



PROFESSIONAL WASTE IMPACT STATEMENT ON THE PROPOSED RELOCATION OF THE DSW MOUNT EDGECOMBE REFUSE TRANSFER STATION: CORNUBIA RETAIL PARK, eTHEKWINI MUNICIPALITY, KZN

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A SPECIALIST REPORT FOR TONGAAT HULETT DEVELOPMENTS

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TABLE OF CONTENTS

<u>1</u>	<u>INTRODUCTION</u>	<u>1</u>
1.1	BACKGROUND	1
1.2	REFUSE TRANSFER STATIONS	2
1.3	PROPOSED ACTIVITIES	3
1.4	LEGAL REQUIREMENTS	6
1.5	OBJECTIVE	6
<u>2</u>	<u>SCALE OF OPERATION AND EXISTING IMPACTS</u>	<u>7</u>
<u>3</u>	<u>ALTERNATE SITE CONSIDERATIONS</u>	<u>8</u>
<u>4</u>	<u>CRITERIA FOR IDENTIFICATION OF NEW SITE</u>	<u>10</u>
<u>5</u>	<u>IMPACT ASSESSMENT</u>	<u>12</u>
5.1	POTENTIAL IMPACTS/ NUISANCES AND MITIGATION MEASURES	12
5.1.1	NOISE NUISANCES	12
5.1.2	ODOUR NUISANCE	13
5.1.3	DUST NUISANCE	13
5.1.4	VECTORS	14
5.1.5	LITTER	14
5.1.6	STORMWATER DISCHARGE AND LEACHATE	14
5.2	RISK ASSESSMENT BETWEEN PREFERRED AND ALTERNATE SITES	15
5.3	COMPARATIVE ASSESSMENT OF PREFERRED AND ALTERNATIVE OPTIONS FOR THE NEW MOUNT EDGECOMBE REFUSE TRANSFER STATION	20
<u>6</u>	<u>OVERALL WASTE ASSESSMENT</u>	<u>21</u>
<u>7</u>	<u>CONCLUSION</u>	<u>23</u>

Table of Figures

FIGURE 1: LOCALITY MAP OF THE CORNUBIA RETAIL PARK SITE	1
FIGURE 2: LOCATION OF THE EXISTING MOUNT EDGECOMBE REFUSE TRANSFER STATION TO BE RELOCATED	2
FIGURE 3: LOCATION OF THE NEW PROPOSED SITE	4
FIGURE 4: PROPOSED LAYOUT OF THE PREFERRED LOCATION FOR THE NEW REFUSE TRANSFER STATION	5
FIGURE 5: THE DIMENSIONS OF THE EXISTING MOUNT EDGECOMBE REFUSE TRANSFER STATION	7
FIGURE 6: ALTERNATIVE LOCATION OF THE NEW MOUNT EDGECOMBE REFUSE TRANSFER STATION	9

List of Tables

TABLE 1: WASTE TYPES AND QUANTITIES	5
TABLE 2: LISTED ACTIVITIES TRIGGERED ACCORDING TO NEM:WA	6
TABLE 3: CRITERIA FOR THE IDENTIFICATION OF A NEW SITE	10
TABLE 4: RISK MATRIX FOR PREFERRED SITE	16
TABLE 5: RISK MATRIX FOR ALTERNATE SITE	18
TABLE 6: WASTE ASSESSMENT	21

1 INTRODUCTION

1.1 Background

As part of the greater Cornubia Mixed-Use Phased Development, Tongaat Hulett Developments (THD) propose to establish the Cornubia Retail Park, a retail development in Mount Edgecombe, KwaZulu-Natal. Cornubia is located within the eThekwin Municipality (eTM) and is situated north of Durban. 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 (Figure 1).



FIGURE 1: LOCALITY MAP OF THE CORNUBIA RETAIL PARK SITE

Located on the Cornubia Retail Park site is an existing Durban Solid Waste (DWS) Mount Edgecombe Refuse Transfer Station (Figure 2). The Station is situated on land owned by THD; however the Station is owned and operated by the eTM. To facilitate the development of the proposed Cornubia Retail Park, it is proposed that the existing Station is relocated with the greater Cornubia area.

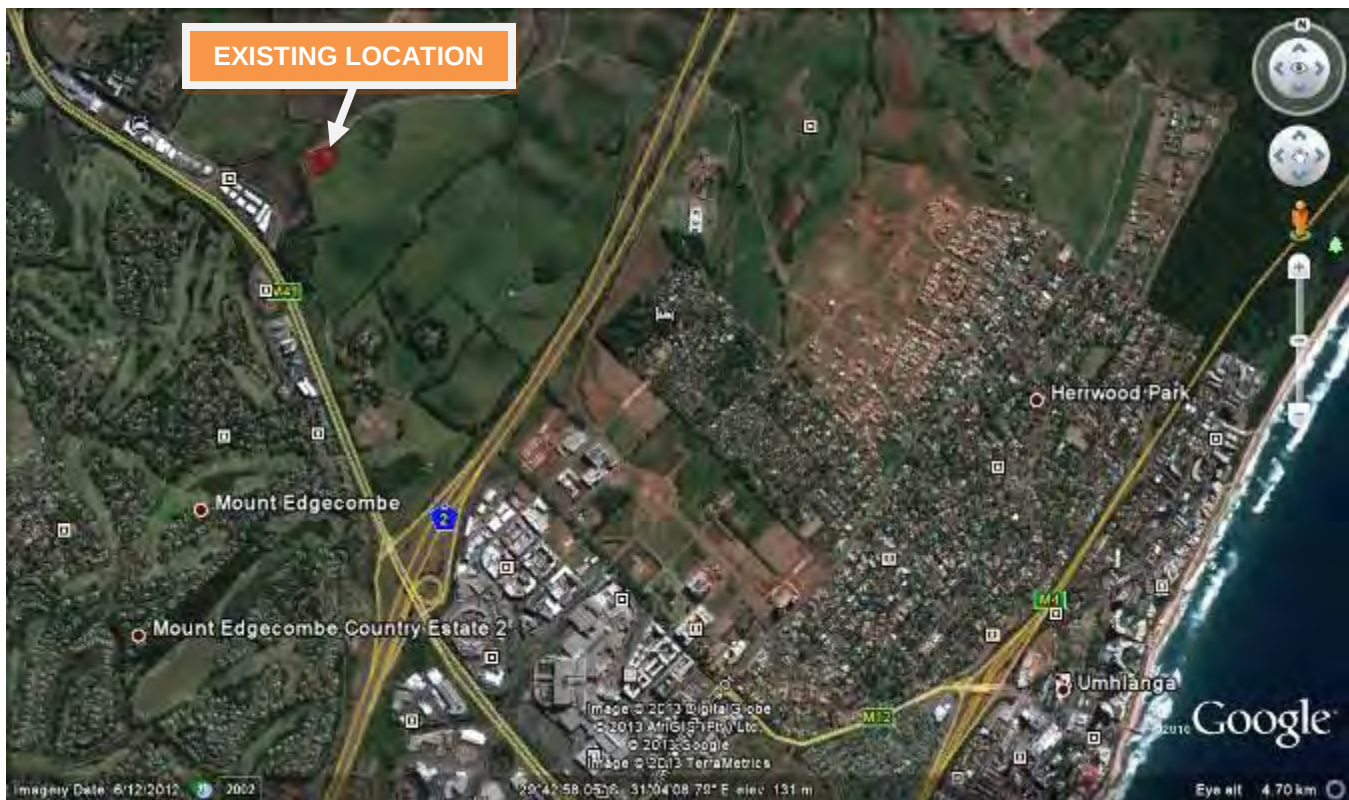


FIGURE 2: LOCATION OF THE EXISTING MOUNT EDGECOMBE REFUSE TRANSFER STATION TO BE RELOCATED

1.2 Refuse Transfer Stations

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 often 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 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.

1.3 Proposed Activities

Since the Refuse Transfer Station would amount to an inappropriate activity within the proposed commercial development, it has been proposed that the Station be relocated 200 m to the immediate east of the existing site as shown in Figure 3.

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.

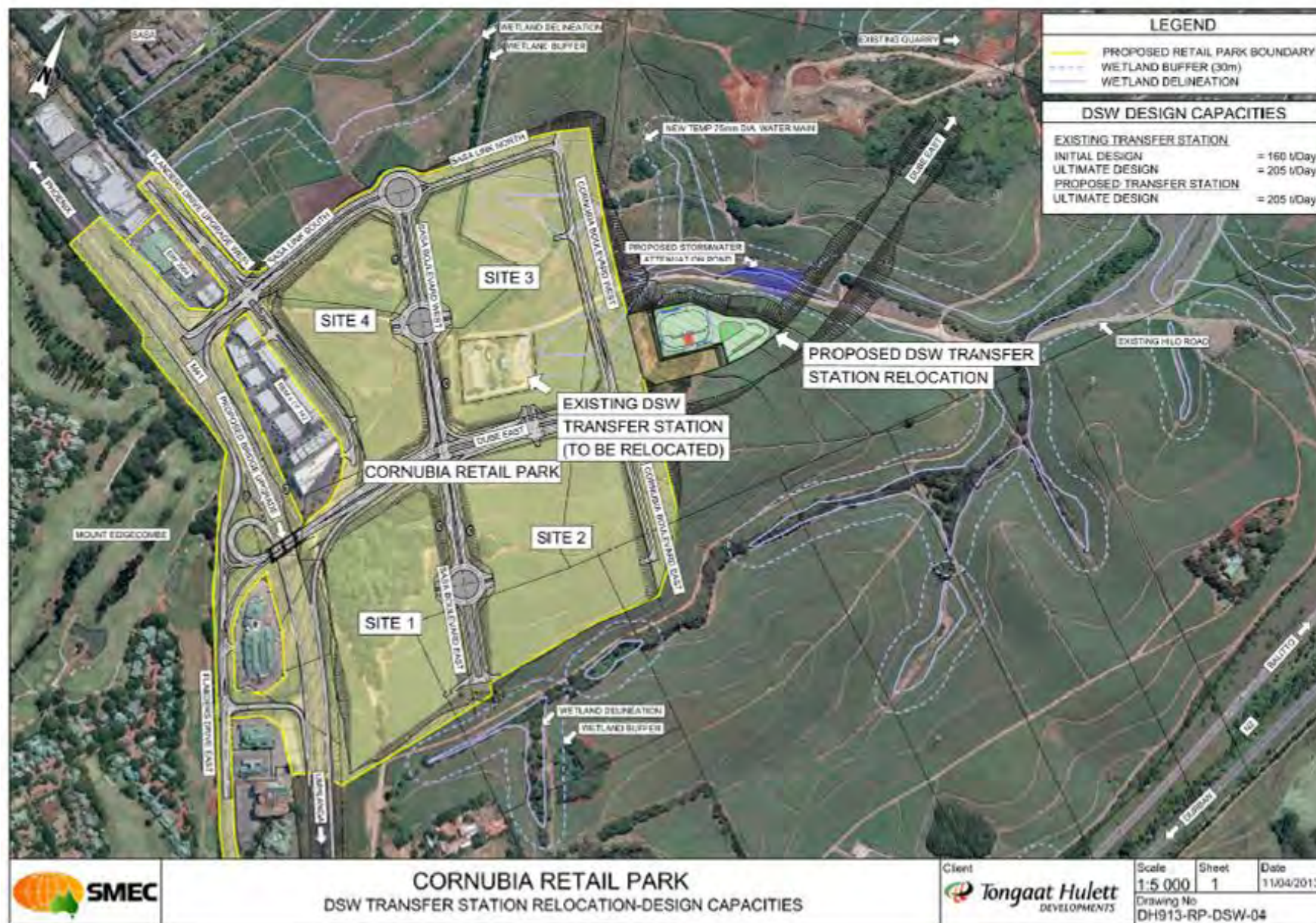


FIGURE 3: LOCATION OF THE NEW PROPOSED SITE

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. The proposed layout of the preferred site is presented in Figure 4.

TABLE 1: WASTE TYPES AND QUANTITIES

Type of waste (e.g. garden waste, building rubble, industrial effluent)	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

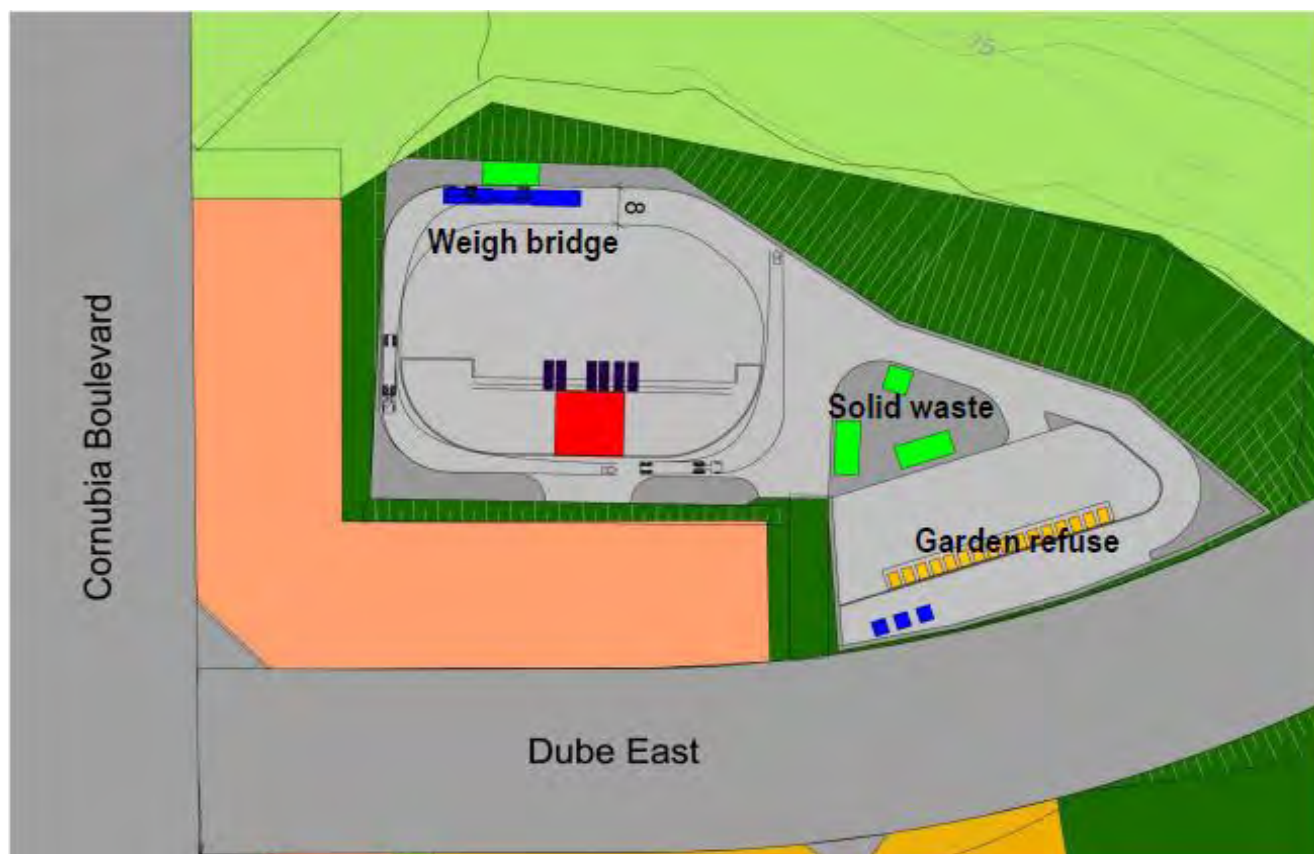


FIGURE 4: PROPOSED LAYOUT OF THE PREFERRED LOCATION FOR THE NEW REFUSE TRANSFER STATION

It is proposed that a new general waste transfer facility is established at the proposed location. It is further proposed that the existing facility is decommissioned. This would involve:

- Acquiring approvals and permits;
- Site work and construction of the new Station;
- Movement of equipment and movable infrastructure from existing to proposed Station;
- Establishing road (if required) and service connectivity to proposed Station;
- Demolishing existing Station; and
- Commissioning and operating of new Station.

1.4 Legal Requirements

The proposed relocation triggers the following activities in terms of the National Environmental Management: Waste Act (NEM:WA):

TABLE 2: LISTED ACTIVITIES TRIGGERED ACCORDING TO NEM:WA

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.

Category A activities of NEM:WA require a Basic Assessment process be undertaken in order to obtain a Waste Management License (WML). An application for a WML for the proposed establishment of a new Station as well as the decommissioning of the existing Station is being undertaken at present. Royal HaskoningDHV (RHDHV) has been appointed as the independent Environmental Assessment Practitioner (EAP) to undertake this process.

Mr Siva Chetty, a waste specialist at RHDHV has been requested to provide a professional Waste Impact Statement on the proposed relocation. This report has been externally reviewed by Mr Abdul Ebrahim, a waste specialist at EScience Associates.

1.5 Objective

The objectives of this report are:

- To assess the impact of the relocation of the existing Mount Edgecombe Refuse Transfer Station from the existing within the Cornubia Retail Park to a new position within Cornubia.
- To consider both alternative sites identified for the new Station.
- To undertake a qualitative risk assessment of the impacts associated with both the alternative sites identified for the new Station.

2 SCALE OF OPERATION

The current Mount Edgecombe Refuse Transfer Station is situated along the Flanders Quarry Access Road, 200 metres from the Flanders Drive and Flanders Quarry Road junction. The Station is 10 039 m² in extent and is constructed according to the dimensions provided in Figure 5.



FIGURE 5: THE DIMENSIONS OF THE EXISTING MOUNT EDGECOMBE REFUSE TRANSFER STATION

It is proposed that this Station is decommissioned and demolished and a new Station is constructed to undertake the same existing services.

The existing waste transfer station largely processes general waste and a proportion of garden waste as indicated in Table 1 above. The 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, Mt Edgecombe, La Lucia, Glenashley, Phoenix, Ottawa as well as informal settlements in the surrounding area.

The existing site is securely fenced and manually operated. The site has a design capacity of about 205 tons per day. 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 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:
 - **Yard waste (green waste)** commonly includes leaves, grass clippings, tree trimmings, and brush. Yard waste is often diverted so that it may be composted or mulched instead of going for disposal.
 - **Household hazardous waste (HHW)** includes hazardous materials generated by households, such as cleaning products; pesticides; herbicides; used automotive products such as motor oil, brake fluid, and antifreeze; and paint.
 - **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, motor oil, and tires.

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, Mt 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 is and will be accepted. No industrial hazardous or liquid wastes will be accepted at the Station.

3 ALTERNATE SITE CONSIDERATIONS

An alternate site for the Station has been proposed as indicated in Figure 6. 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.

The construction of the new Station will be a like-for-like development. Thereby the dimensions of the new Station will be identical to the existing Station. The land identified for the construction of the new facility (preferred and alternative) is zoned as Agricultural Land (sugarcane).

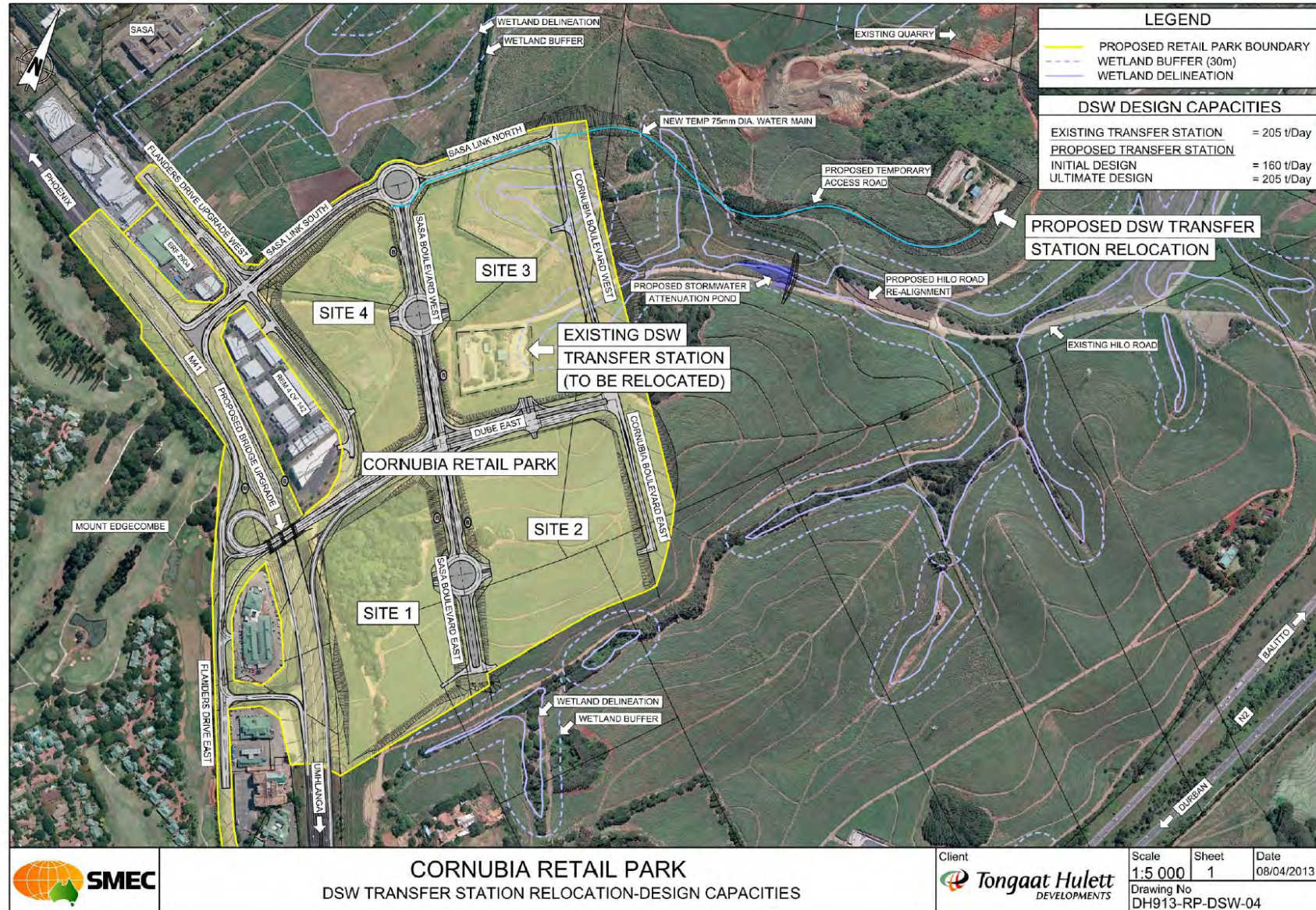


FIGURE 6: ALTERNATIVE LOCATION OF THE NEW MOUNT EDGECOMBE REFUSE TRANSFER STATION

4 CRITERIA FOR IDENTIFICATION OF NEW SITE

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

TABLE 3: CRITERIA FOR THE IDENTIFICATION OF A NEW SITE

CRITERIA	PREFERRED SITE	ALTERNATE SITE
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 10 miles 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.	Site is central to collection routes and only 200 m away from the existing site.	Site is central to collection routes and less than 1km away from the existing site.
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.	Site is easily accessible to the M41 and the N2.	Site in close proximity to the M41 and the N2. A new access road will need to be constructed to connect to these routes.
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.	Site is within the same development footprint as the existing site which has been adequate for the requirements of the facility.	Site is slightly smaller than the existing site which has been adequate for the requirements of the facility.
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 50 to 70 feet 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.	Site is within the same development footprint as the existing site which has been adequate for the space requirements of the facility.	Site is slightly smaller than the existing site which has been adequate for the space requirements of the facility.
Truck and traffic compatibility: Transfer stations	Site located adjacent to	Site located adjacent to

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.	future commercial land uses.	future residential land uses.
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.	Sufficient space provided for.	Sufficient space provided for.
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 landscaping.	Site located adjacent to future commercial land uses. Buffers in the form of landscaping and fencing will be provided for.	Site located adjacent to future residential land uses. Buffers in the form of landscaping and fencing will be provided for.
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.

5 IMPACT ASSESSMENT

5.1 Potential Impacts/ Nuisances and Mitigation Measures

All transfer stations must address issues such as noise, odours, dust, vectors, traffic, and litter. Urban transfer stations, however, frequently lack the key component that suburban and rural facilities use to mitigate these problems: space. Where a suburban or rural facility can simply use large buffer zones between operations and receptor populations, urban sites are frequently unable to do so due to severe site size limitations. Urban transfer stations must employ a combination of planning, design, and operating practices to help minimise impacts upon the surrounding community. Listed below are potential impacts and nuisances as well as engineering designs, technologies, and operating practices that must be considered to mitigate facility impacts upon the neighbouring community.

5.1.1 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.

Stations that use stationary solid waste compactors or engine-driven tamping equipment have additional sources of mechanical equipment noise with which to contend. Good facility design and operations can help reduce noise emanating from the station.

5.1.1.1 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.
- Orient 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.

5.1.2 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.

5.1.2.1 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.

5.1.3 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.

5.1.3.1 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.

5.1.4 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.

5.1.4.1 *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, 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.

5.1.5 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.

5.1.5.1 *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.

5.1.6 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 runoff contacts waste, 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 waste water 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.

5.1.6.1 *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 HHW, batteries, and suspect materials.

5.1.7 *Deconstruction/Demolishment 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.

5.1.7.1 *Mitigation Measure*

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

5.2 Risk assessment between Preferred and Alternate Sites

A qualitative risk assessment was undertaken for the location of the new site between the Preferred site (Table 4) and the Alternate site (Table 5) using the risk ranking criteria below.

CRITERIA	DESCRIPTION			
EXTENT	National (4) The whole of South Africa	Regional (3) Provincial and parts of neighbouring provinces	Local (2) Within a radius of 2 km of the construction site	Site (1) Within the construction site
	Permanent (4) Mitigation either by man or natural process will not occur in such a way or in such a time	Long-term (3) The impact will continue or last for the entire operational life of the development,	Medium-term (2) The impact will last for the period of the construction phase, where after it will be entirely negated	Short-term (1) The impact will either disappear with mitigation or will be mitigated through natural

CRITERIA	DESCRIPTION			
	span that the impact can be considered transient	but will be mitigated by direct human action or by natural processes thereafter. The only class of impact which will be non-transitory		process in a span shorter than the construction phase
INTENSITY	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
PROBABILTY OF OCCURANCE	Definite (4) Impact will certainly occur	Highly Probable (3) Most likely that the impact will occur	Possible (2) The impact may occur	Improbable (1) Likelihood of the impact materialising is very low

TABLE 4: RISK MATRIX FOR PREFERRED SITE

Phase	Potential Aspect and or Impact	Significance rating of impacts before mitigation	Mitigation	Significance rating of impacts after mitigation
Construction	Construction activity: Heavy traffic duty	Extent: Local (-2) Duration: Medium-term (-2) Intensity: Moderate (-2) Probability: Highly probable (-3) Significance: Medium (-9)	Adherence to safe driving practices; onsite construction mitigation plans as per EMPr	Extent: Site (-1) Duration: Short-term (-1) Intensity: Moderate (-2) Probability: Highly probable (-2) Significance: Low (-6)
Construction	Dust emissions	Extent: Local (-2) Duration: Medium term (-2) Intensity: High (-3) Probability: Highly probable	Dust mitigation measures: regular wetting. Construction taking place in a agricultural area(current); safe distance away from	Extent: Site (-1) Duration: Long term (-2) Intensity: Moderate (-2) Probability: Highly probable (-3) Significance: Medium (-8)

Phase	Potential Aspect and or Impact	Significance rating of impacts before mitigation	Mitigation	Significance rating of impacts after mitigation
		(-3)	residential development	
		Significance: High (-10)		
Operational	Impact of Odours Associated with general waste storage and compaction	Extent: Local (-2) Duration: Long term (-3) Intensity: Moderate (-2) Probability: Highly probable (-3) Significance: High (-10)	Waste transfer station sited safe distance away from dense human and commercial activity.	Extent: Local (-2) Duration: Medium-term (-3) Intensity: Low (-1) Probability: Possible (-2) Significance: Medium (-7)
Operational	Impact of Leachate: <u>non leachate generating activity</u> On local water resources: wetlands and rivers	Extent: Local (-2) Duration: Short term (-1) Intensity: Low (-1) Probability: Probable (-2) Significance: Low impact (-6)	Waste transfer station sited safe distance away from river course and wetlands: Site staff to ensure liquid waste is not permitted	Extent: Local (-2) Duration: Short term (-1) Intensity: Low (-1) Probability: Improbable (-1) Significance: Low impact (-5)
Operational	Visual Impact of landfill operations	Extent: Local (-2) Duration: Long term (-3) Intensity: Moderate (-2) Probability: Highly probable (-3) Significance: High (-10)	Waste transfer station sited safe distance to minimise visual intrusion. Site is securely fenced.	Extent: Local (-2) Duration: Long term (-3) Intensity: Moderate (-2) Probability: Possible (-2) Significance: Medium (-9)
Operational	Risk of fires and scavenging	Extent: Site (-1) Duration: Long term (-3) Intensity: Moderate (-2) Probability: Highly probable (-3) Significance:	Waste transfer securely fenced with licensed operating conditions. Site located away from heavy plant growth and under operational	Extent: Site (-1) Duration: Long term (-3) Intensity: Moderate (-2) Probability: Possible (-2) Significance: Medium (-8)

Phase	Potential Aspect and or Impact	Significance rating of impacts before mitigation	Mitigation	Significance rating of impacts after mitigation
		High (-9)	supervision.	
Operational	Noise from waste handling machinery/ compaction	Extent: Local (-2) Duration: Long term (-3) Intensity: Moderate (-2) Probability: Highly probable (-3) Significance: High (-10)	Waste transfer site isolated from commercial precinct. Mechanical activity will be confined to internal area of transfer site	Extent: Site (-1) Duration: Long term (-3) Intensity: Moderate (-2) Probability: Possible (-2) Significance: Medium (-8)
Operational	Carbon Footprint and emissions	Extent: Local (-2) Duration: Long term (-3) Intensity: Moderate (-2) Probability: Highly probable (-3) Significance: High (-10)	Waste transfer site in close proximity to 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) Significance: Low (-6)

TABLE 5: RISK MATRIX FOR ALTERNATE SITE

Phase	Potential Aspect and or Impact	Significance rating of impacts before mitigation	Mitigation	Significance rating of impacts after mitigation
Construction	Construction activity: Heavy duty traffic	Extent: Local (-2) Duration: Medium-term (-2) Intensity: Moderate (-2) Probability: Highly probable (-3) Significance: Medium (-9)	Adherence to safe driving practices; onsite construction mitigation plans as per EMPr	Extent: Site (-1) Duration: Short-term (-1) Intensity: Moderate (-2) Probability: Highly probable (-2) Significance: Low (-6)
Construction	Dust emissions	Extent: Local (-2) Duration: Medium term (-2) Intensity: High (-3) Probability: Highly probable	Dust mitigation measures: regular wetting. Construction taking place in an agricultural area(current); safe distance away from	Extent: Site (-2) Duration: Long term (-2) Intensity: Moderate (-2) Probability: Highly probable (-3) Significance: Medium (-8)

Phase	Potential Aspect and or Impact	Significance rating of impacts before mitigation	Mitigation	Significance rating of impacts after mitigation
		(-3) Significance: High (-10)	residential development. Construction of separate Access Road will have added burden.	
Operational	Impact of Odours Associated with general waste storage and compaction	Extent: Local (-2) Duration: Long term (-3) Intensity: Moderate (-2) Probability: Highly probable (-3) Significance: High (-10)	Waste transfer station sited safe distance away from dense human and commercial activity. However, this will increase when the planned residential developments are implemented.	Extent: Local (-2) Duration: Medium-term (-3) Intensity: Low (-1) Probability: Possible (-2) Significance: Medium (-7)
Operational	Impact of Leachate: <u>non leachate generating activity</u> On local water resources: wetlands and rivers	Extent: Local (-2) Duration: Short term (-1) Intensity: Low (-1) Probability: Probable (-2) Significance: Low impact (-6)	Waste transfer station sited safe distance away from river course and wetlands: Site staff to ensure liquid waste is not permitted	Extent: Local (-2) Duration: Short term (-1) Intensity: Low (-1) Probability: Improbable (-1) Significance: Low impact (-5)
Operational	Visual Impact of landfill operations	Extent: Local (-2) Duration: Long term (-3) Intensity: Moderate (-2) Probability: Highly probable (-3) Significance: High (-10)	Waste transfer station sited safe distance to minimise visual intrusion. Site is securely fenced.	Extent: Local (-2) Duration: Long term (-3) Intensity: Moderate (-2) Probability: Possible (-2) Significance: Medium (-9)
Operational	Risk of fires and scavenging	Extent: Site (-2) Duration: Long term (-3) Intensity: Moderate (-2) Probability: Highly probable (-3)	Waste transfer securely fenced with licensed operating conditions. Site located away from heavy plant growth and under operational	Extent: Site (-2) Duration: Long term (-3) Intensity: Moderate (-2) Probability: Possible (-2) Significance: High (-9)

Phase	Potential Aspect and or Impact	Significance rating of impacts before mitigation	Mitigation	Significance rating of impacts after mitigation
		Significance: High (-9)	supervision.	
Operational	Noise from waste handling machinery/ compaction	Extent: Local (-2) Duration: Long term (-3) Intensity: Moderate (-2) Probability: Highly probable (-3) Significance: High (-10)	Waste transfer site isolated from commercial precinct. Mechanical activity will be confined to internal area of transfer site	Extent: Site (-1) Duration: Long term (-3) Intensity: Moderate (-2) Probability: Possible (-2) Significance: Medium (-8)
Operational	Carbon Footprint and emissions	Extent: Local (-2) Duration: Long term (-3) Intensity: Moderate (-2) Probability: Highly probable (-3) Significance: High (-10)	Waste transfer site is further away from commercial and residential precinct means <u>increased</u> travel distances in terms of carbon footprint.	Extent: Site (-2) Duration: Long term (-3) Intensity: Moderate (-2) Probability: Highly Probable (-3) Significance: High (-10)

5.3 Comparative Assessment of Preferred and Alternative Options for the new Mount Edgecombe Refuse Transfer Station

On average both sites result in a Low to Medium risk outcome. This is due to the fact that both sites are located at a safe distance away from the sensitive social and ecological environment. Further, the operation is a Refuse Transfer Station which mitigates against odour formation and leachate generation. However the preferred site is favourable in terms of having a lower carbon footprint relative to the alternate site. This is because the additional access road that would have to be constructed and greater travel distance and transport fuel requirements. Both sites have a reasonable buffer against the inadvertent pollution of contaminated stormwater into the wetlands and stream. The preferred site also offers increased security and closer surveillance against scavengers and risk of fire because the developed nature of this site (ultimate scenario).

The preferred site should also be considered as it is closer to the supply of waste from the proposed development compared to the alternate site. This site will reduce the transport related impact in terms of travel distance to the waste site. The preferred site option will also reduce the intensity of river and sensitive wetlands crossing.

Furthermore, once the ultimate development of Cornubia is complete and the planned residential developments are functional, the new station at the alternative location will be in close proximity to residential developments which is not desirable. The preferred site has no pure residential uses within 150m from its location apart from mixed use residential apartments. Whilst the approved Framework Plan for Cornubia does not indicate a possible location for the waste transfer facility, other than identifying the area where the existing facility is located as a

General Business use zone, the alternative site 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 whilst the preferred site is situated closer to mixed use sites and therefore would potentially be a preferred location.

The proposed alternate site located to the north east of the existing site is not desirable due to the following factors:

- It is located more than 0.5 km away from existing site (straight line distance);
- It does not have existing road access, so this would be an additional requirement;
- Since it is further away from the development precinct, it will tend to discourage its use and more likely to encourage illegal dumping;
- It will be too costly to develop due to the high bulk earthworks cost and the commissioning of various engineering studies due to its boundaries straddling the Flanders Quarry undevelopable area; and
- It is surrounded by Medium Density residential therefore it is not a desirable location to develop a facility of this nature.

Hence it is recommended that the proposed site located 200 m to the immediate east of existing site be considered as the preferred development option.

6 OVERALL WASTE ASSESSMENT

The impact of the proposed relocation of the Refuse Transfer Station was considered in terms of the activities listed above and in relation to the following issues:

- Traffic and access;
- Air quality and dust;
- Noise impact;
- Water quality and Leachate.
- Vectors;
- Visual impact; and
- Carbon footprint.
-

The waste assessment has been undertaken with regard to the proposed site in relation the activities and environmental factors.

TABLE 6: WASTE ASSESSMENT

ACTIVITY	EXISTING SITE	PROPOSED SITE	MITIGATION MEASURES
Permits	Permit from DWAF in place as the waste transfer station was established prior to enactment of Waste Act.	Application for waste licence in progress and is also accompanied with an EIA.	Not applicable

Site work and construction activity	Construction work here will be associated with decommissioning of the activity. Since the general area will be under redevelopment in terms of the Cornubia Retail Park, there will be no additional impacts	The proposed location is 200 m east of the existing waste transfer site. The land use is agricultural (sugarcane cultivation). Limited residential developments planned in close proximity to the new site.	Impacts relating to construction will be mitigated in terms of the construction EMPr.
Relocation of equipment and infrastructure	The existing site will be demolished and subjected to the general redevelopment plan proposed for the Cornubia Retail Park.	Since the site is nearby and there is an existing road (Hilo Road), there will be no disturbance to persons or environment. Most of the equipment is movable using existing waste transfer vehicles.	
Establishing road and service connectivity to proposed facility	Existing site serviced with existing road infrastructure	Existing road infrastructure will service new site. Access to proposed site will benefit from reduced traffic compared to existing site if Cornubia development is realised.	
Commissioning and operating of new facility		The provision of the garden waste transfer station will have added value as the residential development increases in this precinct.	
Air quality impacts	Both the existing and proposed site process general and garden waste. Since this is a transfer station, putrescible conditions is unlikely to develop and give rise to odour conditions. Odour free compared to conventional land use. Thus air quality is not a likely impact	Same as for existing site. No significant odour impacts. There will be no composting or waste treatment processes to give rise to air quality issues. All material deposits are fresh and continuously compacted and transported to Buffelsdraai landfill site within 24 hours.	Complaints register to be kept on site and DSW to attend to complaints should they arise. All waste deposits to be transferred to the landfill site on a daily basis.
Water quality impacts	Both the existing and proposed site will not generate leachate to pose a water quality impact.	Proposed site is within safe margin of wetland reserve. No leachate generating waste shall be accepted to the site. Rain runoff site activities shall drain to stormwater system.	Any water runoff during construction shall be managed as part of the construction EMPr.
Noise impact	The noise contribution will be due to compaction of waste material and vehicle movement. However in terms of the proposed development (retail park), there is likely to be traffic related noise impacts to the sites' immediate neighbours.	There will be same type of noise generation as in existing site. The proposed site has mitigation measures to reduce impact from noise and traffic density due to it having an adequate buffer around the activity comprising of wide spanning road servitude on either side.	Noise management will be undertaken as part of overall EMPr for the development

Visual impact	Not an issue for existing site as surrounding land use is largely agricultural. However visual impact may be an issue at operational stage for existing site as development encroaches to the site boundary.	Visual impact will be less of an issue due to the double road servitude on either side. Further the site will be fenced and isolated from the public and commercial space. Wind blown litter could pose an issue. However this will be limited due to this site being solely for garden refuse.	DSW to monitor and report on litter pollution as part of overall EMP for the precinct. Housekeeping at site to be managed to avoid litter accumulation.
Waste minimisation	Both sites will be complementary in terms of incentivising waste minimisation at source.	Both sites will be complementary in terms of incentivising waste minimisation at source. If this service is not provided locally, it would encourage illegal dumping.	

7 CONCLUSION

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, there is unlikely to be any significant environmental impacts. In fact the proposed relocation should be encouraged as it will result in compatible forms of land use and development. Further 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. A qualitative risk assessment was undertaken for both the proposed and alternate site and the general risk ranking is low to medium for the proposed site. In the case of the alternate site there is a likelihood of fire and scavenging due to its remote location and an increase in the carbon footprint due to the longer transportation distances. The proposed site will be beneficial as it will encourage waste separation and waste minimisation as advocated by the waste management act and the national waste management strategy. The alternate 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 new Station shall have the necessary design elements and features to enable its safe and productive use with reduced impacts during its operational life. Such features shall include ease of access from the main road, fenced and lockable access, concreted floors and a storm water management system. There shall be adequate notices giving information on which waste streams are acceptable and the operational times for the transfer station. Further it is encouraged that the facility must also continue to provide a waste drop off service for recyclable commodities. This feature will encourage recycling and waste minimisation.