Employment opportunities during deconstruction activities.	Extent: Local (+2) Duration: Medium-term (+2) Intensity: Moderate (+2) Probability of Occurrence: Definite (+4) <u>Significance Rating: High (+10)</u>	<ul style="list-style-type: none"> The principles of gender equality, maximising local employment should be implemented in the provision and establishment of jobs. Jobs for the maintenance of infrastructure and services will be created following the completion of the development. These jobs might be made available to existing labour there creating long term employment. Service contractors could have access to other developments or projects in the area thereby creating long term employment. 	Extent: Local (+2) Duration: Medium-term (+2) Intensity: Moderate (+2) Probability of Occurrence: Definite (+4) <u>Significance Rating: High (+10)</u>
Cumulative Impacts			

SUMMARY OF IMPACTS AND AVERAGE POINTS ALLOCATED TO EACH SITE ALTERNATIVE DURING THE DECOMMISSIONING PHASE

IMPACTS	Site Alternative to the immediate East (Preferred Alternative) - Without Mitigation	Site Alternative to the immediate East (Preferred Alternative) - With Mitigation	Site Alternative to the North East (Alternative 2) - Without Mitigation	Site Alternative to the North East (Alternative 2) - With Mitigation
Direct Impacts				
Waste	-8	-6	-8	-6
Erosion	-8	-6	-8	-6
Dust	-8	-6	-8	-6
Noise	-8	-6	-8	-6
Average Total	-8	-6	-8	-6
Indirect Impacts				
Socio-economic	+10	+10	+10	+10
Average Total	-	-	-	-
Cumulative Impacts				

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No-go alternative (compulsory)	
Direct Impacts	
<ul style="list-style-type: none"> • None of the negative impacts listed above will occur. • No improved infrastructure. • Less developable space for the Cornubia Retail Park resulting in reduced socio-economic potential. 	
Indirect Impacts	
<ul style="list-style-type: none"> • Loss of employment opportunities and socio-economic benefits. • Reduced likelihood of wetland contamination. 	
Cumulative Impacts	
<ul style="list-style-type: none"> • From a socio-economic perspective, the land will remain vacant and there will be a loss of development opportunities and job creation. 	

Indicate mitigation measures to manage the potential impacts listed above:

Alternative S1	Alternative S2
See above	

b. Process, technology, layout or other alternatives

List the impacts associated with process, technology, layout or other alternatives that are likely to occur during the decommissioning or closure phase (please list impacts associated with each alternative separately):

Alternative A1 (preferred alternative)

Alternative A2

No-go alternative (compulsory)

Indicate mitigation measures to manage the potential impacts listed above:

Alternative A1	Alternative A2

2.5. PROPOSED MONITORING AND AUDITING

For each phase of the project and for each alternative, please indicate how identified impacts and mitigation will be monitored and/or audited.

Alternative S1 (preferred site) Alternative S2

<ul style="list-style-type: none"> • A Construction Environmental Management Programme (CEMP) setting out clear procedures and including all mitigation measures discussed above is required (refer to Appendix F). The EMP must be approved by the relevant authority before construction commences. • An Environmental Control Officer (ECO) will be appointed to ensure the implementation of the measures outlined in the Basic Assessment Report, inclusive of plans and layouts and the comments contained in the EMP. • Site inspections and audits will be carried out as per frequency indicated in the EMP by a suitably qualified person. • The relevant authority must carry out regular site audits with the ECO to ensure the monitoring and compliance requirements are met by the contractor and the developer. • During the construction phase, environmental incidents and complaints from I&AP's will be investigated, recommendations will be made to mitigate and prevent further impacts and the incidents reported, where relevant, to the Applicants and/or Authorities. 	
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3. ENVIRONMENTAL IMPACT STATEMENT

Taking the assessment of potential impacts into account, please provide an environmental impact statement that summarises the impact that the proposed activity and its alternatives may have on the environment after the management and mitigation of impacts have been taken into account, with specific reference to types of impact, duration of impacts, likelihood of potential impacts actually occurring and the significance of impacts.

Alternative S1 (preferred site)

Overall Significance Rating: Low

The objective of this Waste Management License (WML) Application is to obtain a WML for the construction of a new Mount Edgecombe Refuse Transfer Station and decommission the existing Station to facilitate the development of the Cornubia Retail Park. As part of this relocation, the Alternative S1 (preferred site) was proposed.

Whilst the approved Cornubia Framework Plan does not indicate a possible location for this Station, other than identifying the area where the existing Station is located as a General Business use zone, the nature of the Retail Park development does not allow for the Station to continue operations at its current location. This preferred site alternative is situated closer to mixed-use sites rather than in the heart of a future residential area (as is the case for the alternative) and therefore would potentially be a preferred location. The preferred site has no pure residential uses within 150 m from its location apart from mixed-use residential apartments and is situated closer to mixed-use commercial and industrial sites, reducing the possible odour and/ or visual nuisances. Visually, mitigation measures such as tree planting/screening of the facility from the residential area can be established which will further provide a buffer against potential noise, dust and odour nuisances. Whilst the preferred site is within a strategic zone for potential future business/retail uses, its location is deemed as adequate by the urban planners and the Station can be accommodated with this area.

Further to this, the location of the Station in this zone is in close proximity to the existing facility. This site is favourable in terms of having a lower carbon footprint relative to the alternative site. The preferred site is also well located along a higher order road, Dube East in close proximity to the Cornubia Boulevard intersection.

From an ecological perspective, both sites have a reasonable buffer (30 m) against the inadvertent pollution of contaminated stormwater into the wetlands and stream; however the preferred site does not require any access roads or wetland crossings which the alternative site does.

Therefore it can be concluded that there are very few constraints, apart from being located along a future development spine for business/retail and residential uses, the location of the Station has been setback to accommodate those type of uses along the route.

The following conclusions can therefore be drawn from the impact analyses tables included in Section E above:

- a) *Planning and design phase*
This alternative has a lower negative rating (inclusive of mitigation) compared to Alternative 2.

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- b) *Construction phase*
This alternative has a lower negative rating (inclusive of mitigation) compared to Alternative 2.
- c) *Operational Phase*
This alternative has a lower negative rating (inclusive of mitigation) compared to Alternative 2.
- d) *Closure and Decommissioning Phase*
There is no difference in the rating between the preferred alternative (Alternative 1) and Alternative 2.

Based on the impact identification and proposed mitigation measures, including the proposed rehabilitation measures (EMPr – Appendix F) the EAP is of the view that Alternative 1 (relocation to the immediate east of the existing Station) be approved.

Alternative S2

Overall Significance Rating: Medium

The objective of this Waste Management License (WML) Application is to obtain a WML for the construction of a new Mount Edgecombe Refuse Transfer Station and decommission the existing Station to facilitate the development of the Cornubia Retail Park. As part of this relocation, the Alternative S2 (alternative site) was proposed.

Whilst the approved Cornubia Framework Plan does not indicate a possible location for this Station, other than identifying the area where the existing Station is located as a General Business use zone, the site alternative would not be considered a suitable location based on the approved framework as it is located in the heart of a future medium density residential zone and is therefore incompatible with the future adjacent land uses. This will have potential consequences in the operational phase in the form of possible odour, dust, visual and noise impacts.

Furthermore, it is more costly to develop this site due to the high bulk earthworks cost and the commissioning of various engineering studies due to its boundaries straddling the Flanders Quarry undevelopable area. In addition, an access road will need to be constructed which not only increases the costs of the development but further increases environmental impacts, particularly with regard to altering the wetland as the length of the access road is longer than the re-alignment of the existing access road for the Alternative S1.

Subsequently, the design and operation of Alternative 2 is less desirable from a wetland and land-use perspective.

The following conclusions can therefore be drawn from the impact analyses tables included in Section E above:

- a) *Planning and design phase*
This alternative has a higher negative rating (inclusive of mitigation) compared to Alternative 1.
- b) *Construction phase*
This alternative has a higher negative rating (inclusive of mitigation) compared to Alternative 1.
- c) *Operational Phase*
This alternative has a higher negative rating (inclusive of mitigation) compared to Alternative 1.
- d) *Closure and Decommissioning Phase*
There is no difference in the rating between the preferred alternative (Alternative 1) and Alternative 2.

The duration of construction, operational and closure/decommissioning impacts vary for this alternative and can be mitigated by the measures and recommendations contained in the Environmental Management Programme (Appendix F).

COMPARATIVE ASSESSMENT OF ALTERNATIVES

Based on the comparative assessment of the two site options and the impact identification and assessment, it is evident that there is a significant difference in the impacts for the preferred and alternative sites. The majority of the impacts which have contributed to the greater impact rating score for the alternative site pertain to the fact that the proposed relocation of the Mount Edgecombe Refuse Transfer Station to this site does not align with the future adjacent land uses in the region which is proposed to be residential. Furthermore, this option requires a new access road to be constructed which will have a greater number of environmental impacts. It is therefore the opinion of the EAP that the Site Alternative S1 is the preferred site for authorisation.

Alternative A1 (preferred alternative)



Alternative A2



No-go alternative (compulsory)

This option involves retaining the existing land use – agriculture. The property would remain under sugarcane cultivation and would continue to operate as a working sugarcane farm. The current Mount Edgecombe Refuse Transfer Station will continue operation as well. However, the location and situation of Cornubia dictates that it be appropriately and sustainably developed to uses and activities which offer the best value, returns and benefits to the City. Failing to relocate the Mount Edgecombe Refuse Transfer Station will limit the development potential of the Cornubia Retail Park which will hinder socio-economic benefits for the region.

SECTION F. RECOMMENDATION OF EAP

Is the information contained in this report and the documentation attached hereto in the view of the EAP sufficient to make a decision in respect of this report?

YES

If "NO", please contact the KZN Department of Agriculture & Environmental Affairs regarding the further requirements for your report.

If "YES", please attach the draft EMPr as Appendix F to this report and list any recommended conditions, including mitigation measures that should be considered for inclusion in any authorisation that may be granted by the competent authority in respect of the application:

This draft BAR provides an assessment of both the benefits and potential negative impacts anticipated as a result of the proposed construction of a new Mount Edgecombe Refuse Transfer Station and demolition of the existing Station. It further provides a description of the alternatives proposed for the new site and assesses the impacts of each of these sites.

It is important to understand the fact that the proposed relocation is to accommodate the Cornubia Retail Park Development which is part and parcel of the Cornubia Integrated Human Settlement.

Having duly considered the proposal to relocate the Mount Edgecombe Refuse Transfer Station from the existing location to the proposed site, only 200 metres east of the existing facility, there is unlikely to

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be any significant environmental impacts. All construction impacts noted will be underway in the area anyway due to the construction of the Retail Park. Further to this, should the Station not be relocated, the identified sites will be developed as part of the Cornubia Phase 2 Development. Moreover, operational impacts are expected to be similar in nature to those currently in place for the existing Station. In fact the proposed relocation should be encouraged as it will avoid the not in my backyard (NIMBY) syndrome applicable to existing site: waste operating in the centre of an emerging commercial development precinct. The relocation will also ease traffic densities to enable safe and easy access to the site for users wanting to deliver general and garden waste to the site. The proposed site will be beneficial as it will encourage waste separation and waste minimisation as advocated by the Waste Management Act (No 59 of 2008) and the National Waste Management Strategy. The alternative site is not recommended due to the greater travel distance from the general area supplying the waste and the incompatibility to the proposed future uses of the surrounding area.

The findings conclude that there are no environmental fatal flaws that could prevent the proposed relocation of the Mount Edgecombe Refuse Transfer Station to the preferred site to the immediate east of the existing site, provided that the recommended mitigation and management measures contained in the Environmental Management Programme (EMPr) are implemented. It is therefore the recommendation of the EAP that the waste management license is **granted** for the construction of the new Station to the immediate east of the existing site (**Alternative S1**) and that the existing Station is demolished.

The following recommendations, although not exhaustive, may be considered for inclusion in the waste management license:

- The draft EMPr and conditions thereto must be adhered to;
- An ECO must be appointed and all contractor staff to be trained on the EMPr and Waste Management License requirements prior to commencement of activities;
- Alien weeds and invader species within vicinity of construction to be removed and indigenous vegetation, where appropriate, to be introduced and managed in accordance with the recommendation outlined in the preliminary ecological report;
- Monitoring re-establishment of alien weeds and invader plants and implement required maintenance; and
- Environmental monitoring to be conducted during construction and incidents recorded and addressed accordingly.

SECTION G: APPENDIXES

The following appendixes must be attached as appropriate:

Appendix A: Site plan(s)

Appendix B: Photographs

Appendix C: Facility illustration(s)

Appendix D: Specialist reports

Appendix E: Comments and responses report

Appendix F: Draft Environmental Management Programme (EMPr)

Appendix G: Other information

APPENDIX A: SITE PLANS

APPENDIX B: PHOTOGRAPHS

APPENDIX C: FACILITY ILLUSTRATION

APPENDIX D: SPECIALIST REPORTS

APPENDIX E: COMMENTS & RESPONSES REPORT

APPENDIX F: ENVIRONMENTAL MANAGEMENT PROGRAMME
