APPENDIX F
EMP AND DMP

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ENVIRONMENTAL CONSULTING

CITY OF CAPE TOWN: HOUSING IMPLEMENTATION

ENVIRONMENTAL MANAGEMENT PROGRAMME THE PROPOSED HOUSING DEVELOPMENT ON ERF RE/18370 AND ERF RE/18332, KHAYELITSHA, CITY OF CAPE TOWN, WESTERN CAPE

FEBRUARY 2022

SEC REFERENCE NUMBER: 020052

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IMPORTANT NOTE: ALL READERS TO PLEASE FAMILIARISE THEMSELVES WITH THE RELEVANT TERMINOLOGY CONTAINED IN THE GLOSSARY (APPENDIX A)

1. DETAIL AND EXPERIENCE OF THE EAP WHO PREPARED THE EMPR

This report was authored by Chantel Müller of SEC.
Chantel has a BA Social Dynamics and obtained her MPhil Environmental Management at the University of Stellenbosch in October 2008.
Chantel has more than 14 years' experience in the field of environmental management, impact assessment and control.

This report was reviewed by Adrian Sillito of SEC.
Adrian is a certified environmental assessment practitioner (CEAPSA), Professional Natural Scientist (Pr.Sci.Nat.) and a member of the South African branch of the International Association for Impact Assessment (IAIAsa).

SEC has extensive experience in environmental assessment procedures and has completed several thousand environmental projects in most provinces of South Africa since 1998.

2. INTRODUCTION

SEC has been appointed by City of Cape Town: Informal Settlements, Human Settlements to undertake the necessary environmental application in terms of the National Environmental Management Act No. 107 of 1998 for the proposed Enkanini residential development, Erf RE/18370 and Erf RE/18332, Khayelitsha, City of Cape Town.

The subject property is located directly opposite the Monwabisi coastal resort on the northern side of Baden Powell Drive in Khayelitsha. The subject property is bounded by Mew Way to the North and East, Baden Powell Drive to the south and Oscar Mpetha Road to the west.

A Scoping/EIA process will be undertaken to apply for environmental authorisation in terms of Listing Notices, 1, 2, and 3 of the NEMA EIA Regulations 2014.

This Environmental Management Programme (EMPr) has been compiled as part of an application for Environmental Authorisation for the proposed development, in terms of the requirements of the National Environmental Management Act, 1998 (Act 107 of 1998) and the Environmental Impact Assessment Regulations, 2014, as Amended.

This EMPr is intended to ensure compliance with the conditions of the Environmental Authorisation (once issued), the principles of sound Environmental Management and the general "Duty of Care" specified in the National Environmental Management Act, so as to avoid or minimize potential negative impacts on the natural environment during the pre-construction, construction and operational phases of the proposed development.

This document provides measures that should be implemented to ensure that any environmental degradation that may be associated with the development is avoided, or where such impacts cannot be avoided entirely, are minimized and mitigated appropriately.

3. PROJECT LOCATION

The proposed residential development measures approximately 100.38ha in extent and will be situated within the Cape Flats area along the False Bay coastline, with Baden Powell Drive to the south, Oscar Mpetha Road to the west and Mew Way to the north and east.

Figure 1: Site location, CoCT March 2021 Drone Imager. Please refer to Appendix A1 for additional Locality Maps

Property size(s) of all proposed cadastrals:

Erf RE/18370: Approximately 5 159 834.40m2 (515.99ha)
Erf Re/18332: Approximately 3 758 568.60m2 (375.86ha)

SG Digit code(s) of the proposed site(s) for all alternatives:	Erf RE/18370	C	0	1	6	0	0	6	3	0	0	0	1	8	3	7	0	0	0	0	0	0
	Erf Re/18332	C	0	1	6	0	0	6	3	0	0	0	1	8	3	3	2	0	0	0	0	0

Table 1: SG Digit codes

4. PROJECT DESCRIPTION

The subject property is a total of 100.38ha in extent and the associated project, named the Enkanini South UISP (Upgrade of Informal Settlement Pipeline) development, is primarily required as a relocation area for the Enkanini Phase 2 UISP development, located northeast of the subject property.

The City of Cape Town's Department of Informal Settlements initiated Enkanini Phase 2 in 2014 and ultimately obtained planning approval in March 2020 for a residential township consisting of 5500 medium density serviced sites with associated urban infrastructure and services. Consultants for the implementation of Enkanini Phase 2 have been appointed, but onsite activities will most likely only commence in 2022.

Enkanini Phase 2 is the largest informal settlement in the City of Cape Town, with approximately 1100 dwellings, which will require a substantial relocation of approximately 50% of the units in order to ensure implementation. Accordingly, the need to develop the Enkanini South development on the subject property was identified by the City of Cape Town's Informal Settlement Department.

For the most part the subject property is a greenfield site besides a Transitional Relocation Area of approximately 1,5ha and consisting of 407 sites which was approved in mid-2020 and for which civil works have commenced in early 2021 already. The aforementioned TRA is to be occupied by settlers that have invaded a dune area on the Enkanini Phase 2

area that requires urgent relocation due to the fact that they cannot be serviced in their current location. The subject property is also currently progressively being invaded by informal settlers since the start of the pandemic. The current appointment includes the provision of services up to land use approval and is limited to conceptual design phase and civil and electrical design. Given the fast pace of land invasion on the site, the current proposal will also include Temporary Relocation Areas (TRAs).

As such the level of detail that will be included as part of this application will be of a conceptual design nature and will include details on the location, size, and amount of different land uses (e.g., public facilities, residential erven, stormwater, and other civil and engineering facilities etc.). The development aims to provide for approximately 5500 serviced erven.

5. ASPECTS COVERED BY THIS EMPR

The potentially significant impacts identified during the EIA process as being associated with the facility are as follows:

CONSTRUCTION PHASE:

- **Botanical Impact:** The loss of Endangered Cape Flats Dune Strandveld varying from intact, to semi-intact to severely degraded, and associated ecological functions. An Offset area has been proposed as mitigation of the above loss.

- **Soil & Groundwater Contamination & Pollution:** Construction activities will generate waste. In addition, fuel, oil, lubricants and other pollutants may leak from vehicles/ machinery and contaminate the soil and groundwater. Pollution and soil/groundwater contamination could also occur from chemical toilets; cement mixing directly on the soil and stormwater runoff may flow over the site camp area and carry contaminants off-site.

- **Dust & Noise Impacts:** As a result of the construction phase of this development noise and dust impacts are expected to occur in the area due to an increase in construction vehicle and truck traffic for the duration of the construction phase while materials are being transported to the site, excavations are being made and vegetative groundcover is being removed.

- **Traffic, Safety and Access Impacts:** As a result of the construction phase of this development traffic impacts are expected to occur in the area due to an increase in construction vehicle and truck traffic in the area for the duration of the construction phase while materials are being transported to the site. Road safety impacts and road condition impacts could also occur.

- **Visual Impacts:** The construction phase is associated with temporary disturbance as a result of construction (trench excavations, vehicles, machinery, fencing & signage) that may have a negative visual impact the sensitive receptors such as adjacent residents.

- **Socio-economic – Creation of business and employment opportunities:** Approximately 12 skilled employment opportunities are expected to be created during the construction phase and 135 unskilled employment opportunities during operational phase.

OPERATIONAL PHASE:

- **Upkeep & Maintenance of the Offset area:** The impacts of the proposed project would last in perpetuity. In line with current thinking[1], it is considered reasonable for an environmental authorisation holder to be held responsible for managing an offset site for not less than 30 years, covering the initial establishment and rehabilitation costs followed by ongoing maintenance.

[1] Reflected in the revised draft policy on biodiversity offsets, *pers comm*. Peter Lukey and Pamela Kershaw (DEA).

- **Soil & Groundwater Contamination & Pollution:** During the operational phase of the proposed development soil and groundwater contamination could result if stormwater is not managed correctly there is the potential for the unmanaged stormwater runoff to impact negatively on the environment, potentially causing pollution and contamination.

- **Noise Impact:** Noise impacts could occur to the adjacent residents located nearby as a result of increased traffic and delivery trucks and / or air conditioning / extractor fans.

- **Traffic & Safety Impacts:** Traffic impacts are expected to occur for the duration of the operational phase of the activity as a result of the additional vehicles from the residents of the apartments obtaining access to their homes. This could lead to safety impact or damage to road infrastructure.

- **Visual Impact:** Change from a vacant site to a developed site.

- **Socio-economic Benefit:** The Provision of Housing and associated public nodes.

- **Socio-Economic Benefit:** Employment opportunities, income opportunities, better access to public transport and retail opportunities will all enhance the quality of life and socio-economic status of the community and other residents.

In order to minimise any negative impacts associated with the development, it is imperative that the lifecycle of the facility, as well as all aspects of the development (infrastructure and buildings) and operation are subject to the conditions set out in this EMPr. The conditions directly address the identified potential impacts, in order to ensure that the health, safety and environmental risks associated with the development can be avoided or minimised.

6. DESCRIPTION OF ENVIRONMENTAL SETTING AND SENSITIVITY

There are environmentally sensitive vegetation areas that have been identified on site and recommended to be avoided by the proposed development.

Ecological aspects

Freshwater

The Freshwater Site Scan (May 2021) conducted by the Freshwater Consulting Group (FCG) concluded that all areas mapped as wetlands are located outside the proposed site for development, with the exception of an artificial wetland on the eastern border of the site (due to previous clearing activities that took place as part of the establishment of the Temporary Relocation Area (TRA) (please refer to Section 2.1, p.12 of this Scoping report for details on the TRA)]

An existing storm water polishing pond/wetland of the CoCT Water & Sanitation directorate have however been identified on the site. This has been included as part of this larger development site but will not be developed and only formalised as a Utility zoned area.

Botanical

The study area is located within the Cape Flats Dune Strandveld, an Endangered vegetation type. Over half of the study area has been disturbed and at least half has been lost to the establishment of informal housing and associated activities (highly degraded habitat). Other areas have been disturbed by dumping, sand mining, animals grazing, and most significantly – the clearing of vegetation for the establishment of housing. These areas are Degraded but have good rehabilitation potential and are of Medium sensitivity. There are two large areas within the site that contain semi-intact vegetation which are of conservation-worthy condition and have a High sensitivity. However, these areas are still under pressure from further illegal occupation.

Under other circumstances, any of the Medium or High sensitivity areas at this site would be No-Go areas. However, given the nature of the illegal land occupation and the projected future scenario of further occupation, mitigation options for the site are limited. A 15 m buffer along the north edge of Baden Powell Drive/south edge of the development is proposed as a buffer for the vegetation to the south of the road. However, this may not be practically feasible to implement or maintain.

Given that the both the No-Go scenario and the development scenario are likely to result in the loss of almost all the vegetation on the site and result in a High or Very High negative impact, the development scenario and associated offset are supported. The exclusion of the buffer area from the development footprint, and an offset for the remaining area lost, are seen as the best-case scenario from a botanical perspective.

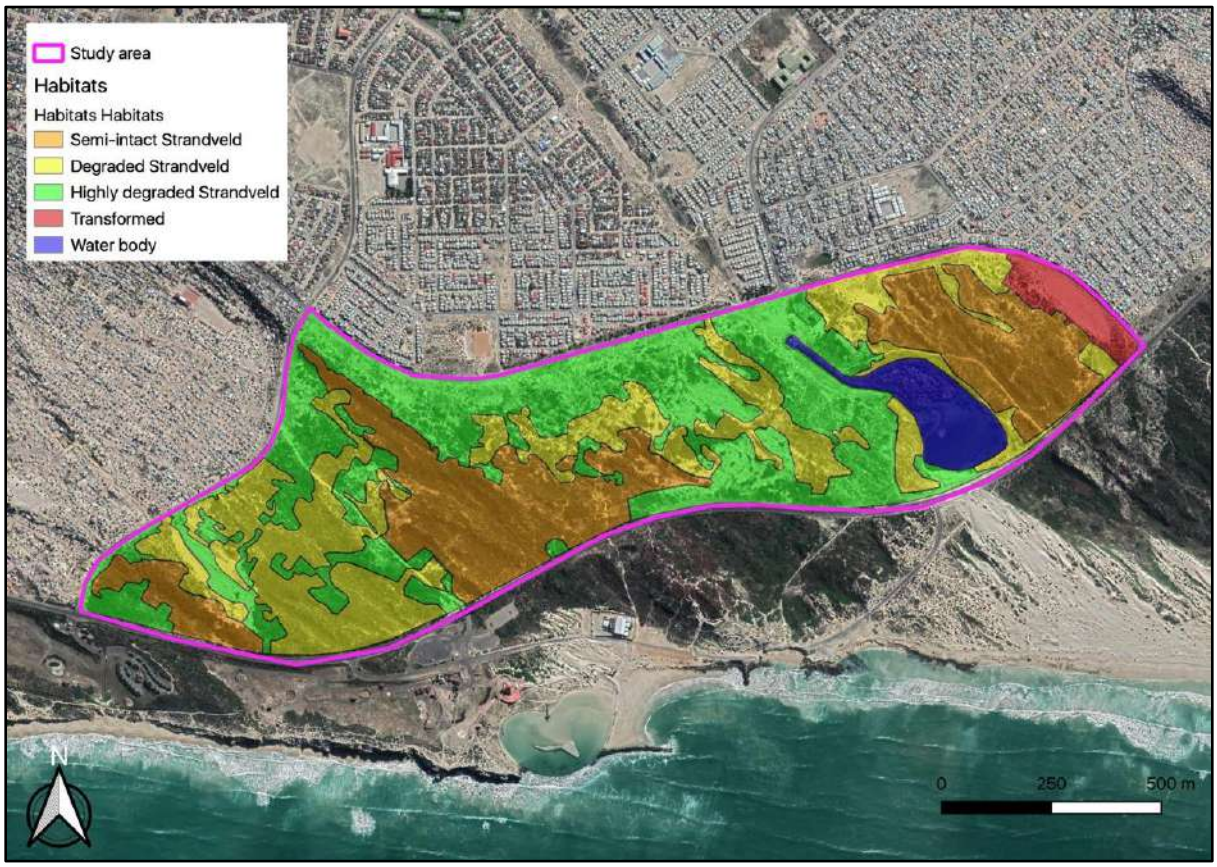

Figure 2: BOTANICAL CONSTRAINTS MAP (SECOND AND FINAL ITERATION): Google EarthTM aerial image showing the recommended No-Go and potentially developable areas (Emms)

Biodiversity Offset Study

As already stated within the Botanical Screening Report, desktop information (e.g., the CoCT's Biodiversity GIS layers) shows that the proposed site for development is located within the Cape Flats Dune Strandveld (CFDS) vegetation type. This vegetation type is listed as Endangered under Criterion B1 and B2 in the 2018 National Biodiversity Assessment (NBA) and is important for its threatened plant species associations. The affected vegetation on Erf 18332 has been mapped as 'unselected' CFDS in the City's 'Southeast Strandveld Conservation Implementation Plan' (CIP1). On Erf 18370, a portion of the vegetation is mapped as 'unselected' strandveld while a large portion in the west of the site is mapped as 'priority' CFDS.

There have been several discussions and exchanges between the City's Human Settlements (HS) Department (project proponent), the City's Biodiversity Management Branch (BMB), and Sillito Environmental Consulting with respect to the location of the sites, their conservation significance, the relevance of the CIP in this context, and the likely requirements for environmental authorization, including biodiversity offsets (please refer to email correspondence, dated 29 May 2020, and subsequent correspondence, dated 9 November 2020, as included in Appendix F).

Initially, the Enkanini Residential Development was planned to affect only areas of 'unselected' Strandveld, as the adjacent area of 'priority' strandveld to the west was intended for formal protection and inclusion into the City's conservation estate. However, a sudden, very recent increase in the level of land invasion and informal settlement on

this priority area has led to the BMB withdrawing its application to have the area reserved for biodiversity management purposes (refer to email by Clifford Dorse dated 6 October 2020, as included in Appendix F), potentially freeing it up for housing development.
Based on the information above, a biodiversity offset will be required for the predicted residual loss of CFDS vegetation on the development sites, which are owned by the CCT. Where the affected vegetation is mapped as 'unselected' strandveld in the CIP, a streamlined process is suggested by City officials whereby offset requirements are met through the use of the Macassar Dunes East Conservation Landbank (Oxtoby, Dorse & Wood, 2019). Land for this conservation bank has been reserved for conservation (i.e., it has been vested in the City's Biodiversity Management Branch) and the BMB plans to apply for its declaration as a S 23 Nature Reserve in terms of the NEM Protected Areas Act.
In general, where CFDS other than 'unselected' areas are affected by a proposed development, as in the case of 'priority' strandveld on the western portion of Erf 18370, or where the land in question is not owned by the CCT, a regular offset process involving the identification of a bespoke offset (not part of the Landbank) needs to be followed.

7. LEGAL FRAMEWORK

This Environmental Management Programme (EMPr) has been compiled in fulfilment of the requirements of the National Environmental Management Act, Act No. 107 of 1998 (as amended) (NEMA).The contents of this EMPr comply with the requirements for EMP's as contained in Appendix 4 to the 2014 EIA Regulations.

The EMPr should also adhere to the local authority by-law requirements as well as any other obligatory environmental and other legal requirements.

Changes to this Environmental Management Programme can only occur with the written approval of the DEAD&DP and an updated version should also be forwarded to all parties once the amended EMPr has been approved by the DEA&DP.

It is understood that COCT Housing Implementation or any future development entity (where transfer of ownership occurs) will be fully responsible for this EMPr and its requirements including any environmental rehabilitation that may be needed. This is required in terms of Section 28 (Duty of Care and Remediation of Damage) of the National Environmental Management Act, (Act No. 107 of 1998), as amended.

The applicant should adhere to all statutory requirements which may be relevant to the mixed-use development, contained in, *inter alia*, the following legislation:

- The National Environmental Management Act, Act 107 of 1998, as amended (NEMA);
- The National Environmental Management Biodiversity Act (NEM:BA)
- National Water Act, Act 36 of 1998, as amended;
- National Environmental Management Waste Act, Act 59 of 2008;
- All relevant by laws and building regulations of the City of Cape Town Municipality;
- Relevant SANS codes;
- The Operational Health and Safety Act, Act 85 of 1993;
- The National Environmental Management Air Quality Act, Act No. 39 of 2004; and
- National Heritage Resources Act, 1999 (Act No. 25 of 1999).

8. ENVIRONMENTAL OBJECTIVES, OUTCOMES AND IMPACT MANAGEMENT ACTIONS

8.1. PLANNING & DESIGN PHASE

No direct environmental impacts are associated with the planning and design phase. However, poor planning or inappropriate design decisions in this phase may result in environmental impacts arising during subsequent phases of the project.

Planning and design activities must therefore take into account the environmental constraints and opportunities identified during the Environmental Impact Assessment process, in order to avoid or minimise the potential future impacts of the development. Proper planning is also essential to ensure that adequate provision is made to implement

the environmental requirements of this EMPr, and to ensure that the development remains compliant with the received Environmental Authorisation.

The environmental management objectives (goals) listed below should take place during the detailed design phase, prior to the construction phase:

1. Appoint an Environmental Control Officer.
2. Demarcation of Working Areas.
3. Establishment of Site Camp and Associated Site Facilities.
4. Pre-construction ECO visit.

These environmental management objectives, as well as the management actions (mitigation measure) that should be implemented in order to achieve the desired objective and to avoid/minimize potential impacts are discussed in more detail below.

8.1.1. Objective 1: Appoint an Environmental Control Officer (ECO)

Impact Management Outcome:	The conditions of Environmental Authorisation and the requirements of the EMPr are implemented and monitored during all phases of the development, which will promote sound environmental management on site.	
IMPACT MANAGEMENT ACTIONS:		
Mitigation Measure	**Responsible**	**Time Period**
➢ A suitably qualified and experienced Environmental Control Officer must be appointed before any activities commence on site. ➢ The ECO should inspect the site **once per month for the entire duration of construction activities on site which is estimated to be 36 months.** ➢ The appointed ECO must be advised on the construction start date, before any activities commence on site so that the ECO can perform a pre-commencement inspection and plan for environmental awareness training of construction workers.	Appointed engineering contractor / Applicant	Documentation and Procurement phase
Performance Indicator	A qualified ECO is appointed prior to the commencement of any construction activities taking place on site.	

8.1.2. Objective 2: Demarcation of Working Areas

Impact Management Outcome:	Construction activities will be restricted to within the designated areas & NO-GO areas will be protected from disturbance.	
IMPACT MANAGEMENT ACTIONS:		
Mitigation Measure	**Responsible**	**Time Period**
➢ The following areas should be clearly demarcated on site during the pre-construction or construction phases of the development, as appropriate. Construction Working Area ➢ Prior to the commencement of any land-clearing or construction activities, the outer boundary of the development area must be surveyed, pegged and fenced off. If deemed necessary by the ECO, the outer boundary of the working area can be enclosed with orange barrier netting, bonnox fencing, shade netting, droppers or wire/ danger tape, or similar – as feasible and	Construction Contractor in consultation with the ECO	Pre-construction phase (prior to arrival of construction equipment, machinery, or workers on site)

practical. The fencing should be retained and maintained for the duration of the construction period and must not be moved once approved during construction unless agreed otherwise with the ECO. ➢ The demarcation boundary should be tight around the footprint of the proposed facilities, approximately 0.5m away from the boundary of the proposed infrastructure. This demarcation boundary is to ensure that land-clearing activities are restricted to only that area strictly required for the proposed development and to prevent unnecessary disturbance of soil surfaces and vegetation outside of the development footprint. <u>Construction Site Camp & Associated Facilities</u> ➢ The following site camp areas must be identified and demarcated during the pre-construction phase of the development: • Access Route. • Site camp and site office. • Laydown area. • Ablution area. • Eating area and rest area. • Vehicle & equipment maintenance yard. • Refuelling area. • Stockpile area (for stockpiling topsoil, cleared vegetation, spoil material etc.). • Waste storage area.		
Performance Indicator:	Working areas and areas for site camp facilities have been identified and appropriately demarcated to the satisfaction of the ECO, before construction activities commence on site.	

8.1.3. **Objective 3: Establishment of Site Camp and Associated Site Facilities**

Impact Management Outcome:	Before the start of the construction phase a site camp must be established with all the required ablutions, waste management infrastructure and firefighting equipment where the vehicles and equipment can be stored.	
IMPACT MANAGEMENT ACTIONS:		
Mitigation Measure	**Responsible**	**Time Period**
➢ The following general management measures pertaining to the set-up, operation and closure of a site camp should be applied where appropriate, reasonable and practicable: ✓ **Fencing & Security:** The site camp area should be secured to prevent unauthorised individuals from entering the site camp and possibly getting injured or posing a safety and/or security risk. Adequate signage must be in place, by the ECO, the site camp and associated areas should be fenced off along the demarcated boundaries of these areas, preferably with 2m high fence and shade netting or Bonnox fencing or similar. ✓ **Fire Fighting Equipment:** An adequate number of fire extinguishers (as determined by the fire department) should be	Construction Contractor in consultation with the ECO	Pre-construction phase

present in the site camp. The extinguishers should be in a working condition and recently serviced. A fire extinguisher should always be present wherever any "hot works" (e.g. welding, grinding etc.) are taking place. It is recommended that all construction workers receive basic training in fire prevention and basic fire-fighting techniques and are informed of the emergency procedure to follow in the event of accidental fires. No open fires may be made on the construction site during any phase of the project. No smoking should be allowed on the construction site. In the case of accidental fires, the contractor shall alert the Local Authority's Fire Department as soon as a fire starts and not wait until the fire can no longer be controlled. ✓ **Waste Storage Area:** Sufficient bins for the temporary storage of construction related waste should be provided inside the site camp and/or at the working area. ✓ **Hazardous Substances Storage Area:** Fuels, chemicals, lubricants and other hazardous substances should be stored in a demarcated, secured, secondary contained and clearly sign-posted area within the site camp. ✓ **Potable Water:** An adequate supply of potable water must be provided to construction workers at the site camp. ✓ **Ablution Facilities:** Chemical toilet facilities or other approved toilet facilities (at least 1 toilet for every 15 workers) must be provided and located on the site in such a way that the toilets will not cause any form of pollution of the site. Toilets should be placed within the site camp. Toilets should be placed well outside of any surface drainage/ storm-water canals. The toilets must be placed on a level surface and secured to prevent them from blowing over. The toilets must be serviced regularly and kept in an orderly state. The contractor must ensure that no spillage occurs when the toilets are cleaned, serviced or moved. Performing ablutions outside of the provided toilet facilities is strictly prohibited. The ECO would need to regularly inspect the state of the chemical toilets. ✓ **Eating Area & Rest Area:** A dedicated area within which construction workers can rest and eat during breaks must be provided within the site camp. Seating and shade should be provided. ✓ **Vehicle & Equipment Maintenance Yard:** Where possible, construction vehicles and equipment that require repair should be removed from site and taken to a workshop for servicing. If emergency repairs and/or basic maintenance of construction vehicles or equipment are necessary on site, such repair work should be undertaken within the designated maintenance yard area. Repairs should be conducted on an impermeable surface, and/or a tarpaulin and/or drip trays must be laid down prior to emergency repairs taking place, to prevent any fuel/ oil/ lubricant spillages from contaminating the environment. ✓ **Housekeeping:** the site camp and related site camp facilities must be kept neat and orderly at all times, to prevent potential safety risks and to reduce the visual impact of the site during construction.		
Performance Indicator:	The site camp and facilities are established to the satisfaction of the ECO, before construction activities commence on site.		

8.1.4. **Objective 4: Undertake Pre-Construction ECO Visit**

Impact Management Outcome:	An ECO undertakes the first inspection prior to construction commencing to monitor the applicant's compliance to the pre-construction mitigation measures listed above and in terms of the conditions of the EA.		
IMPACT MANAGEMENT ACTIONS:			
Mitigation Measure		**Responsible**	**Time Period**
➢ An ECO should be appointed to conduct a pre-construction ECO inspection. ➢ The ECO should undertake Environmental Awareness Training with the contractors and subcontractors prior to land clearing.		The Applicant and the ECO	Before construction
Performance Indicator:	An ECO inspection and short report is undertaken before construction commences.		

8.2. CONSTRUCTION PHASE

During the construction phase of the proposed mixed-use development dust, noise and traffic impacts are likely to occur. However, these impacts will transpire for the duration of the construction phase only. Dust impacts may be felt locally, within the immediate vicinity of the site. Therefore, dust impacts will require careful monitoring and management. Other impacts related to the construction phase are visual impacts associated with the construction activity and contamination or pollution of the soil and groundwater as a result of leaking vehicles and /or construction machinery and/ or inappropriate waste management practises.

The environmental management objectives (goals) for this phase are to:

1. Avoid Contamination and Pollution of the Soil and Groundwater.
2. Limit Noise and Dust Impacts.
3. Reduce the Visual Impact of the Construction Phase Activities.

8.2.1. **Objective 1: Avoid Contamination and Pollution of the Soil and Groundwater**

Construction activities will generate waste. In addition, fuel, oil, lubricants and other pollutants may leak from vehicles/ machinery and contaminate the soil. Pollution and soil contamination could also occur from chemical toilets; cement mixing directly on the soil and stormwater runoff may flow over the site camp area and carry contaminants off-site.

Impact Management Outcome:	To avoid the contamination of soil and groundwater by inappropriate management / waste management practises, fuel and oil spills, chemical toilet spills and inappropriate cement mixing.		
IMPACT MANAGEMENT ACTIONS:			
Mitigation Measure		**Responsible**	**Time Period**
➢ The appointed Environmental Control Officer (ECO) must undertake at least one site inspection per month for the duration of the construction phase and produce a short ECO monitoring audit report, auditing the compliance of the developer with the conditions of the Environmental Authorisation and the approved EMP. 1) Liquid Management / Waste Management:		Construction Contractor	Construction Phase

• Liquid dispensing receptacles (e.g. lubricants, diesel, shutter oil etc.) must have drip trays beneath them/beneath the nozzle fixtures. • A spill management protocol must be produced by the Contractor and approved by the ECO prior to works commencing on site. • Material safety data sheets (MSDS) must be available on site where products are stored, so that in the event of an incident, the correct action can be taken. • Depending on the types of materials stored on site, suitable product recovery materials (such as Spillsorb or Drizit products) must be readily available. Ideally hazardous substances should be stored in secondary contained and weatherproof areas. • A designated, bunded area is to be set aside for vehicle washing and maintenance (if required). Materials caught in this bunded area must be disposed of to a suitable waste site or as directed by the Principal Agent. Vehicles should ideally be washed at their storage yard as opposed to on site. • Cement contaminated water must be fed to a container, neutralised and suitably disposed of (e.g. sent to a suitable landfill site). In the latter case, chain of custody documentation must be provided to ensure a suitable end recipient. The latter must be kept with the environmental register. • The Contractor shall ensure that any wastewater generated during construction activities feeds to a suitable containment area such as a container or lined sedimentation pond prior to disposal. This pond or ponds must be allowed to dry out on a regular basis to allow for solid material removal. The wastewater must be disposed of in a suitable manner (possibly to the sewer system following local authority approval) and must not be directed to a storm water drain. • Storm water must be managed in such a way that no overland flow is possible onto any area of the site which could contain potential contaminants (such as concrete mixing areas, material and hazardous storage areas from any adjacent area). 2) Solid Waste: • Waste must be categorised by the Contractor and disposed of in a suitable manner into separate waste streams (this includes general, hazardous and recyclable waste). • The Contractor must provide an adequate number of waste receptacles for general waste at points around the construction site as well as for hazardous and recyclable waste. • Waste is to be collected either by the Municipality or via a licensed waste disposal Contractor. • The frequency of collections/emptying of waste receptacles will be of such a frequency that waste receptacles do not overflow. • Particular care shall be taken with the disposal of materials that could be wind-borne or waterborne to ensure that the release of these materials is minimised (the latter is a requirement for hazardous waste). • The use of netting covers or similar sealed containers must be implemented as and when required by the ECO.		

• Areas demarcated for specific activities including food consumption must have suitable waste receptacles provided. • Wherever possible recycling must be carried out. • No dumping within the surrounding area is to be permitted. • No burning of solid waste is allowed. • All material used by the Contractor during the construction phase shall be managed in such a way that it does not cause pollution, or that it minimises pollution. In the event of a spillage, the Contractor should have suitably trained personnel who can correctly clean up any spillage in an efficient and environmentally sound manner. 3) Hazardous Waste: • Storage areas that contain hazardous substances must be covered and bunded with an approved impermeable liner or have some form of secondary containment. • The Contractor shall keep MSDS on-site for all potentially hazardous materials used. • Suitably trained personnel shall be available on the site during working hours so that in the event of human exposure to any hazardous materials that the correct first aid actions are taken. This training should also include environmental spill containment procedures • Spills in bunded areas must be cleaned up, removed and disposed of safely from the bunded area as soon after detection as possible to minimize pollution risk and reduced bunding capacity. • Chain of Custody documentation must be provided for any hazardous substances disposed of as proof of end recipient. 4) Cement/concrete mixing areas Cement powder has a high alkalinity, which can contaminate and dramatically affect both soil and groundwater. The following recommendations are made: • Mixing areas must be defined on site and approved by the ECO. • No mixing of cement is allowed on bare soil and a lined bund or bunded portable mixer must be used. The use of ready-mix concrete must be considered. • Cement bags must be disposed of in demarcated hazardous waste receptacles and the used bags disposed of via the hazardous substances waste stream. • Excess or spilled concrete must be disposed of to a suitable landfill site, with chain of custody documentation provided. 5) Ablution Facilities • Chemical toilet facilities are to be supplied and managed by the Contractor. These are to be located in a specific area agreed to by the ECO prior to placement and to be used by all personnel. • The number of chemical/portable toilets required on site (i.e. the ratio of persons working on site to number of toilets) must be determined in conjunction with the City of Cape Town Municipality prior to works starting on site. This is typically one toilet per 15 workers.		

• These toilets are to be secured by at least four separate cables or guy ropes to ensure that they are not knocked over or blown over by the wind.		
Performance Indicator:	➢ The ECO will monitor the site to check that the measures have been implemented. ➢ The environment is not polluted or contaminated as a result of construction activities on site. ➢ Spillage incidents are effectively contained and do not lead to pollution of the soil or water resources. ➢ Waste is reduced, reused and recycled where possible.	

8.2.2. **Objective 2: Limit Noise and Dust Impacts**

Please refer to Dust Management Plan (DMP)included as an Appendix to this report.

As a result of the construction phase of this development noise and dust impacts are expected to occur in the area due to an increase in construction vehicle and truck traffic for the duration of the construction phase while materials are being transported to the site, excavations are being made and vegetative groundcover is being removed.

Impact Management Outcome:	The surrounding environment, land users, residents and passers-by do not experience significant nuisance impacts related to dust, noise and vibration.	
IMPACT MANAGEMENT ACTIONS:		
Mitigation Measure	**Responsible**	**Time Period**
1. <u>Dust Mitigation:</u> ***Please refer to Dust Management Plan (DMP)included as an Appendix to this report.*** 2. <u>Noise Mitigation:</u> • Building is to occur daily from 7:00am to 6:00pm. Contractors work in fortnight schedules and may therefore work on Saturdays till 14:00, but not on Sundays or Public Holidays without prior approval from the Local Authority or as agreed otherwise. • A noise complaints register will be opened. • Noise levels must comply with the relevant health & safety regulations and SANS codes and should be monitored by the Health & Safety Officer as necessary and appropriate.	Construction Contractor	Construction phase
Performance Indicator:	➢ The appointed Environmental Control Officer (ECO) to undertake monthly site inspections for the duration of the construction and produce ECO monitoring audit reports, auditing the developer's compliance with the conditions of the Environmental Authorisation and the approved EMP. ➢ Monitor that excessive dust does not arise from the site. ➢ Dust or noise complaints are received and recorded from members of the community and dealt with promptly.	

8.2.3. **Objective 3: Reduce the Visual Impact of the Construction Phase Activities**

The construction phase is associated with temporary disturbance as a result of construction (trench excavations, vehicles, machinery, fencing & signage) that may have a negative visual impact the sensitive receptors (adjacent residents)

Impact Management Outcome:	Sensitive receptors are not significantly impacted upon by construction activities taking place.		
IMPACT MANAGEMENT ACTIONS:			
Mitigation Measure		**Responsible**	**Time Period**
➢ Consult with the ECO when determining the appropriate site for the site camp. ➢ The site camp must be kept neat and tidy and free of litter at all times. ➢ Waste must be managed according to the EMPr. ➢ Good housekeeping practices on site must be maintained to ensure the site is kept neat and tidy. ➢ The site camp, storage facilities, stockpiles, waste bins, and any other temporary structures on site should be located in such a way that they will present as little visual impact to surrounding residents and road users as possible. ➢ Work on site must be well-planned and well-managed so that work proceeds quickly and efficiently, thus minimizing the disturbance time. ➢ The site camp will require visual screening via shade cloth or other suitable material. ➢ Special attention should be given to the screening of highly reflective material. ➢ Use of lighting (if required) should take into account surrounding residents and land users and should present little or no nuisance. Downward facing, spill-off type lighting is recommended. ➢ Construction vehicles must enter and leave the site during working hours. ➢ The appointed Environmental Control Officer (ECO) must undertake at least once site inspection per month, for the duration of the construction phase, and to produce a short ECO monitoring audit report, auditing on the compliance of the property developer with the conditions of the Environmental Authorisation and the approved EMP.		Construction Contractor, Clerk of Works & Clients Health & Safety Agent	Construction Phase
Performance Indicator:	➢ The ECO will monitor the performance of the impact management actions. ➢ Good “housekeeping” is evident on site. ➢ The site does not pose a visual impact to the surrounding community.		

8.3. POST CONSTRUCTION REHABILITATION PHASE

After all construction activities have ceased, the site must be cleared of all construction related equipment, materials, facilities and waste. In addition, all disturbed surfaces – including disturbed areas around the new facilities and all areas utilised for site facilities – must be stabilized, rehabilitated and provided with a suitable indigenous vegetation cover.

The environmental management objective (goal) for this phase is to:

1. Rehabilitate & stabilise disturbed areas and ensure environmentally sensitive closure of the construction site.

8.3.1. **Objective 1: Rehabilitate & stabilise disturbed areas and ensure environmentally sensitive closure of the construction site.**

Impact Management Outcomes:	The site is neat and tidy, and all exposed surfaces are suitably covered/ stabilized and that there is no waste or pollution left behind after completion of construction activities on site.

IMPACT MANAGEMENT ACTIONS:		
Enhancement Measure	**Responsible**	**Time Period**
➢ On completion of the construction operations, the site camp area must be cleared of all site camp facilities, ablution facilities, fencing, signage, waste and surplus material. ➢ Surfaces are to be checked for waste products from activities such as concreting or asphalting and cleared in a manner approved in writing by the ECO. ➢ Any contaminated soil must be collected and disposed of as hazardous waste. ➢ All construction waste, litter and rubble are to be removed from the site and re-used elsewhere or recycled/disposed of at an appropriate facility. Burying or burning of waste or rubble on site is prohibited. ➢ All areas within the working area and site camp that have become devoid of vegetation or where soils have been compacted due to construction activities should be scarified or ripped. ➢ All exposed soils and recently top-soiled areas are to be re-vegetated or stabilised to the satisfaction of the Engineer and ECO, to protect these areas from wind & water erosion. No areas are to be left exposed to erosive forces. Erosion protection measures that can be applied include mulching (described above), the placement of geotextile, onion bags filled with wood chips, brush-packing or other similar measures. ➢ Any topsoil, subsoil or other excavated material that cannot be utilized during site rehabilitation should be removed from the site and reused elsewhere in the Municipality or disposed of at an appropriate disposal site. ➢ Final landscaping and rehabilitation of the site must be done to the satisfaction of the ECO and signed off by the ECO and must adhere to all conditions/ requirements of the Environmental Authorisation.	Construction Contractor	Post-Construction rehabilitation *(some rehabilitation measures can be applied during the construction phase, as construction activities are completed in each area)*

Performance Indicator:	➢ All construction-related materials, equipment, facilities and waste have been removed from the site. ➢ Compacted soils have been scarified/ ripped and stabilized. ➢ All disturbed/exposed surfaces have been provided with a suitable covering and/or stabilised. ➢ All residual construction-related waste, pollution and contaminated soils have been removed from site and from within the stormwater swales.

8.4. OPERATIONAL PHASE

During the operational phase of a housing development such as this one, traffic, noise and visual impacts have been identified to possibly occur, which requires management.

The environmental management objectives (goal) for this phase is to:

1. Avoid long-term degradation of Offset area
2. Avoid Soil & Groundwater Contamination and Indirect Human Health Impacts

3. Limit Visual Impacts to Sensitive Receptors
4. Limit Traffic & Safety Impacts from Occurring.
5. Enhance Business & Employment Opportunities

8.4.1. Objective 1: Avoid long-term degradation of Offset area

During the operational phase of the proposed development degradation of the identified offset area could occur should this area not be managed correctly.

Impact Management Outcome:	No degradation of the offset area occurs.	
IMPACT MANAGEMENT ACTIONS:		
Mitigation Measure	**Responsible**	**Time Period**
The impacts of the proposed project would last in perpetuity. In line with current thinking[2], it is considered reasonable for an environmental authorisation holder to be held responsible for managing an offset site for not less than 30 years, covering the initial establishment and rehabilitation costs followed by ongoing maintenance. The final recommendations from the Offset study are as follows: The applicant must secure and through provision of the necessary resources, ensure the formal protection and effective ecological management of 55.35 ha of Cape Flats Dune Strandveld in the Macassar dunes East Conservation Landbank for a 30-year period. The City of Cape Town Environmental Management Department (EMD) has also confirmed in a letter dated 18 March 2022 (as attached in Appendix F), that the EMD is supportive of using a portion of Macassar East conservation land bank to mitigate for the loss of the 55.35 ha that is calculated to be lost with the development of the proposed Enkanini South Housing Development. The 55.35 ha required as an offset would therefore be deducted from the area available for future biodiversity offsets in the Macassar East conservation land bank.	Operational Management of the Site	Operational Phase
Performance Indicator:	Stormwater is effectively being managed on site.	

8.4.2. Objective 2: Avoid Soil & Groundwater Contamination

During the operational phase of the proposed development soil and groundwater contamination could result if stormwater is not managed correctly there is the potential for the unmanaged stormwater runoff to impact negatively on the environment, potentially causing pollution and contamination.

Impact Management Outcome:	No soil or groundwater contamination occurs.	
IMPACT MANAGEMENT ACTIONS:		
Mitigation Measure	**Responsible**	**Time Period**
➢ Implementation of all Stormwater Management Measures including: o Provision of stormwater infrastructure will adhere to the CoCT Minimum Standards for Roads and Stormwater	Operational Management of the Housing Development	Operational Phase

[2] Reflected in the revised draft policy on biodiversity offsets, *pers comm*. Peter Lukey and Pamela Kershaw (DEA).

Design and will include relevant guidelines as specified in the drainage manual and red book. o Stormwater for the development will be managed on a catchment-wide basis taking into account the surrounding built and natural environment. o Stormwater infrastructure proposed for the site will comprise of both overland drainage on surfaced roads and underground pipe systems. o Minor system: All streets in the development will be designed to act as stormwater collectors and conveyors. To achieve this, the low side of the streets will be placed below the natural ground level to receive stormwater runoff from contributing catchments. The roads will have catch pits incorporated on the lower edges for stormwater to drain into buried pipe systems. The stormwater conveyed in the pipes will run through the site and will discharge into acceptable receiving bodies such as open fields, attenuation ponds and existing stormwater networks. o This system will be limited to cater for the minor storm events only. The network will be sized to accommodate a 2-year flood recurrence interval. In this scheme road networks will not be allowed to flood. o Major system: For Major storms events, the road networks (i.e. within road reserve boundaries) together with the underground stormwater pipes will be designed to accommodate a 50-year flood recurrence interval. The maximum stormwater carrying capacity of the roads will be utilised. Excess runoff from the major storm event, which will be conveyed within the roadway, will be allowed to reach a maximum height of 150mm above the highest point. Under such conditions, inconvenience to residents is acceptable but access by emergency vehicles should not be completely hindered. Discharge points will be free draining. o Public open spaces will be utilised in overland hydraulic routes where possible. This will promote ground water infiltration, which effectively increases the time of concentration thus reducing the impact of concentrated flow at the discharge points. o Design Guidelines: Computation of stormwater quantities will be based on the rational method as described in the drainage manual. The storm intensity will be determined using IDF curves obtained from the most suitable rainfall monitoring station. Design criteria recommend for the stormwater pipe network is specified in Table 6-1. A concept stormwater design for the development is given in **Annexure B**. ***Refer to Table 6-1, p.13 of the Preliminary Engineering Report.*** o Stormwater management post development: Post development runoff will not exceed the pre-development runoff. Stormwater storage facilities will be incorporated and will be designed to restrict the runoff from developments where the post-development runoff exceeds that of the pre-development.		
Performance Indicator:	Stormwater is effectively being managed on site.	

8.4.3. **Objective 3: Limit Visual Impacts to Sensitive Receptors**

The housing development will be visible from nearby residents and communities.

Impact Management Outcome:	To mitigate the visual impact to the surrounding residents.	
IMPACT MANAGEMENT ACTIONS:		
Mitigation Measure	**Responsible**	**Time Period**
➢ Height will be as low as possible as long as the National Building Code (SABS) South African Bureau of Standards allows it. This is to reduce its height, dominance and scale. ➢ The site layout plan has been designed to orientate the building to limit visual impact. ➢ A Landscaping Plan should be prepared and implemented on site to improve the visual character of the site. e Areas. ➢	The Applicant	Ongoing during Operational Phase
Performance Indicator:	The POS areas on site are landscaped. The housing design and colour does not pose a visual impact.	

8.4.4. **Objective 4: Limit Traffic & Safety Impacts from Occurring**

Traffic impacts are expected to occur for the duration of the operational phase of the activity as a result of the additional vehicles from the residents of the housing units obtaining access to their homes as well as the traffic generated by the public nodes. This could lead to safety impact or damage to road infrastructure.

Impact Management Outcome:	To ensure that any damage to the road network is repaired, reduce traffic nuisance to the adjacent residents as far as possible and avoid traffic accidents or delays as a result of construction vehicle movements.	
IMPACT MANAGEMENT ACTIONS:		
Mitigation Measure	**Responsible**	**Time Period**
➢ All mitigations as recommended in the Traffic Impact Assessment is to be implemented, this includes: ➢ The Access Management Plan for Baden Powell Drive be accepted. ➢ The following intersection improvements be implemented to accommodate: i. Background growth ▪ Baden Powell/Oscar Mpetha Road – convert to single lane roundabout ii. Phase 1 ▪ Mew Way/Baden Powell Drive – convert to single lane roundabout iii. Phase 2 ▪ Mew Way/Baden Powell Drive – convert to single lane roundabout ▪ Baden Powell Drive/Monwabisi West/Access 7 – convert to single lane roundabout	The Applicant	Construction Phase & Operational Phase
Performance Indicator:	➢ The road upgrades be implemented as described in the TIA.	

	➢ Prevention and routine maintenance to road infrastructure damage caused by construction vehicle movements ➢ Mitigations when traffic nuisance and traffic delays are caused by construction vehicles.

8.4.5. Objective 5: Enhance Business & Employment Opportunities

The operational phase of this development is expected to generate approximately 300 permanent jobs mostly (50%) to previously disadvantaged individuals. Employment opportunities, income opportunities, better access to public transport and retail opportunities will all enhance the quality of life and socio-economic status of the community and residents.

Impact Management Outcome:	The development provides a benefit to the local community in terms of job provision.	
IMPACT MANAGEMENT ACTIONS:		
Mitigation Measure	**Responsible**	**Time Period**
➢ Preference should be given to historically disadvantaged individuals from the local, surrounding community, when appointing employees.	City of Cape Town	Operational Phase
Performance Indicator:	Approximately 300 permanent jobs are created, most of which 150 are provided to the local community and to historically disadvantaged community.	

9. IMPLEMENTATION OF THE EMPR

9.1. Roles and Responsibilities, including Monitoring and Auditing

Environmental Control Officer ("ECO")

(a) The ECO must be appointed prior to commencement of any construction activities.

(b) The responsibilities of the ECO and the contractor will include monitoring of compliance with the EMPr by the applicant and any sub-contractors during the construction phase. The frequency of the site inspections will be **once per month** until the completion of the construction phase which is projected to last 36 months in total. Pictorial reports will be submitted every month and a full audit report will be submitted when the construction phase has been completed.

(c) The ECO has the authority to recommend the cessation of works on any portion of construction related activity to the applicant. This will be triggered if in his/her opinion the activity has caused or will imminently cause significant damage and/or harm to the environment or is in contravention of the relevant environmental legislation/permits/authorisations applicable to the site and/or activity/ies.

(d) If the applicant fails to show adequate consideration to the EMPr or the recommendations of the ECO, then the ECO may recommend to the authorities that the aspect of operations to which non-compliance relates, ceases until the non-compliance is adequately rectified.

Duties of the ECO

1. Ensuring that the EMPr conditions are adhered to at all times and taking action where the specifications are not being followed.
2. Ensuring that environmental impacts are kept to a minimum.
3. Reviewing and approving method statements in consultation with the Principal Agent.

4. Advising the contractor on environmental issues and assisting in developing environmentally responsible solutions to problems.
5. Reporting to the applicant on a regular basis and advising of any environmental impacts.
6. Attending site meetings (when necessary) and giving a report back on the environmental issues at these meetings and other meetings that may be called regarding environmental matters.
7. Inspecting and auditing the site and surrounding areas regularly.
8. Establishing and monitoring an on-going environmental awareness program in conjunction with the contractor.
9. Requesting the removal of person(s) and/or equipment not complying with the specifications.
10. Keeping both a written and photographic record of progress on site from an environmental perspective, and an ad hoc record of all incidents or events on site with environmental ramifications. These records should be dated and accurately catalogued in the onsite logbook, and separate audit reports.
11. Undertaking continual internal review of the EMPr and submitting a report at the end of the project.
12. The ECO will submit all written instructions and verbal requests to the contractor via the City project manager.

The Client- City of Cape Town Housing Implementation

This EMPr, once approved by the competent authority (the DEA&DP), should be seen as binding to the Applicant, and any person acting on the Applicant's behalf, including but not limited to agents, employees, associates, contractors and service providers.

The Applicant and all other persons who may utilize, maintain or service the facilities are also bound by their general Duty of Care, as stated in Section 28 of the National Environmental Management Act, 1998:

> ***Duty of Care:***
> *"Every person who causes, has caused, or may cause significant pollution or degradation of the environment must take reasonable measures to prevent such pollution or degradation from occurring, continuing or recurring, or, in so far as such harm cannot reasonably be avoided or stopped, to minimize and rectify such pollution or degradation of the environment"*

The Client – the client is responsible for employing the ECO, Contractor and any Sub-contractors for the lifecycle of the facility. It is the client responsibility to ensure that all appointed parties fulfil their obligations in terms of this EMPr, i.e. the implementation of this EMPr is the Client's responsibility, and the Client must ensure that all activities taking place on the site are conducted in an environmentally responsible manner and in accordance with the requirements of this EMPr.

The Engineer

The engineer representing the developer on site is responsible for the technical and contractual implementation of the works to be undertaken. The engineer would will oversee site work and liaise with both the contractor and the ECO.

The Contractor

The contractor is responsible for implementation and compliance with the requirements of the EMPr, conditions of the contract and relevant environmental legislation. The Contractor must ensure that all sub-contractors have a copy of and are fully aware of the content and requirements of this EMPr. The contractor is required, where specified, to provide Method Statements setting out in detail how the management actions contained in the EMPr will be implemented.

Environmental Site Officer

The ESO is employed by the Contractor as his/her environmental representative to monitor, review and verify compliance with the EMPr by the contractor. This is not an independent appointment; rather the ESO must be a

respected member of the contractor's management team.

9.2. Documentation and Record Keeping

(a) List of onsite documentation

An environmental register must be kept at the site, which must include the following:

- An accident and incident register;
- Complaints register;
- Site evacuation plan/maps; and
- Method statements
- Signed Environmental Training register
- Waste Disposal Certificates

In addition, this EMPr and Environmental Authorisation must be kept at the site. The right of the public to information shall be respected in accordance with relevant legislation.

(b) Environmental Register

The environmental register should be used to record any relevant daily information related to the operations and current status of the site, including the following information:

- Details of audits and inspections carried out by the ECO and/or as detailed in this EMPr and follow-ups
- Instances of non-conformances found in terms of the EMPr, the date of their occurrence, date of corrective action, and date of completion of preventive action
- Details of chain of custody documentation
- Any other relevant/pertinent daily events
- The environmental register should also contain the accident and incident register and/or the complaints register.

(c) Accident and Incident Register

An accident and incident register must be kept and should include the following information:

- Time, date and place of the accident and/or incident
- Who and what was involved?
- A detailed description of the accident or incident.

(d) Complaints register

A complaints register must be kept for the recording of all complaints lodged regarding the cemetery. It is important that the complainant feels that their concerns have been listened to and that appropriate action (within reason) has been taken to address these.

The complaints register must include:

- Detail of the complaint in clear, well-structured language
- Time and date of complaint and details of complainant for follow-up purposes.
- Name of the person who received the complaint.
- Description of action that was taken to address the complaint, including date and time of action.

(e) Method statements

Method Statements (a template for these purposes is appended to this EMPr) will be required for activities that may result in significant impacts according to the ECO.

These must address the following aspects:

- What – a brief description of the work to be undertaken
- How – a detailed description of the process of work, methods and materials
- Where – a description of the location of the work (if applicable)
- When – the sequencing of actions with commencement and completion date estimates

All Method Statements (MS) must be in place at least **5 working days prior to the relevant construction activities** taking place and must be approved by the ECO prior to being implemented.

9.3. Environmental Awareness and Training

The Contractor should make allowance for all construction site staff, including all subcontractors that will be working at the site, to attend environmental awareness training sessions (undertaken by the ECO) before commencing any work on site. During this training, the ECO will explain the EMPr and the conditions contained therein. Attention will be given to the construction process and how the EMPr fits into this process. Other items relating to sound environmental management which should be discussed and explained during the environmental awareness training sessions include:

- The demarcated “No-Go” areas;
- General do’s and don’ts of the site;
- Making of fires;
- Waste management, use of waste receptacles and littering;
- Use of the toilets provided;
- Use and control of building materials and equipment etc.;
- Control, maintenance and refuelling of vehicles;
- Methods for cleaning up any spillage;
- Access and road safety;
- Emergency procedures (e.g. in case of fire, spillage etc.)
- General “best practice” principles, as regards the protection of environmental resources.

Environmental awareness training and education should be ongoing throughout the construction phase and should be undertaken regularly if deemed necessary (especially if it becomes apparent that there are repeat contraventions of the conditions of the EMPr), or as new workers come to site. Translators should be utilized where needed.

9.4. Matters Pertaining to Non-Conformance onsite

“Non-conformances” would occur when there are deviations from any of the requirements of this EMPr. This may also include non-compliance with the relevant environmental regulations.

Non-conformances and corrective action must be recorded in the environmental register and included in the audit reports compiled by the ECO.

The Client may introduce some form of penalty system for contractors onsite if compliance with the EMPr proves problematic.

During the operational phase, it is not foreseen that any ECO Audit Reports are required. The DEA&DP may however request Operational Phase Audits to take place as a condition of the EA.

The Client, their contractors, sub-contractors and employees are legally bound by *Section 24(h) National Environmental Management Second Amendment Act, Act No. 107 of 1998,* which states that it is “an offence for any person to contravene conditions applicable to any environmental authorization granted for a listed activity. A person convicted of an offence is liable to a fine not exceeding R5 million or to imprisonment for a period not exceeding ten years, or to both such fine and such imprisonment”

This Environmental Management Programme, when approved, constitutes a Condition applicable to an Environmental Authorisation and any transgression would thus trigger Section 24(h) of the above-mentioned Act. The exact penalty and fines will be decided on, subsequent to consultation with DEA&DP and the local municipality.

All staff working on-site must be made aware of the consequences of non-conformance.

CHANTEL MÜLLER

SILLITO ENVIRONMENTAL CONSULTING (PTY) LTD

ANNEXURE A
GLOSSARY

TERMS USED IN THIS *EMPr*

The terms used include the following:

The term **'client'** means the owner of the facility to which this EMPr applies.

The term **'construction'** means all organised activities concerned with demolition, building, landscaping, maintenance, civil engineering, process engineering, heavy engineering and mining.

The term **'contractor'** means an organisation that contracts with the applicant to carry out the work under a contract, including construction and other services.

The term **'decommission'** means all organised activities concerned with demolition of infrastructure (above and below ground) on site as well as the associated removal of infrastructure on site as well as the rehabilitation and/or site clean up after infrastructure has been removed.

The term **'design'** means the process (and product) of converting a brief into design details ready for documentation, including concept design and design development, and then documentation or detailing of the technical and other requirements for the project in a written form that details the project product sufficiently for it to be constructed or otherwise provided.

The term **'environmental opportunity'** means a potential for beneficial environmental impacts (such as an improvement in air or water quality through environmentally friendly technology alternatives).

The term **'environmental risk'** means a potential for adverse environmental impacts (such as pollution of a water source during decommissioning activities).

The term **'management'** means the planning and interactive controlling of human and material resources to achieve time, cost, quality, performance, functional and scope requirements. It involves the anticipation of changes due to changing circumstances and the making of other changes to minimise adverse effects.

The term **'procurement'** means the collection of activities performed by and for an agency to acquire services and products, including assets, beginning with the identification/detailing of service requirements and concluding with the acceptance (and where applicable, disposal) of the services and products.

The term **'project'** means an undertaking with a defined beginning and objective by which completion is identified. Project delivery may be completed using one contract or a number of contracts.

The term **'service provider'** means a contractor, subcontractor, supplier, consultant (including an agency) and sub-consultant (contracting with a consultant), and their service providers, that contract with a customer to carry out construction, decommissioning, provide other products (including goods) and/or provide services.

The term **'subcontractor'** means an organisation that contracts with a contractor as the customer to carry out construction and related services, and/or provide other products.

The term **'supplier'** means an organisation that contracts with a contractor or Principal Agent to supply a product and/or service.

ANNEXURE B
POSSIBLE METHOD STATEMENT TEMPLATE

METHOD STATEMENT FOR THE:

……..

This method statement is to be completed by the Contractor (in consultation with the ECO) at least 5 working days prior to the proposed commencement date of the said work and represents a binding agreement to the Method Statement by all site Contractors and Subcontractors involved in the work for which the Method Statement is submitted.

DATE OF SUBMISSION:…….

CONTRACTOR:…….

SUBCONTRACTORS (IF RELEVANT):……

A) Describe in detail ***what*** work is to be undertaken?

B) Describe in detail ***where*** on the site the works are to be undertaken and the ***extent***? Provide sketch plan and grid block reference.

C) ***When*** will the works start and what is the anticipated finishing date of these works?

D) ***How*** are the works to be undertaken?

1) Lead supervisor/ foreman name and contact details:

2) Number of personnel:

3) Construction activities:

4) Plant and machinery to be used:

5) Materials to be stored (specify hazardous materials):

6) Other:

E) What ***environmental impacts are anticipated and what precautions*** are proposed to prevent these impacts? (refer to the relevant sections of the EMPr for guidance and provide a general camp layout)

Camp site demarcation:
Toilet facilities:
Litter:
Security:
Plant/machinery (operation, servicing, management, storage, refuelling etc.):
Emergencies and fire:
Hazardous materials (handling, management, storage etc.):
Have all personnel involved been through an environmental induction course?
Hazardous substances spill remediation and containment measures:
Other:

DECLARATIONS BY PARTIES

1) CONTRACTOR

I UNDERSTAND THE CONTENTS OF THE METHOD STATEMENT AND THE SCOPE OF THE WORKS REQUIRED OF ME. I FURTHER UNDERSTAND THAT THE METHOD STATEMENT MAY BE AMENDED ON APPLICATION TO THE ABOVE SIGNATORIES, AND THAT THE ENVIRONMENTAL CONTROL OFFICER WILL AUDIT MY COMPLIANCE WITH THE CONTENTS OF THIS METHOD STATEMENT.

_____ (PRINT NAME)

_____ (SIGNED) DATED: _____

2) ENVIRONMENTAL CONTROL OFFICER (ECO)

THE WORK DESCRIBED IN THIS METHOD STATEMENT, IF CARRIED OUT ACCORDING TO THE METHODOLOGY DESCRIBED, IS SATISFACTORILY MITIGATED TO PREVENT AVOIDABLE ENVIRONMENTAL HARM.

_____ (PRINT NAME)

_____ (SIGNED) DATED: _____

3) PRINCIPAL AGENT

THE WORK DESCRIBED IN THIS METHOD STATEMENT, IF CARRIED OUT ACCORDING TO THE METHODOLOGY DESCRIBED, IS SATISFACTORILY MITIGATED TO PREVENT AVOIDABLE ENVIRONMENTAL HARM.

_____ (PRINT NAME)

_____ (SIGNED) DATED: _____

ANNEXURE C
SITE LAYOUT PLAN

ANNEXURE D
ENVIRONMENTAL AUTHORISATION

ANNEXURE E
INCIDENT REGISTER AND BASIC ACCIDENT REGISTER TEMPLATES

INCIDENT REGISTER (EXAMPLE)

"*Incident*" means - an unexpected sudden occurrence, including a major emission, fire or explosion leading to serious danger to the public or potentially serious pollution of or detriment to the environment, whether immediate or delayed					
Date (yyyy/mm/dd)	**Incident**	**Comments** *(Include any possible explanations for current condition and possible responsible parties. Include photographs, records etc. if available)*	**Corrective Action Taken** (*Give details and attach documentation as far as possible)*	**Reference no. for On-Site Logbook** (e.g. Rv 6/12 Inc 1)	**Signature**

BASIC ACCIDENT REGISTER (EXAMPLE)

Date (yyyy/mm/dd)	**Accident**	**Names of Persons Involved**	**Comments, Including Injuries Sustained** *(Include any possible explanations for current accident. Include photographs, records etc. if available)*	**Corrective Action Taken** (*Give details and attach documentation as far as possible)*	**Reference no. for OHS Documentation and Attachments** *(e.g. Rv 6/12 Acc 1)*	**Signature**

ENVIRONMENTAL CONSULTING

CITY OF CAPE TOWN: HOUSING IMPLEMENTATION ENKANINI HOUSING DEVELOPMENT, KHAYELITSHA, CAPE TOWN

DUST MANAGEMENT PLAN

Report compiled by:	Report reviewed by:
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MARCH 2022

SEC Reference Number: 020052

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EXECUTIVE SUMMARY

The City of Cape Town Municipality is acting as the developer for the Enkanini proposed human settlement development. The current appointment includes the provision of services up to land use approval and is limited to conceptual design phase and civil and electrical design.

The development aims to provide for approximately 5500 serviced sites with the associated educational, community and commercial uses.

ALTERNATIVE 3: (Current proposed Preferred Alternative): Excluding the no go area and including a proposed offset area)

Given the current extent of illegal land occupation taking place on site, the dire need for housing in the country and the complications associated with successfully cordoning off and protecting sections of no-go areas in the long term; it was recommended that an offset be identified for the sensitive areas identified on site and that the no-go buffer area towards the eastern boundary of the site is no longer required. The layout was thus revised to include the area previously excluded; thus the entire subject property area is now available for urban development.

The total amount of residential erven proposed for this layout is 5700 units on a 100.38ha area. This amounts to a gross density of 57 units per hectare.

Possible dust generating activities during construction include:

- The excavation, loading, handling and haulage of construction materials, including gravel and sand.
- The in-situ compaction from surface using a heavy vibratory roller and the placing of foundations..
- The removal of approximately 0.5 m of the soil to stockpile, followed by *in situ* compaction using a heavy vibratory roller and the re-compaction of the stockpiled sand in layers up to the required build platform level.

To minimise the generation of dust, access roads and gravel working areas can be treated with dust supressing agents like *Dustex* or watered with a water cart. These mitigation

measures are mostly effective where there are flat gravel/fill surfaces. To mitigate the formation of dust during the construction activities, construction materials, where possible, can be kept moist by means of water carts and/or dust supressing fog sprayers can be positioned on site. Lastly, straw/hay can be worked into the surfaces on fill slopes.

Although the Environmental Management Programme (EMPr) that has been developed for this project already has in place some dust control measures, additional measures were added to the dust management plan in order to assist in decreasing the amount of dust fallout.
Any dust control measure that requires water or misting systems, may not use municipal potable water.

A complaints register will be kept by the applicant/client and principal contractor. The register will be kept on site in the offices with access throughout construction for any scrutiny and/review by the responsible City officials.

City of Cape Town: Housing Implementation, will also provide an implementation progress report to the air quality officer at agreed time intervals when required. The Dust Management Plan will be assessed on an annual basis, or as required for specific dust control measures, in order to determine its compliance.

Contents

LIST OF TABLES, FIGURES AND APPENDICES

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Appendices

1 INTRODUCTION

The City of Cape Town Municipality is acting as the developer for the Enkanini proposed human settlement development. The current appointment includes the provision of services up to land use approval and is limited to conceptual design phase and civil and electrical design.

The development aims to provide for approximately 5500 serviced sites with the associated educational, community and commercial uses.

The application for Environmental Authorization is made to the Competent Authority, namely the Provincial Department of Environmental Affairs and Development Planning ("DEA&DP") and is required as the proposed development triggers an activity which is listed in terms of the National Environmental Management Act ("NEMA") Environmental Impact Assessment ("EIA") Regulations, 2014.

As part of required public participation of the EIA process, the applicant received comment from the City of Cape Town with the request to submit a dust management plan to the City's Air Quality Management Unit in terms Section 26 of the City of Cape Town Air Quality Management By-law (August 2016).
The Dust Management Plan includes:

- Identification of possible sources of dust from the site during construction and operational phase
- Recommended measures to mitigate dust emissions
- Implementation schedule of mitigation measures
- Name of person responsible for implementation of measures
- Complaints register regarding dust fall

2 SCOPE OF WORK

The scope of the work of this report includes the following:

- Compile a Dust Management Plan for the Enkanini housing development in terms of the requirement of the City's Air Quality Management Unit in terms Section 26 of the City of Cape Town Air Quality Management By-law (August 2016) and Section 6 (2) of the NEM:AQA National Dust Control Regulations Government Notice R.827 (November 2013).

- This includes discussions with the applicant as well as the professional team and the review of information received from the applicant and professional team.

3 LEGAL REQUIREMENTS

This dust management plan is based on the requirements listed in the:

- NEM:AQA National Dust Control Regulations Government Notice R.827 (November 2013) Section 6 (2)
- City of Cape Town Air Quality Management By-law (August 2016) Section 26

4 SITE LAYOUT

The proposed residential development measures approximately 100.38ha in extent and will be situated within the Cape Flats area along the False Bay coastline, with Baden Powell Drive to the south, Oscar Mpetha Road to the west and Mew Way to the north and east.

Figure 1: Site location, CoCT March 2021 Drone Imager. Please refer to Appendix A1 for additional Locality Maps.

Property size(s) of all proposed cadastrals:

Erf RE/18370: Approximately 5 159 834.40m2 (515.99ha)
Erf Re/18332: Approximately 3 758 568.60m2 (375.86ha)

SG Digit code(s) of the proposed site(s) for all alternatives:	Erf RE/18370	C	0	1	6	0	0	6	3	0	0	0	1	8	3	7	0	0	0	0	0	0
	Erf Re/18332	C	0	1	6	0	0	6	3	0	0	0	1	8	3	3	2	0	0	0	0	0

Table 1: SG Digit codes

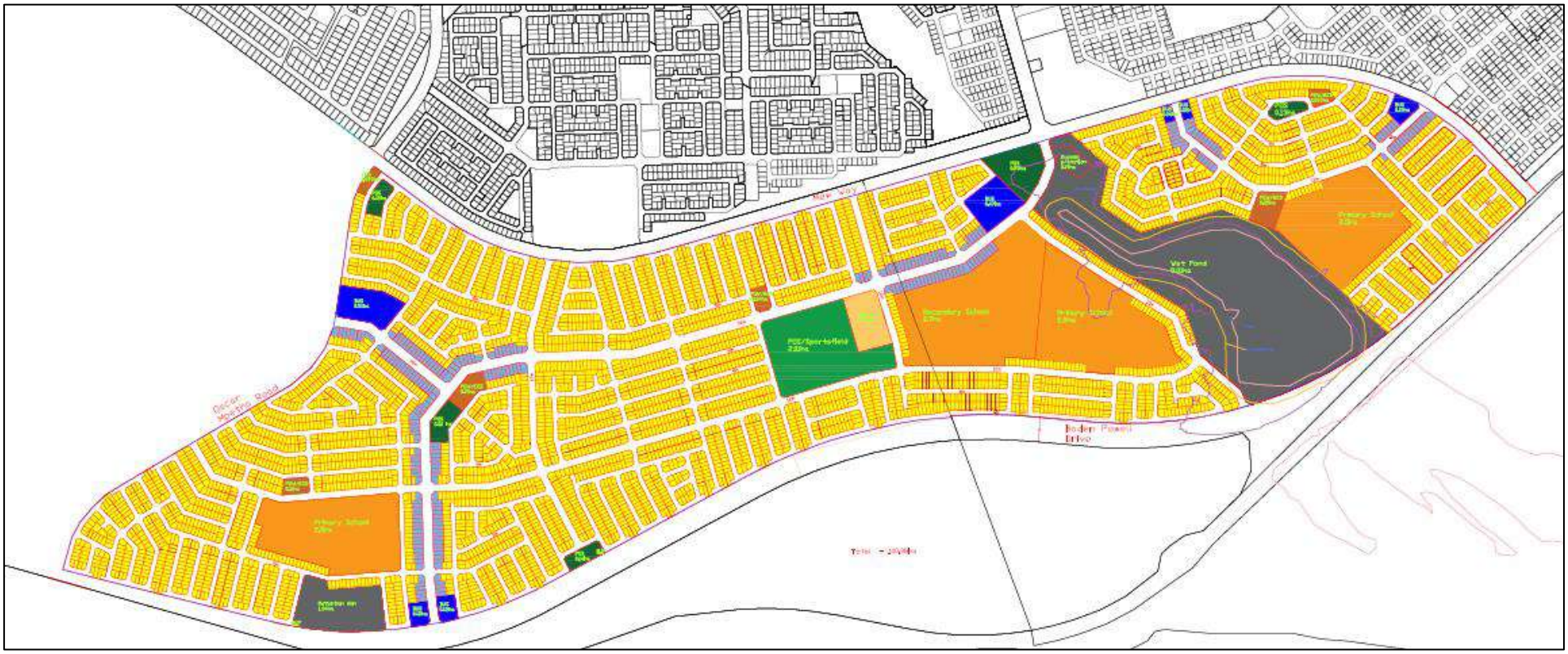

Figure 2: Preferred Layout Proposal

5 PROJECT DESCRIPTION

ALTERNATIVE 3 Current proposed Preferred Alternative: Including the no go area, a proposed offset area and the BMB area previously earmarked for biodiversity conservation purposes.

Given the current extent of illegal land occupation taking place on site and the complications associated with successfully cordoning off and protecting sections of No-Go areas in the long term; it was recommended that an offset be identified for the sensitive areas identified on site and that the no-go buffer area towards the eastern boundary of the site is no longer required. The layout was thus revised to include the area previously excluded; thus the entire subject property area is now available for urban development.

The total amount of residential erven proposed for this layout is 5500 residential erven on a 100.38ha development area. This amounts to a gross density of 55 residential erven per hectare.

The current appointment includes the provision of services up to land use approval and is limited to conceptual design phase and civil and electrical design. Given the fast pace of land invasion on the proposed site for development, the current proposal will also include Temporary Relocation Areas (TRAs). As such the level of detail that will be included as part of this application will be of a conceptual design nature and will include details on the location, size, and amount of different land uses (e.g., public facilities, residential erven, stormwater, and other civil and engineering facilities etc.) but will not include the design and detail for top structures.

6 IDENTIFICATION OF DUST SOURCES

The construction of the bulk earthworks, the access roads and services related to the project, which include the following activities, could be of a dust generating nature:

- The excavation, loading, handling and haulage of construction materials, including gravel and sand.
- The in-situ compaction from surface using a heavy vibratory roller and the placing of strip foundations at a depth of about 0.5m below surface.
- The removal of approximately 0.5 m of the soil to stockpile, followed by *in situ* compaction using a heavy vibratory roller and the re-compaction of the stockpiled sand in layers up to the required build platform level. Once successfully compacted the housing units will be founded at a depth of about 0.5 m using conventional strip foundations.

To minimise the generation of dust, access roads and gravel working areas can be treated with dust supressing agents like *Dustex* or watered with a water cart. These mitigation measures are mostly effective where there are flat gravel/ fill surfaces. To mitigate the formation of dust during the construction activities, construction materials, where possible, can be kept moist by means of water carts and/or dust supressing fog sprayers can be positioned on site. Lastly, straw/hay can be worked into the surface of the fill slopes.

Although some dust control measures are already accommodated in the Environmental Management Programme (EMPr), additional measures were added to the Dust Management Plan (DMP) to prevent possible future dust pollution by decreasing the amount of probable dust fallout. Dust control measures are prohibited from utilising municipal potable water for misting or suppression systems during construction.

A complaints register will be retained on site by the appointed contractor(s) during the Construction Stage of the project on instruction from the applicant/client. City officials will be able to review the complaints register during site inspections and will also be able to record commentary in the Site Correspondence books retained inside the site offices (Contractors and/or Site engineers' representatives).

City of Cape Town: Housing Implementation will also provide an implementation progress report to the air quality officer at agreed time intervals when required. The Dust Management Plan will also be assessed on an annual basis, or as required for specific dust control measures, in order to determine its compliance with this Dust Management Plan.

7 IMPLEMENTATION STRATEGY AND MITIGATION ACTIONS

7.1 CURRENT DUST MANAGEMENT

The dust control measures provided in **Table 2** will be applied to the future infrastructure construction on the Enkanini Housing Development site..

Table 2: Current Dust Control Measures

Source	Dust Control Measures	Person Responsible
Movement of vehicles around the site	Roads sprayed with dust suppressant (see **Appendix A** for MSDS). To be re-applied when road 'crust' is damaged or abnormal rains have washed suppressant into soil.	Applicant/Client and main contractor
Loading of JCB's and FEL's from the various stockpiles	Use of hose installed at various points around stockpile area to wet product before loading commences. No watering with municipal potable water	Applicant/Client and main contractor

7.2 ADDITIONAL DUST MANAGEMENT

The additional dust control measures provided in **3** have been identified to assist in decreasing the amount of dust fallout on the site.

Table 3: Additional Dust Control Measures

Number	Source	Dust Control Measures	Person Responsible	Implementation
1	**Construction**	All machinery generating emissions must be regularly serviced and maintained such that their emissions are acceptable.	Applicant/Client and Main contractor	At all times
2	**Construction**	If cement silos are utilised, filters must be installed to prevent excessive generation of cement dust during deliveries.	Applicant/Client and main contractor	At all times
3	**Construction**	Windblown dust and sand may generate considerable negative impacts (e.g. reduced visibility for vehicles travelling along adjacent roads and nuisance to neighbours/adjacent erven). The use of water bowsers and wetting down of loose soil areas, as well as the erection of shade netting screens to prevent off-site movement of dust is required and/or other appropriate action to minimise this impact.	Applicant/Client and main contractor	At all times
4	**Construction**	Rubble, waste and dust generated on higher open floor levels vulnerable to the effects of the wind must be covered and removed regularly to prevent becoming windblown and migrating off site.	Applicant/Client and main contractor	At all times
5	**Construction**	The use of straw stabilisation or mulching of exposed sandy areas may also be considered in consultation with the ECO.	Applicant/Client and main contractor	At all times
6	**Construction**	The height of exposed loose material stockpiles, such as sand, rubble, etc. must be minimised as far as possible and covered or screened during high wind conditions, overnight and over weekends.	Applicant/Client and main contractor	At all times
7	**Construction**	As a general best practice guideline, the Water By-law (PG 6378) issued by the City of Cape Town (2006) must be adhered to at all times. In particular, no potable water may be used for dust suppression purposes. This documentation is available at the following website: *http://www.capetown.gov.za/en/Water/Documents/Water_By_Laws.pdf*	Applicant/Client and main contractor	At all times

Number	Source	Dust Control Measures	Person Responsible	Implementation
8	**Construction**	Spraying of stockpiles with a fine mist of water for 10 – 15 minutes during windy conditions. Municipal potable water will not be used.	Applicant/Client and main contractor	Immediately

7.3 CONTINGENCY ACTIONS

During windy conditions, it is possible that dust emissions may still be generated from the site. The actions provided in **Table 4** will be taken to ensure that dust levels generated by the activities on the site do not create a nuisance.

All site staff will be responsible for reporting high or abnormally dust conditions to one of the Directors as soon as is reasonably practicable.

Table 4: Contingency Actions

Trigger	Actions	Person Responsible
Visible dust emissions occurring from stockpiles or other site open areas during windy days	Investigate cause and implement necessary control to prevent further emissions (e.g. ceasing of work in peak wind periods or increasing frequency of watering)	Applicant/Client and main contractor
Visible dust emissions occurring due to operational processes	Investigate cause and implement necessary control to prevent further emissions (e.g. maintenance on misting system)	Applicant/Client and main contractor

8 DUST FALLOUT MONITORING PLAN

Dust monitoring is not mandatory for the proposed development and as such has not formed part of this Dust Management Plan but will be put it in to place should this be required during the construction phase and based on authority and community feedback.

9 COMPLAINTS REGISTER

All complaints received by the applicant/client and the main contractor will be handled by the applicant/client and the details will be recorded in the complaints register (see **Appendix B**).

Site staff receiving complaints must complete the following procedure:

- Record contact details of complainant
- Record details regarding complaint (including date, time and location)
- Repeat back contact and complaint details and confirm with complainant
- Confirm and record acceptable follow up time with complainant
- Contact one of the Directors immediately and report back

The complainant will be contacted, and an investigation of the complaint will be initiated within 24 hours of receiving the complaint.

Once the investigation is complete, the complainant is to receive a written response outlining the procedure and findings. If requested, the findings of the investigation can be explained to the complainant either in person or over the phone.

The complaints register should be kept updated and available for City scrutiny on request.

10 CONCLUSION

City of Cape Town: Housing Implementation will provide an implementation progress report to the air quality officer at agreed time intervals when required. City of Cape Town will also assess its compliance with this Dust Management Plan on an annual basis or as required for specific dust control measures.

This plan will also be reviewed and revised by City of Cape Town:

- On an annual basis
- If there are any major changes to the operation
- In response to any complaint or incident resulting in high dust emissions

APPENDIX A

Dustex Powder MSDS

(To be provided by principal contractor)

APPENDIX B

Complaints Register

(To be provided by principal contractor)