sillitò
ENVIRONMENTAL CONSULTING

CITY OF CAPE TOWN

DRAFT EIA REPORT

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

DEA&DP REFERENCE NUMBER: 16/3/3/6/7/2A4/37/3181/21

SEC REFERENCE: 020052

FEBRUARY 2022

PO Box 30134, Tokai, 7966
Telephone: 021 712 5060, Fax: 021 712 5061
Email: info@environmentalconsultants.co.za

EXECUTIVE SUMMARY

Sillito Environmental Consulting ("SEC") has been appointed by the City of Cape Town: Human Settlements to undertake the necessary environmental application in terms of the National Environmental Management Act ("NEMA"), Act No. 107 of 1998, for the proposed Enkanini Residential Development, located on Erf RE/18370 and Erf RE/18332, Khayelitsha, City of Cape Town (CoCT) Metropolitan.

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.

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.

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

Figure 1. Aerial view of proposed site for development. Source: Drone Imagery obtained from CoCT Human Settlements Directorate (March 2021).

Upon consultation with the NEMA Environmental Impact Assessment (EIA) Regulations 2014 (as amended), as well as consultation with the Department of Environmental Affairs & Development Planning (DEA&DP), it has been ascertained that a Scoping/EIA Application in terms of the Listing Notice 2 of the NEMA EIA Regulations 2014 must be followed and submitted to the DEA&DP for their final decision.

APPLICATION REQUIREMENTS

The Environmental Impact Assessment (EIA) Regulations 2014 under the National Environmental Management Act, Act No. 107 of 1998, as amended (NEMA), has been consulted.

The proposed housing development will entail the clearance of more than 100 ha of indigenous vegetation on site. As such, the following listed activities will apply:

Activity 15 of GN No. R325 of the NEMA EIA Regulations 2014 (as amended 2017):

- ***Activity 15**: The clearance of an area of 20 hectares or more of indigenous vegetation, excluding where such clearance of indigenous vegetation is required for –*

(i) *the undertaking of a linear activity; or*
(ii) *maintenance purposes undertaken in accordance with a maintenance management plan.*

Activity 12 of GN No. 324 of the NEMA EIA Regulations 2014 (as amended 2017):

- ***Activity 12:*** *The clearance of an area of 300 square metres or more of indigenous vegetation except where such clearance of indigenous vegetation is required for maintenance purposes undertaken in accordance with a maintenance management plan.*
  i. Within any critically endangered or endangered ecosystem listed in terms of section 52 of the NEMBA or prior to the publication of such a list, within an area that has been identified as critically endangered in the National Spatial Biodiversity Assessment 2004;

The Scoping/EIA process is strictly prescribed by the EIA Regulations, which appear in Government Notice No.982 of 2014

THE PURPOSE OF THIS EIA REPORT

During the Scoping phase of the application, potentially significant impacts associated with the proposed development were identified. Based on these potentially significant impacts identified, alternative means of meeting the general requirements of the activity were also be identified (the general requirements being the housing development and the alternative means including considerations such as layout and design alternatives etc.).

The alternatives which have been included in the application are those which were found, upon investigation during the Scoping phase, to be reasonable and feasible alternatives for meeting the general purpose of the activity.

The purpose of the EIA phase of the process is to assess the impacts associated with the identified alternatives, and to establish which alternatives would have the most benefit and/or cause the least harm to the receiving environment.

The impacts associated with the development have been assessed in detail against their parameters, such as extent, duration, intensity, probability and the reversibility of the impact. The overall significance of impacts has then been determined, based on these parameters in combination with other factors such as stakeholder concern around the identified impact. For this application and in accordance with the requirements of the EIA Regulations, the No-Go Alternative has also been assessed in detail. In this instance, the No-Go Alternative would be the option for City not to establish a housing development on this site.

The assessment of impacts has identified what, in SEC's opinion, is the Best Practicable Environmental Option (BPEO) for achieving the purpose of the activity given the context of the receiving environment. BPEO is defined as "the option that provides the most benefit or causes the least damage to the environment as a whole, at a cost acceptable to society, in the long term as well as in the short term".

POTENTIALLY SIGNIFICANT IMPACTS IDENTIFIED

Refer to Biodiversity Offset Study – deVilliers Brownlie Associates, as included in Appendix D

Refer to Botanical Site Screening and Botanical Assessment, Paul Emms – as included in Appendix D

Refer to Freshwater Assessment, Dean Ollis – Freshwater Consulting Group, included in Appendix D

Refer to Preliminary Geotechnical Assessment, SRK Consulting - as included in Appendix D

Refer to Bulk Services Report for Water and Sanitation, Bosch Projects – as included in Appendix D

Refer to Bulk Stormwater Assessment, Bosch Projects – as included in Appendix D

Refer to Heritage Notice of Intent to Develop submitted by City of Cape Town ERM – as included in Appendix G as well as HWC feedback attached in Appendix D

Refer to draft Traffic Impact Assessment Report by Mowana Engineers - as included in Appendix D

GEOGRAPHICAL, GEOLOGICAL AND PHYSICAL ASPECTS

The excavation pits of the site indicate that the soil profile consists of granular fine to medium Aeolian sand containing abundant coarse shell fragments and traces of silt and clay (where calcretised).
The geological map indicates that weathered Malmesbury Group Rock occurs at a depth of about 24 m below surface in the area.

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).

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.

Groundwater

This application may potentially impact the Cape Flats Aquifer, which is a shallow, unconfined, inter-granular aquifer that is critical to the city's water security. Impacts to the aquifer may not only affect the supply and quality of water, but also affect nearby wetlands and other surface waters associated with the Cape Flats Aquifer, and, as a knock-on effect, their associated fauna and flora.
The Bulk Stormwater Assessment, as included in Appendix D of this report, addresses all stormwater and groundwater related impacts.

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.

Biodiversity Offset Study

deVilliers Brownlie Associates, in collaboration with Dr Amrei von Hase, were then appointed by City of Cape Town to design an appropriate biodiversity offset for the project.
These services comprised reviewing the botanical specialist's work to arrive at a measure of the likely residual negative impacts on vegetation and flora, determining the associated offset requirements and identifying and evaluating possible offset options, including a potential 'trading up' option.
In addition, implementation arrangements were explored, and high-level recommendations formulated for effective offset implementation and management.

SOCIO-ECONOMIC ASPECTS

COCT Human Settlement Implementation has been involved in the Beneficiary Administration and Social Facilitating of the housing project.

The following public participation activities have been undertaken by COCT to date:

- ***a)*** *Project-steering committee meetings:*
- ***b)*** *Ensure effective public participation and transparency regarding beneficiary administration including preparation of public meetings etc.*

The western portion of the site is currently occupied by illegal land occupants. The City Human Settlement Implementation branch has an extensive plan in place to accommodate these occupants in relocation options on the current Enkanini South site.

HISTORICAL ASPECTS

An NID was submitted to HWC by City Environmental Resource Management (ERM) and a response was received from HWC, as included in ***Appendix F****, confirming that no further work is required in terms of heritage impacts.*

ALTERNATIVES IDENTIFIED

The proposed development is a City of Cape Town housing project.
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.

The development aims to provide for approximately 5800 serviced sites with the associated educational, community and commercial uses.

LAYOUT/DESIGN ALTERNATIVES

ALTERNATIVE 1: First draft concept block layout (no sensitive area)

This alternative was the initial concept block layout plan proposing development for the entire subject property, excluding the Biodiversity Management Branch area. As this plan was conceptual the areas and numbers are only estimated.

The number of residential units for this layout is proposed to be approximately 3500 units which gives a gross density of 68 units per hectare.

ALTERNATIVE 2: Second draft concept block layout (excluding the no-go sensitive area)

This alternative is a concept block layout plan proposing development for the entire subject property excluding the entire no-go sensitive area as earmarked by the botanist towards the east of the site of approximately 9,6 ha leaving a developable area of 90.7 ha. As this plan was conceptual the areas and numbers are only estimated.

The number of residential erven for this alternative is proposed to be approximately 5130 units which gives a gross density of 57 units per hectare.

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.

No-Go Alternative

The no-go option entails the maintaining of the status quo of the site. In this case, the no-go option would mean that the development will not take place and that there will consequently be no clearance of vegetation for the sake of development. The site will remain as is, undeveloped.

The no-go alternative will fail to address the dire need for housing in the Cape Flats area – as well as larger City of Cape Town area. Given the scale of the proposed housing development, a considerable economic contribution to the local community in the form of employment opportunities will also be foregone should the development not take place.

Should the property remain vacant it will also most likely be completely occupied and degraded by illegal land invasion thereby compromising the safety and environmental quality of the area.

Pros and Cons of the No-Go Alternative

a) *The No-Go alternative will likely result in the gradual decline and degradation of the vegetation on site unless access control, ongoing clearing of invasive alien plants as well as regular maintenance is undertaken on the site.*

A key component of the Scoping/EIA process – i.e. where possible impacts associated with the proposed activity are identified, is public participation. Public participation allows stakeholders to assist in identifying issues or concerns around the activity which may need further investigation or assessment. In this way, stakeholders can also contribute to the identification of alternatives for achieving the Best Practicable Environmental Option.

The various steps in the public participation process are strictly prescribed by the regulations contained in Chapter 6 of the EIA Regulations (contained in Government Notice No. R543 of 2010 and Government Notice No. R982 of 2014, as amended), and include the following:

- *The identification of potential stakeholders and the process whereby these stakeholders are notified of the Scoping/EIA application process*
- *Providing stakeholders with an opportunity to register as "Interested and Affected Parties" (I&APs) and to comment on all reports published during the process*
- *The Environmental Assessment Practitioner and the project team then addressing any and all issues raised by registered I&APs;*
- *Then lastly the notification of registered I&APs of the decision which the provincial DEA&DP reaches on the Scoping/EIA application.*

*The public participation appendix, **Appendix C**, includes a database of registered stakeholders; a summary as well as proof of all public participation activities undertaken to date; copies of comments and responses received and sent; as well as a Comments and Responses Report, which provides a summary of issues raised and the project team's response to these issues.*

CONCLUSION AND RECOMMENDATIONS

The proposed development site is located within the urban edge which implies that it is suitably located for urban land uses. The proposed development is appropriate and consistent with the guiding principles and development approach spelt out in the approved MSDF, furthermore it is also in line with the surrounding environment.

All impacts identified can be mitigated to acceptable levels of significance. All mitigation measures as described in the Impact Assessment section of this report must be implemented as well as the conditions, restrictions and mitigation measures included in the Environmental Management Programme (EMPr).
It is suggested that an ECO be appointed to ensure compliance with all relevant restrictive conditions and mitigation measures as included in the EIA report and EMPr as well as the Environmental Authorisation.

DRAFT EIA REPORT

SCOPING/EIA APPLICATION FOR PROPOSED ENKANINI HOUSING DEVELOPMENT, ERF RE/18370 AND ERF RE/18332, KHAYELITSHA, CAPE TOWN

Table of Contents

1 DETAILS OF ENVIRONMENTAL ASSESSMENT PRACTIONERS 9

2 INTRODUCTION 9

2.1 PROJECT LOCATION 10
2.2 PROJECT BACKGROUND AND DESCRIPTION OF THE ACTIVITY 10
2.3 LEGAL FRAMEWORK 11

3 REGIONAL PLANNING CONTEXT AND THE NEED AND DESIRIBILITY OF THE ACTIVITY 12

4 PUBLIC PARTICIPATION PROCESS 19

5 DESCRIPTION OF RECEIVING ENVIRONMENT 20

A. INTRODUCTION 20
B. BIOPHYSICAL ENVIRONMENT 21
C. SOCIO-ECONOMIC ENVIRONMENT 23

6. IMPACTS IDENTIFIED AS POTENTIALLY ASSOCIATED WITH THE RESIDENTIAL DEVELOPMENT 24

D. SOCIO-ECONOMIC ENVIRONMENT 26

7. INVESTIGATION OF ALTERNATIVES FOR MEETING THE GENERAL PURPOSE AND REQUIREMENTS OF THE APPLICATION 27

7.1. INTRODUCTION 27

8. IMPACT ASSESSMENT SECTION 31

8.1.1. Introduction to Impact Assessment Methodology *31*
8.2. INTRODUCTION TO MITIGATION 32
8.3. IMPACT ASSESSMENT 33
8.3.1. Uncertainties, Assumptions and Gaps in Knowledge *51*

9. CONCLUSION AND WAY FORWARD 51

LIST OF DRAWINGS AND APPENDICES

APPENDICES		
Appendix A	**Maps**	• Site Location Maps • Site Photographs • Threatened Ecosystems Status map • Vegetation Map • Freshwater Map
Appendix B	**Site Plans**	• Site Plans

Appendix C	**Public Participation Information**	• Comments and Responses Report • Notification and Draft Scoping • Final Scoping • Public Meeting Notes
Appendix D	**Specialist Input**	• Biodiversity Offset Study, deVilliers Brownlie Associates • Botanical Site Screening and Botanical Assessment, Paul Emms – Capensis • Freshwater Site Scans, Dean Ollis – Freshwater Consulting Group • Preliminary Geotechnical Assessment, SRK Consulting • Bulk Services Report for Water and Sanitation, Bosch Projects • Bulk Stormwater Assessment, Bosch Projects • Draft Traffic Impact Assessment Report by Mowana Engineers
Appendix E	**Additional Report Information**	• Plan of Study for EIA • CVs of EAPS • HWC Comment • COCT BMB Confirmation Letter • COCT EMD Confirmation Letter • EAP CV's
Appendix F	**Management and Monitoring**	• Environmental Management Programme (EMPr) • Dust Management Plan (DMP)

DRAFT EIA REPORT

SCOPING/EIA APPLICATION FOR PROPOSED ENKANINI HOUSING DEVELOPMENT, ERF RE/18370 AND ERF RE/18332, KHAYELITSHA, CAPE TOWN

1 DETAILS OF ENVIRONMENTAL ASSESSMENT PRACTIONERS

This report was authored by Chantel Müller and edited by Adrian Sillito of SEC. Chantel has over 10 years' experience in EIA's and environmental management. Her qualifications include a BA Social Dynamics and an MPhil Environmental Management at the University of Stellenbosch which she obtained in October 2008.

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). (Refer to CVs of EAPs as attached in **Appendix E** of this report)

SEC has extensive experience in the field of environmental management and has completed many thousands of applications in terms of the relevant environmental legislation and regulations in most provinces of South Africa since 1998. SEC does not have and will not have any financial interest in the undertaking of the activity, other than remuneration for work performed in terms of the NEMA, the Environmental Impact Assessment Regulations, 2010 and 2014 and any specific environmental management Act; and does not have and will not have any vested interest in the proposed activity proceeding.

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.

2.1 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 2: 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

2.2 Project background and description of the activity

The subject property is a total of 100.38ha in extent and the associated project, named the Enkanini South Greenfield 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 6800 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 11000 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.

According to the Mucina and Rutherford's Vegetation Map of South Africa, Lesotho and Swaziland, the site falls within an area where Cape Flats Dune Strandveld is the predominant indigenous vegetation type which is endemic to the area. These are thus likely to occur on any untransformed land in the area.

It should be noted that a Draft Scoping Report Application for sand mining on Erf 18332 is currently in process and if approved, these sand mining activities will take place on site prior to the housing development. The COCT Human Settlements Department and the applicant of the sand mining application is however coordinating these to project in order to ensure that the timeframes do not overlap and that the site is effectively rehabilitation prior to the housing development commencing.

2.3 Legal Framework

In consultation with the DEA&DP, it has been ascertained that a Scoping/EIA Application in terms of Listing Notice 2 of the NEMA EIA Regulations 2014 must be followed and will be submitted to the DEA&DP for their final decision.

The proposed serviced site development will entail the clearance of approximately 100.38ha of indigenous vegetation on site. The Cape Town Bioregional Plan was adopted as City Policy in July 2015. It comprises a biodiversity profile for the bioregion, the Biodiversity Network and management guidelines.

According to the BioNet (Holmes & Pugnalin 2017) almost the entire study area is a CBA 1b site. One small area is classified as an Other Ecological Support Area (OESA) and two small sections are excluded based on the transformation of habitat in those sites. Note that according to the BioNet CBA1b sites are considered to be 100% irreplaceable.

The botanical assessment indicates that while most of the site has been subjected to a high degree of disturbance, intact and semi-intact vegetation patches remain.

As such the following listed activities will apply:

Government Notice No. 325 of the EIA Regulations 2017, Listing Notice 2:

- **Activity 15**: *The clearance of an area of 20 hectares or more of indigenous vegetation, excluding where such clearance of indigenous vegetation is required for –*

(iii) the undertaking of a linear activity; or

(iv) maintenance purposes undertaken in accordance with a maintenance management plan.

Government Notice No. 324 of the EIA Regulations 2017, Listing Notice 3:

- **Activity 12:** *The clearance of more than 300m2 or more of indigenous vegetation except where such clearance of indigenous vegetation is required for maintenance purposes undertaken in accordance with a maintenance management plan.*

(i) *Western Cape*

i. *Within any critically endangered or endangered ecosystem listed in terms of section 52 f NMEA or prior to the publication of such a list, within an area that has been identified as critically endangered in the National Spatial Biodiversity Assessment of 2004.*

3 REGIONAL PLANNING CONTEXT AND THE NEED AND DESIRIBILITY OF THE ACTIVITY

According to the Western Cape Department of Environmental Affairs and Development Planning's *Guideline on Need and Desirability* (October 2011), the need and desirability of a development proposal relates to the most ***sustainable*** use of the land in question.

According to the Guideline, the "need" for a development relates to whether the development is needed at this point in time; whilst the desirability of the development relates to the location or the receiving environment in which the development is situated; i.e. "is this the right time and is it the right place for locating the type of land-use/activity being proposed"?

The concept of ***sustainable development*** is thus the cornerstone of any investigation into the need and desirability of a development proposal. Sustainable development is commonly defined as "*development that meets the needs of the present without compromising the ability of future generations to meet their own needs*" (Our Common Future, WCED, 1987).

Guiding legislation and policy for determining the need and desirability of the proposed include the following:

The National Environmental Management Principles contained in Chapter 1 of the NEMA, which include the following:

- "Environmental Management must place people and their needs at the forefront of its concern and equitably serve their interests."
- "Environmental Management must be integrated, acknowledging that all elements of the environment are linked and interrelated, and it must take into account the effects of decisions on all aspects of the environment and all people in the environment by pursuing the selection of the Best practicable environmental option."
- "Environmental justice must be pursued so that adverse environmental impacts shall not be distributed in such a manner as to unfairly discriminate against any person."
- "Decisions must take into account the interests, needs and values of all interested and affected parties."
- "The Environment is held in public trust for the people; the beneficial use of environmental resources must serve the public interest and the environment must be protected as the people's common heritage."

The Western Cape Provincial Spatial Development Framework (2014) (PSDF), which requires "the integration of social, economic and ecological factors into planning, decision-making and implementation so as to ensure that development serves present and future generations."

National Framework for Sustainable Development (2008), which states that "sustainable development is about enhancing human well-being and quality of life for all over time, in particular those most affected by poverty and inequality". The NFSD goes on to state that "fundamental to understanding sustainable development is recognising the interdependence between the way in which we devise and manage our economic, social and environmental systems".

The following policies reference documents are relevant to the application and can be found on the City's Planning Portal:

i. Densification Policy (2012)
ii. 2. Urban Design Policy (2013)
iii. Safer Cities Guidelines (2015)

iv. Municipal Spatial Development Framework (2018)
v. Khayelitsha, Mitchells Plain and Greater Blue Downs District Plan (2012)

The Western Cape Department of Environmental Affairs and Development Planning's Guideline on Need and Desirability, October 2011

The DEA&DP's *Guideline on Need and Desirability* poses a series of questions, the answers to which will determine whether the housing development is necessary and desirable given the broader planning and environmental management imperatives, policies and plans (such as those detailed above) which relate to the area.

These questions have been addressed below:

1. ***Is the development permitted in terms of the property's existing land use rights?***

No, the subject property is currently zoned as Limited Use (LU) & Utility Zone in terms of the City of Cape Town's Development Management Scheme (DMS). In terms of the LU zoning the only primary uses permitted are limited to lawful uses existing at the commencement date of the DMS. No existing lawful uses exist on the property and therefore any development rights can only be obtained by a rezoning application to an appropriate zone in terms of the DMS. The existing Kuyasa pump station site, that is included in the subject property is already zoned Utility Zone.

2. Will the development be in line with the following?
(a) Provincial Spatial Development Framework ("PSDF").

Yes. One of the key goals included in the PSDF is the inclusion of sustainable development which involves the integration of social, economic, and ecological factors into planning, decision making, and implementation so as to ensure that the development serves present and future generations.
The proposed development addresses the dire need for housing within this specific region as well as within the broader Western Cape and is thus in line with the PSDF's priority of socio-economic integrated development.
From a spatial planning perspective, it is intended by the PSDF that the broad spatial planning categories be refined at the detailed level by district and local SDFs which must be consistent with the policies and requirements of the PSDF. The PSDF also supports the spatial proposals of the Municipal Spatial Development Framework (MSDF). The proposed development therefore adheres to these proposals.
According to PSDF: City of Cape Town Sprawl Threats Map the area is indicated as "Urban Development" and situated within a Combined Road / Rail Infrastructure Corridor. Therefore, the proposed development is in line with the PSDF.

(b) Urban edge / edge of built environment for the area.

Yes. The site is located within the urban edge. The current Khayelitsha/Mitchells Plain/Greater Blue Downs District Plan designates the subject property as New Urban Infill/Core 1 / Mixed use intensification / Open Space and confirms its location within the urban edge. The aforementioned District Plan is being reviewed and will result in a District Spatial Development Framework (which should be finalised by the end of 2021). In the aforementioned Draft DSDF the subject property is also located inside the Urban and Coastal Edge and designated for urban infill purposes.

(c) Integrated Development Plan and Spatial Development Framework of the Local Municipality (e.g., would the approval of this application compromise the integrity of the existing approved and credible municipal IDP and SDF?).

The proposed development is in line with the City of Cape Town's Integrated Development Plan (IDP) goal of "provi*ding a housing market for which a specific need exists that has been neglected in the past, being the affordable market*." In terms of the City of Cape Town Municipal Spatial Development Framework the subject property is designated as part of the Incremental Growth and Consolidation Area. Consolidation Areas are areas where the City is committed to servicing existing communities and where new development will be subject to infrastructure capacity.

(d) An Environmental Management Framework ("EMF") adopted by this Department. For example, would the approval of this application compromise the integrity of the existing environmental management priorities for the area and if so, can it be justified in terms of sustainability considerations?

The Cape Town Bioregional Plan was adopted as City Policy in July 2015. It comprises a biodiversity profile for the bioregion, the Biodiversity Network and management guidelines.

According to the BioNet (Holmes & Pugnalin 2017) almost the entire study area is a CBA 1b site. One small area is classified as an Other Ecological Support Area (OESA) and two small sections are excluded based on the transformation of habitat in those sites. Note that according to the BioNet CBA1b sites are considered to be 100% irreplaceable.

The botanical assessment indicates that while most of the site has been subjected to a high degree of disturbance, intact and semi-intact vegetation patches remain.

(e) Any other Plans [e.g., Integrated Waste Management Plan (for waste management activities), etc.)].

Yes.

<u>The City of Cape Town Urban Design Policy</u>
The Urban Design Policy was approved by the City of Cape Town in September 2013 to guide the design process and formulation of development proposals to make Cape Town safer, more prosperous, and more inclusive. The Urban Design Policy is guided by three overarching principles which inform nine objectives. The proposed development layout was presented to the COCT internal branches and amendments have been made to the layout proposal where relevant in order to ensure the development proposal is in line with the above policy document.

<u>The City of Cape Town Densification Policy</u>
The Densification Policy was approved by the City of Cape Town in 2012 and developed a number of policy statements that should guide all density-related land use decisions. The development proposal is for a medium-density residential development and as such will be in line with this policy.

<u>Khayelitsha, Mitchells Plain & Greater Blue Downs District Plan</u>
The proposed development is partially inconsistent with the Khayelitsha, Mitchells Plain & Greater Blue Downs District Plan with specific reference to the following: *The current Khayelitsha/Mitchells Plain/Greater Blue Downs District Plan designates the subject property as New Urban Infill/Core 1/Mixed use intensification/Open Space*. A deviation related to site specific circumstances will also be applied for with the Municipal Planning By Law application. The aforementioned District Plan is being reviewed and will result in a District Spatial Development Framework. This process should be finalised by mid-2022. In the aforementioned Draft DSDF however the subject property is also located inside the Urban and Coastal Edge and designated as Urban Support and Pipeline Projects in terms of which the proposed development will be seen as consistent.

3. ***Is the land use (associated with the project being applied for) considered within the timeframe intended by the existing approved SDF agreed to by the relevant environmental authority (in other words, is the proposed development in line with the projects and programmes identified as priorities within the credible IDP?***

Yes. The PSDF includes as one of the key goals the inclusion of sustainable development encompassing the integration of social, economic, and ecological factors into planning, decision making, and implementation so as to ensure that development serves present and future generations.

The proposed development addresses the dire need for housing within this specific region as well as within the broader Western Cape and is thus in line with the PSDF's priority of socio-economic integrated development.

From a spatial planning perspective, it is intended by the PSDF that the broad spatial planning categories be refined at the detailed level by district and local SDFs which must be consistent with the policies and requirements of the

PSDF. The PSDF also supports the spatial proposals of the MSDF. The proposed development adheres to these proposals.

According to PSDF: City of Cape Town Sprawl Threats Map the area is indicated as “Urban Development” and situated within a Combined Road / Rail Infrastructure Corridor. Therefore, the proposed development is in line with the PSDF.

The proposed development is in line with the City of Cape Town’s Integrated Development Plan (IDP) goal of “*providing a housing market for which a specific need exists that has been neglected in the past, being the affordable market*.”

4. Should development, or if applicable, expansion of the town/area concerned in terms of this land use (associated with the activity being applied for) occur on the proposed site at this point in time?

Yes. The proposed development site is located/designated within the urban edge which implies that it is suitably located for urban land uses.

5. ***Does the community/area need the project and the associated land use concerned (is it a societal priority)? This refers to the strategic as well as local level (e.g., development is a National Priority, but within a specific local context it could be inappropriate.)***

Yes. The proposed development addresses the dire need for housing within this specific region as well as within the broader Western Cape and is thus in line with the PSDF’s priority of socio-economic integrated development.

6. ***Are the necessary services available together with adequate unallocated municipal capacity (at the time of application), or must additional capacity be created to cater for the project?***

Yes. To be confirmed.

7. ***Is this project provided for in the infrastructure planning of the municipality and if not, what will the implication be on the infrastructure planning of the municipality (priority and placement of services and opportunity costs)?***

Yes. Same as the above.

8. ***Is this project part of a national programme to address an issue of national concern or importance?***

No.

9. ***Do location factors favour this land use (associated with the development proposal and associated listed activity(ies) applied for) at this place? (This relates to the contextualisation of the proposed land use on the proposed site within its broader context.)***
Regardless of the fact that the site is not currently appropriately zoned for the proposed land use, the development is regarded to be in line with the surrounding land uses as the site is bounded by formal residential land uses to the north and east and informal settlements to the west.

10. ***Will the development proposal or the land use associated with the development proposal applied for, impact on sensitive natural and cultural areas (built and rural/natural environment)?***

Yes

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.

Groundwater

This application may potentially impact the Cape Flats Aquifer, which is a shallow, unconfined, inter-granular aquifer that is critical to the city's water security. Impacts to the aquifer may not only affect the supply and quality of water, but also affect nearby wetlands and other surface waters associated with the Cape Flats Aquifer, and, as a knock-on effect, their associated fauna and flora.
The Bulk Stormwater Assessment, as included in Appendix D of this report, addresses all stormwater and groundwater related impacts.

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.

Biodiversity Offset Investigation

As already stated within the botanical screening report, desktop information (e.g. the City's biodiversity GIS layers) shows that Cape Flats Dune Strandveld (CFDS) occurs on the proposed development sites. 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, which is the 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 (Refer to email correspondence dated 29 May 2020 and subsequent correspondence dated 9 November 2020, as included in **Appendix D**).

Initially, the Enkanini housing 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 D), potentially freeing it up for housing development.

Based on the information above, a biodiversity offset is proposed by the client 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.

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.

Historical aspects

An NID was submitted to HWC by City Environmental Resource Management and a response was received from HWC, as included in ***Appendix D1***, confirming that no further work is required in terms of heritage impacts.

11. *Will the development impact on people's health and well-being (e.g., in terms of noise, odours, visual character and 'sense of place', etc.)?*

No. Impacts on people's health and well-being due to the proposed development are unlikely. The construction phase will inevitably involve impacts in terms of noise, dust, visual, heritage and traffic. These impacts will however be assessed as part of this EIA and mitigation of these impacts will be addressed by means of the Environmental Management Programme (EMPr).

POTENTIAL VISUAL IMPACTS
The proposed development will have potential visual impacts during the construction and operation phase of the development. The nature of the impact will include the visual effect (i.e., aesthetics) the activity would have on the receiving environment.

Construction phase:

- Visual scarring during the process of vegetation clearing and levelling of dunes to prepare the area for development.

Operation Phase:

- Change from an undeveloped site to a developed site.
- The vacant site becoming a built site.

Although the change from a vacant site to a built-up site can be regarded as a visual impact, it must be noted that the site is currently somewhat visually unappealing given the illegal dumping, sand mining and cattle grazing that is undertaken on the site. It must also be noted that land uses associated with the area surrounding the proposed development include residential uses varying from low to high density residential developments. It is thus noted that the proposed housing development will be in line with the "sense of place" of the surrounding area.

POTENTIAL HERITAGE IMPACTS

The NID was submitted to HWC, and a response was received from HWC confirming that no further work is required in terms of heritage impacts (**Appendix D1)**.

DUST AND 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.

12. *Will the proposed development or the land use associated with the proposed development applied for, result in unacceptable opportunity costs?*

The development will result in the permanent loss of endangered vegetation and CBA areas.

The Preferred Alternative however takes into consideration both socio-economic and ecological concerns with the utilisation of the entire site for the development of housing whilst at the same time proposing an offset area to successfully mitigate the permanent loss of endangered vegetation.
a) The dire need to service the needs of communities with housing.
b) A responsibility to ensure persistence of critical habitats.

13. What will the cumulative impacts (positive and negative) of the proposed land use associated with the development proposal and associated listed activity(ies) applied for, be?
CUMULATIVE IMPACTS ON VEGETATION
The naturally occurring vegetation, Cape Flats Dune Strandveld is an ENDANGERED D1 vegetation type. The development will entail the loss of more than 20ha of intact and semi-intact vegetation of this vegetation type. This vegetation loss adds to the continued loss of small portions of this endangered vegetation type in this area and is therefore regarded as a cumulative impact.

14. *Is the development the best practicable environmental option for this land/site?*
Regardless of the fact that the site is not currently appropriately zoned for the proposed land use, the development is regarded to be in line with the surrounding land uses as the site is surrounded by residential land uses.

As per question 13 above, the most prominent impact from an environmental perspective is the permanent loss of endangered vegetation. Considering the current (i) housing demand and (i) state of land invasion within the City of Cape Town, and social ills such as dumping, livestock grazing (and trampling), and sand mining, the integrity of the small patches of intact vegetation on site cannot be guaranteed. Edge effects, associated with the existing residential areas surrounding the proposed site for development also results in the degradation of intact areas of vegetation.

The Preferred Alternative takes into consideration both socio-economic and ecological concerns with the utilisation of the entire site for the development of housing whilst at the same time proposing an offset area to successfully mitigate the permanent loss of endangered vegetation, namely:
a) The dire need to service the needs of communities with housing.
b) A responsibility to ensure persistence of critical habitats.

15. *What will the benefits be to society in general and to the local communities? Please explain*

There is a dire need for housing in the South African context. The development will provide/ promote employment opportunities during the construction phase of the development. The development will also provide for general business and retail opportunities during the operational phase of the proposed development.

16. *Any other need and desirability considerations related to the proposed development?*

Please refer to responses to questions above.

17. *Describe how the general objectives of Integrated Environmental Management as set out in Section 23 of the NEMA have been taken into account:*

The site has been assessed using a range of specialist studies to determine the environmental sensitivity of the site and appropriate mitigation measures. The DEA&DP's Guideline on Public Participation (March 2013) have been consulted for this EIA process.
The relevant Organs of State will be provided with an opportunity to review and comment on the Scoping/EIA reports. Thus, there is an opportunity for environmental considerations to be included in decision-making by these Organs of State as well as adequate Public Participation.

18. *Describe how the principles of environmental management as set out in Section 2 of the NEMA have been taken into account:*

The investigation of the development and its associated impacts has considered the possible benefits of the development for the receiving social, economic, and biophysical environment; as well as the possible harm that may result to the environment as a result of the development.

The impacts associated with the proposed development on the receiving environment have been considered without favouring any particular aspect of the receiving environment over another aspect.
All interested and affected parties identified as possibly impacted (or benefited) by the development will be given the opportunity to participate in the Scoping/EIA process through public participation activities that will be undertaken in accordance with Chapter 6 of the NEMA EIA Regulations contained in GN No. R326 of 2017.

The identification of any possible negative environmental impacts associated with the development have led to the recommendation of suitable design, layout, and operational mitigation measures to either avoid any such impacts altogether; or to ensure that such impacts remain at an acceptable level without adversely impacting the environment.

The most reasonable and feasible alternatives in relation to the proposed activity, the necessary mitigation measures for implementation during the life cycle of the development, are considered by the EAP to represent the Best Practicable Environmental Option for land use at the site.

4 PUBLIC PARTICIPATION PROCESS

4.1 Identification of and Communication with Stakeholders

A public participation process is an essential component of the Scoping/EIA process. Through public participation, possible issues and concerns around the proposed activity – the proposed housing development – can be raised and addressed by the project team during the Scoping/EIA process. Public participation can also assist with the identification of alternative means of fulfilling the general purpose of the application.

The public participation process is rigorously prescribed by the regulations contained in Chapter 6 of the 2017 NEMA EIA Regulations. These regulations have and will continue to govern the public participation process for this application.

In accordance with the requirements of the EIA Regulations, possible Interested and Affected Parties (I&APs) were identified. These I&APs were notified of the application process and provided with an opportunity to formally register as I&APs. Notification, including a brief Background Information Document, were sent to the possible I&APs via registered letter, fax or email. (Refer to proof of notification and public participation contained in **Appendix C** of this EIA Report)

The identified I&APs include landowners or occupants of land adjacent to the property; State Departments and Organs of State including the City of Cape Town; the Department of Water Affairs; the Western Cape Department of Education; the Western Cape Department of Health; the Western Cape Department of Public Works and the Western Cape Department of Environmental Affairs and Development Planning.

In addition, community representatives in the form of the ward councillor and community organisations such as ratepayers' associations were also notified.

In addition to notifications sent out, an advertisement was also placed in the local newspaper. A site notice was also erected, at two conspicuous locations on the site.

All identified I&APs were given 30 days in which to register as an I&AP and lodge with SEC their comments, issues or suggestions pertaining to the application. At the same time, the Draft Scoping Report was made available to identified I&APs for review and comment on SEC's website.

Appendix C contains the details of the public participation conducted up to date as well as the comments received from the various I&APs as summarised in the Comments and Responses Report.

4.2 Issues Raised by Interested and Affected Parties

Comments raised by I&AP's during the review period for the Draft Scoping Report, as well as responses to these comments by the project team, has been included in a Comments and Responses Report as included in **Appendix C** of this EIA Report. The Comments and Responses Report includes a summary of the key issues and concerns raised as well as the project team's responses to these items raised.

Where issues and concerns relate to substantive components of the project proposal, the contents of the EIA Report have been amended to address these inputs. The most relevant changes were made in response to the comments received from the DEA&DP and the City of Cape Town during the Draft Scoping PP.
The Final Scoping Report was submitted for to DEA&DP on 05.11.21 and acceptance of the Scoping Report was accepted by DEA&DP on 11.01.22.

5 DESCRIPTION OF RECEIVING ENVIRONMENT

a. Introduction

Site 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 6800 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 11000 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 5800 serviced erven.

Climate
Cape Town experiences a moderate Mediterranean climate with hot dry summers and cool wet winters. Average rainfall in Blue Downs amounts to approximately 653 mm/annum, most of which is recorded between the months of May and October. The prevailing wind direction during summer is south-easterly, but switches to north-westerly during winter.

b. Biophysical Environment

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.

Groundwater

This application may potentially impact the Cape Flats Aquifer, which is a shallow, unconfined, inter-granular aquifer that is critical to the city's water security. Impacts to the aquifer may not only affect the supply and quality of water, but also affect nearby wetlands and other surface waters associated with the Cape Flats Aquifer, and, as a knock-on effect, their associated fauna and flora.
The Bulk Stormwater Assessment, as included in Appendix D of this report, addresses all stormwater and groundwater related impacts.

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.

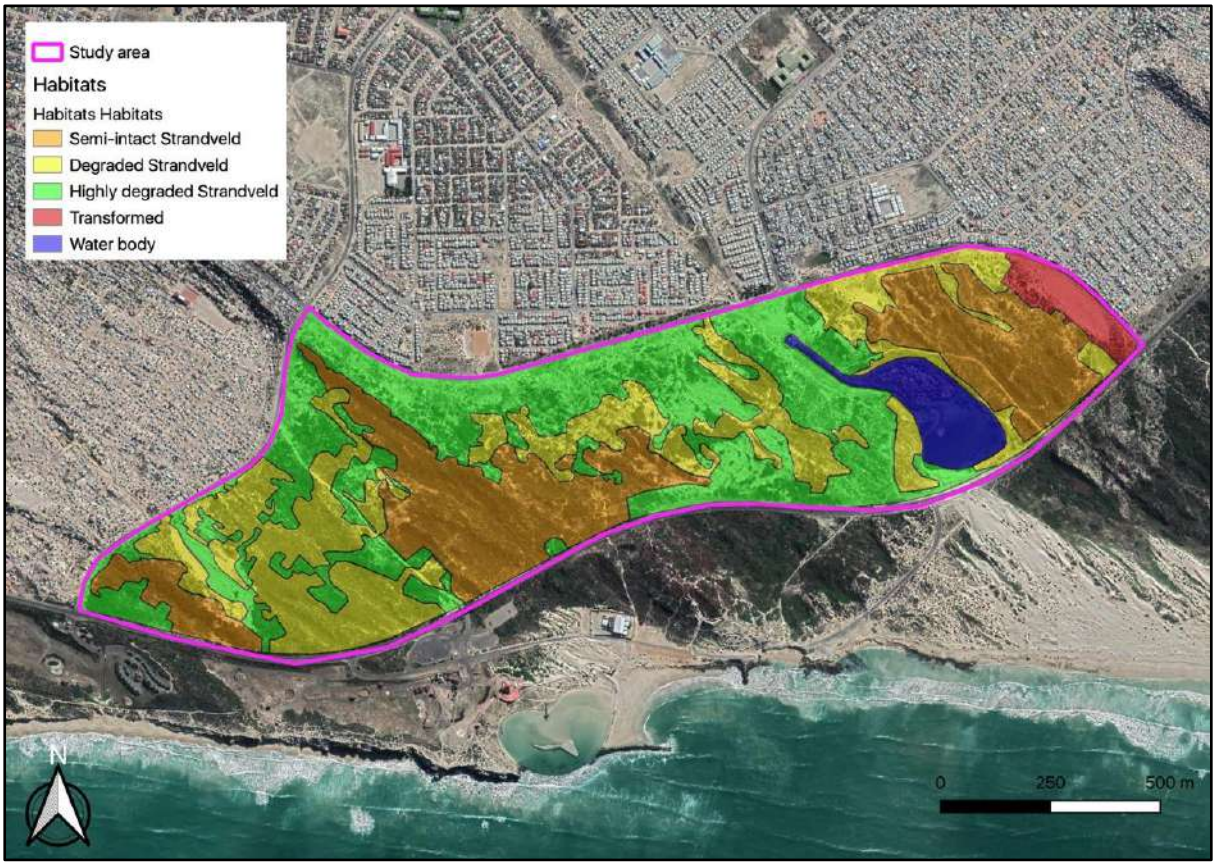

Figure 3: BOTANICAL CONSTRAINTS MAP (SECOND AND FINAL ITERATION): Google EarthTM aerial image showing the recommended No-Go and potentially developable areas (Nicholson, 2022)

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.
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.

c. Socio-Economic Environment

Key Socio-economic Characteristics	
Total population	92,330
Young (0-14)	28,7%
Working Age (15-64)	68,7%
Elderly (65+)	2,6%
Dependency ratio	45,5
Sex ratio	96
Population density	3 758 persons/km2
No schooling aged 20+	1,8%
Higher education aged 20+	7,9%

Matric aged 20+	30,2%
Number of households	22,162
Average household size	4,1
Female headed households	34,4%
Formal dwellings	76,8%
Housing owned/paying off	66,7%
Flush toilet connected to sewerage	94,3%
Weekly refuse removal	98,9%
Piped water inside dwelling	74,9%
Electricity for lighting	97%

6. IMPACTS IDENTIFIED AS POTENTIALLY ASSOCIATED WITH THE RESIDENTIAL DEVELOPMENT

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.

A Water Use License Application (WULA) or General Authorisation (GA) in terms of the National Water Act will be commissioned in order to assess the impacts that the development will have on these wetland systems. This will be undertaken to obtain the necessary licensing from the Department of Water Affairs and Sanitation (DWS).

Groundwater

This application may potentially impact the Cape Flats Aquifer, which is a shallow, unconfined, inter-granular aquifer that is critical to the city's water security. Impacts to the aquifer may not only affect the supply and quality of water, but also affect nearby wetlands and other surface waters associated with the Cape Flats Aquifer, and, as a knock-on effect, their associated fauna and flora.
The Bulk Stormwater Assessment, as included in Appendix D of this report, addresses all stormwater and groundwater related impacts.

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.

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.

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.

d. Socio-Economic Environment

Key Socio-economic Characteristics	
Total population	92,330
Young (0-14)	28,7%
Working Age (15-64)	68,7%
Elderly (65+)	2,6%
Dependency ratio	45,5
Sex ratio	96
Population density	3 758 persons/km2
No schooling aged 20+	1,8%
Higher education aged 20+	7,9%

Matric aged 20+	30,2%
Number of households	22,162
Average household size	4,1
Female headed households	34,4%
Formal dwellings	76,8%
Housing owned/paying off	66,7%
Flush toilet connected to sewerage	94,3%
Weekly refuse removal	98,9%
Piped water inside dwelling	74,9%
Electricity for lighting	97%

COCT Human Settlement Implementation has been involved in the Beneficiary Administration and Social Facilitating of the housing project.

The following public participation activities have been undertaken by COCT to date:

a) Project-steering committee meetings:
b) Ensure effective public participation and transparency regarding beneficiary administration including preparation of public meetings etc.

The western portion of the site is currently occupied by illegal land occupants. The City Human Settlement Implementation branch has an extensive plan in place to accommodate these occupants in relocation options on the current Enkanini South site.

7. INVESTIGATION OF ALTERNATIVES FOR MEETING THE GENERAL PURPOSE AND REQUIREMENTS OF THE APPLICATION

7.1. Introduction

According to the Western Cape Department of Environmental Affairs and Development Planning's Guideline on Alternatives (October 2011), alternatives in relation to a proposed activity includes different means of meeting the general purposes and requirements of the activity.

The types of alternatives which can be considered include, for example, alternative locations for the activity and alternative layouts and designs to be used in the activity.

The rationale behind investigating alternatives is to try and ascertain ways of fulfilling the general purpose of an activity, whilst at the same time ensuring that the possible impacts on the receiving environment (social, economic, and bio-physical) associated with the proposed activity are avoided altogether, or at least minimised to acceptable levels.

A thorough investigation and assessment of alternatives should result in the identification of the Best Practicable Environmental Option (BPEO), which is defined as "the option that provides the most benefit or causes the least damage to the environment as a whole, at a cost acceptable to society, in the long term as well as in the short term".

In accordance with the NEMA EIA Regulations contained in Government Notice No. R543 of 2010, read together with the DEA&DP's Guideline on Alternatives, this Scoping Report must contain a detailed investigation of alternatives identified. The investigation must include potential advantages and disadvantages which the identified alternatives may have for the receiving environment.

Based on this investigation, reasonable and feasible alternatives will be identified, with only these alternatives taken forward and comparatively assessed during the EIA phase. This is because the competent, decision-making authority can grant authorisation of an alternative as if it has been applied for.

The investigation and assessment of alternatives must, in accordance with the EIA Regulations, include the "No-Go Option" as a baseline against which all other alternatives are assessed.

LAYOUT/DESIGN ALTERNATIVES

ALTERNATIVE 1: First draft concept block layout (no sensitive area) (**Figure 7**)

This alternative was the initial concept block layout plan proposing development for the subject property, excluding the area towards the southwest of the development, reserved by City of Cape Town Biodiversity Management Branch (BMB) (which was later withdrawn by BMB to for reservation for biodiversity management purposes). As this plan was conceptual the areas and numbers are only estimated.

The number of residential units for this layout is proposed to be approximately 3500 erven which gives a gross density of 68 erven per hectare.

Figure 4 : Concept layout for alternative 1, excluding the BMB area.

ALTERNATIVE 2: Second draft concept block layout (excludes the no-go sensitive area)

This alternative was proposed as a possible alternative by the botanist and excludes the entire no-go sensitive area from the development footprint as earmarked by the botanist towards the east of the site.

The botanist has however indicated in the screening report that both the No-Go scenario and development on the site 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 exclusion of the no-go sensitive area from the development footprint and an offset for the remaining area lost are seen as the best-case scenario from a botanical perspective.

This alternative is a concept block layout plan proposing development for the entire subject property excluding the entire no-go sensitive area as earmarked by the botanist towards the east of the site of approximately 9.6 ha leaving a developable area of 90.7 ha. As this plan was conceptual the areas and numbers are only estimated.

The number of residential erven for this alternative is proposed to be approximately 5130 units which gives a gross density of 57 residential erven per hectare.

Figure 5 : Map from Capensis indicating the proposed no-go areas.

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.

Figure 6 : Preferred Alternative Concept Layout

No-Go Alternative

The no-go option entails maintaining the status quo of the site. In this case, the no-go option would mean that the development will not take place and that there will consequently be no clearance of vegetation for the sake of development. The site will remain as is, undeveloped.

The no-go alternative will fail to address the dire need for housing in the Cape Flats area – as well as larger City of Cape Town area. Given the scale of the proposed housing development, a considerable economic contribution to the local community in the form of employment opportunities will also be foregone should the development not take place.

Should the property remain vacant it will also most likely be completely occupied and degraded by illegal land invasion thereby compromising the safety and environmental quality of the area.

Pros and Cons of the No-Go Alternative

a) The No-Go alternative will likely result in the gradual decline and degradation of the vegetation on site unless access control, ongoing clearing of invasive alien plants as well as regular maintenance is undertaken on the site.

8. IMPACT ASSESSMENT SECTION

8.1.1. Introduction to Impact Assessment Methodology

The impacts identified and described in Section 8 as potentially being associated with the development are assessed in this section in detail. The impact assessment is aimed at determining the likely significance of any impacts (positive or negative) associated with the development. The significance of the impacts is determined by investigating certain key aspects, or parameters, of the potential impact, which are determined by the nature of the activity, as well as the nature of the receiving environment. Aspects investigated include the extent, duration and timing, and magnitude of the impact.

The table below provides an explanation of the parameters used to determine the significance of an impact, as well as what "significance" means in the context of this impact assessment.

Parameters Used to Establish Impact Significance

ITEM	DEFINITION
EXTENT	
Local	Extending only as far as the boundaries of the activity, limited to the site and its immediate surroundings
Regional	Impact on the broader region
National	Will have an impact on a national scale or across international borders
DURATION	
Short-term	0-5 years
Medium-Term	5-15 years
Long-Term	>15 years, where the impact will cease after the operational life of the activity
Permanent	Where mitigation, either by natural process or human intervention, will not occur in such a way or in such a time span that the impact can be considered transient.
MAGNITUDE OR INTENSITY	
Low	Where the receiving natural, cultural or social function/environment is negligibly affected or where the impact is so low that remedial action is not required.
Medium	Where the affected environment is altered, but not severely and the impact can be mitigated successfully and natural, cultural or social functions and processes can continue, albeit in a modified way.
High	Where natural, cultural or social functions or processes are substantially altered to a very large degree. If a negative impact then this could lead to unacceptable consequences for the cultural and/or social functions and/or irreplaceable loss of biodiversity to the extent that natural, cultural or social functions could temporarily or permanently cease.
PROBABILITY	
Improbable	Where the possibility of the impact materialising is very low, either because of design or historic experience
Probable	Where there is a distinct possibility that the impact will occur

Highly Probable	Where it is most likely that the impact will occur
Definite	Where the impact will undoubtedly occur, regardless of any prevention measures
SIGNIFICANCE	
Low	Where a potential impact will have a negligible effect on natural, cultural or social environments and the effect on the decision is negligible. This will not require special design considerations for the project
Medium	Where it would have, or there would be a moderate risk to natural, cultural or social environments and should influence the decision. The project will require modification or mitigation measures to be included in the design
High	Where it would have, or there would be a high risk to natural, cultural or social environments. These impacts should have a major influence on decision making.
Very High	Where it would have, or there would be a high risk of, an irreversible negative impact on biodiversity and irreplaceable loss of natural capital that could result in the project being environmentally unacceptable, even with mitigation. Alternatively, it could lead to a major positive effect. Impacts of this nature must be a central factor in decision making.
STATUS OF IMPACT	
Whether the impact is positive (a benefit), negative (a cost) or neutral (status quo maintained)	
DEGREE OF CONFIDENCE IN PREDICTIONS	
The degree of confidence in the predictions is based on the availability of information and specialist knowledge (e.g. low, medium or high)	
MITIGATION	
Mechanisms used to control, minimise and or eliminate negative impacts on the environment and to enhance project benefits. Mitigation measures should be considered in terms of the following hierarchy: (1) avoidance, (2) minimisation, (3) restoration and (4) off-sets.	

Other factors which are also considered in the assessment of impacts include whether the impact is direct, indirect or cumulative. A direct impact can be explained as being a direct result of activities associated with the development, such as the permanent removal of indigenous vegetation.

An indirect impact would be a downstream, secondary or "knock-on" impact resulting from an impact directly associated with the development.

A cumulative impact would be an impact which already occurs in the receiving environment associated with other activities taking place in proximity to the development, such as increased traffic in this fast-developing area.

Other factors considered include whether the impact is reversible; and whether the impact could cause an irreplaceable loss of resources.

The impact assessment methodology used has been closely guided by the DEAT EIA Guideline Document 5, on the assessment of impacts and alternatives (DEAT 2006); as well as reference to the description of the criteria used for the assessment of impacts as contained in the DEA&DP Specialist Guidelines Series (2005).

The assessment of the potential impacts has been based on SEC's extensive experience related to environmental impact assessment as well as specialist assessment and input, where applicable. Specialist input includes a Botanical Assessment, Freshwater Assessment, Socio-economic, Traffic, Engineering inputs etc. Please refer to **Appendix C** for copies of these specialist reports.

The impact assessment has also been informed by input and comment from stakeholders. The potential impacts have been assessed after review by the professional team, including specialists, and based on professional judgement.

It must be noted that determining the significance of impacts, although carefully and systematically considered, remains a subjective judgement, as there are no truly objective measures that can be used to judge significance.

8.2. Introduction to Mitigation

A key aspect of the impact assessment process is the identification of mitigation measures which can and should be implemented in order to prevent or minimise any negative impacts associated with the recycling facility; or conversely, to ensure that any associated benefits are maximised.

The DEA&DP's October 2011 *Information Document on Biodiversity Offsets* defines mitigation as "A hierarchy of four broad groups of possible measures to [1] avoid, [2] minimize, [3] repair/restore and/or [4] compensate for (i.e. offset) negative impacts".

The mitigation of impacts begins with identifying, as has been shown in Section 11 of this report, alternative means of meeting the general purpose of an application, in a manner that has the least possible negative impact on, or the greatest benefit for the surrounding environment.

Once this has been done, any impacts still associated with an application, must be able to be mitigated to an acceptable level. This means that the "residual impacts", or impacts which remain after mitigation has been implemented, need to be of a sufficiently low significance that the decision-making authority can be confident that the proposed application should be allowed to proceed.

The mitigation measures which pertain to an application – in this case, an application for a residential development - must be included in the Environmental Management Programme, which will govern the life cycle of activities associated with the application (facility).

The DEA&DP's 2005 *Guideline for Involving Biodiversity Specialists in EIA Processes* points out that the mitigation, management and monitoring measures included in an EMP need to be clearly defined: clear targets should be given for avoiding or minimising any identified significant impacts. The EMP also needs to make clear "when, where how often and by whom" the mitigation measures need to be implemented. Lastly, the capacity of the proponent – in this case the applicant, City of Cape Town: Housing Implementation – needs to be considered when mitigation measures are recommended.

These factors have been considered in the drafting of the EMP contained in **Appendix F**.

For this application, the identification and investigation of alternatives, as well as the recommendation of mitigation measures for reducing any residual impacts, has been guided by specialist input, as well as by SEC's extensive experience in environmental management.

8.3. Impact Assessment

The methodology which has been used to assess the significance of the impacts associated with the development has already been described. In order to allow for a comparative assessment of the impacts associated with the development including all feasible and reasonable process, design, layout and operational alternatives) against the impacts associated with the No-Go Alternative (or the option of not establishing a housing development on this site); the following impact rating method has been used:

Scoring System for Impact Assessment Ratings

IMPACT PARAMETER	SCORE	
Extent (A)	**Rating**	
Local	1	
Regional	2	
National	3	
Duration (B)	**Rating**	
Short term	1	
Medium Term	2	
Long Term	3	
Permanent	4	
Probability (C)	**Rating**	
Improbable	1	
Probable	2	
Highly Probable	3	
Definite	4	
IMPACT PARAMETER	**NEGATIVE IMPACT SCORE**	**POSITIVE IMPACT SCORE**
Magnitude/Intensity (D)	**Rating**	**Rating**

Low	-1	1
Medium	-2	2
High	-3	3
Stakeholder Concern (E)	**Rating**	**Rating**
Low (0-5 stakeholders)	-1	1
Medium (5-10 stakeholders)	-2	2
High (10+ stakeholders)	-3	3
SIGNIFICANCE RATING (F) = ((A*B*D) +E) *C	**Rating**	**Rating**
Low	0 to – 40	0 to 40
Medium	- 41 to - 80	41 to 80
High	- 81 to - 120	81 to 120
Very High	> - 120	> 120
The above significance bands have been determined through calculating a maximum potential score of 156 (positive or negative) using the above methodology. This was then subdivided into broad bands as indicated to provide a comparative assessment of all impacts in relation to the maximum possible significance score.		

ALTERNATIVE 1 (First draft concept block layout (no sensitive area)

Alternative 1:	**Impacts on human health and well-being**
PLANNING, DESIGN AND DEVELOPMENT PHASE	
Potential impact and risk:	**Potential NOISE AND DUST generation during the construction phase**
Nature of impact:	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.
Extent and duration of impact:	**Local and short term**
Consequence of impact or risk:	**Potential impact on people's health and wellbeing**
Probability of occurrence:	**Likely**
Degree to which the impact may cause irreplaceable loss of resources:	**Dust and noise impacts will not entail irreplaceable loss of resources**
Degree to which the impact can be reversed:	**The impact cannot be reversed but can be effectively mitigated**
Indirect impacts:	**None**
Cumulative impact prior to mitigation:	**Low negative (due to other construction projects in the area)**
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**Medium**
Degree to which the impact can be avoided:	**Construction activities**
Degree to which the impact can be managed:	**High**
Degree to which the impact can be mitigated:	**High**
Proposed mitigation:	**1. <u>Dust Mitigation:</u>** **<u>REFER TO DUST MANAGEMENT PLAN INCLUDED IN APPENDIX D</u>** • **Dust levels specified in the National Dust Control Regulations (GN 827 of November 2013) may not be exceeded. i.e. dust fall in residential areas may not exceed 600mg/m2/day, measured using reference method ASTM D1739;** • **A Complaints Register must be available at the site office for inspection by the ECO of dust complaints that may have been received.** • **The appointed Environmental Control Officer (ECO) must undertake a site inspection once per week, 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. • **Cleared areas should be provided with a suitable cover as soon as possible, and not left exposed for extended periods of time.** • **Stockpiles of topsoil, spoil material and other material that may generate dust must be protected from wind erosion (e.g. covered with netting, tarpaulin or other appropriate measures.** • **Speed limits must be enforced in all areas, including public roads and private property to limit the levels of dust pollution. The speed limit should be set at 20-40km/h.** • **Dust must be suppressed on access roads and the construction site during dry and or windy periods by the regular application of water or a biodegradable soil stabilisation agent. Water used for this purpose must be used in quantities that will not result in the generation of excessive run off.** • **All vehicles transporting sand need to have tarpaulins covering their loads which will assist in any windblown sand occurring off the trucks.** • **Material loads should be properly covered during transportation.** **2. <u>Noise Mitigation:</u>** • **Building is to occur from 8:00am in the morning to 5:00pm in the afternoon only. Building is to occur on weekdays only and not on weekends or public holidays** • **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.**
Residual impacts:	**None**
Cumulative impact post mitigation:	**Negligible**
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**Low**
OPERATIONAL PHASE	
Potential impact and risk:	**N/A Dust and Noise impacts are not anticipated during the operational phase**
DECOMMISSIONING AND CLOSURE PHASE	
Potential impact and risk:	**N/A. The proposed development will not be decommissioned**

Alternative 1:	**Soil and groundwater contamination**
PLANNING, DESIGN AND DEVELOPMENT PHASE	
Potential impact and risk:	**Potential contamination of soil and groundwater by INAPPROPRIATE WASTE MANAGEMENT PRACTISES**
Nature of impact:	Contamination of soil and groundwater by INAPPROPRIATE WASTE MANAGEMENT PRACTISES, fuel and oil spills, chemical toilet spills and inappropriate cement mixing.
Extent and duration of impact:	**Local and short term**
Consequence of impact or risk:	**Potential soil and/or groundwater contamination**
Probability of occurrence:	**Likely**
Degree to which the impact may cause irreplaceable loss of resources:	**Un-managed spills or other inappropriate waste management operations can entail irreplaceable loss of resources**

Degree to which the impact can be reversed:	**The impact cannot be reversed but can be effectively mitigated**
Indirect impacts:	**None**
Cumulative impact prior to mitigation:	**Medium due to other illegal littering and dumping in the area**
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**Medium**
Degree to which the impact can be avoided:	**Construction activities**
Degree to which the impact can be managed:	**High**
Degree to which the impact can be mitigated:	**High**
Proposed mitigation:	**ALSO REFER TO BULK STORWATER ASSESSMENT INCLUDED IN APPENDIX D** **1) Liquid Waste:** • **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.** • **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.** • **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 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 Nelson Mandela Bay 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.**
Residual impacts:	**None**
Cumulative impact post mitigation:	**Negligible**
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**Low**
OPERATIONAL PHASE	
Potential impact and risk:	**N/A. No impacts on soil and groundwater are anticipated during the operational phase.**
DECOMMISSIONING AND CLOSURE PHASE	
Potential impact and risk:	**N/A. The proposed development will not be decommissioned**

Alternative 1:	**Ecological impact – permanent loss of indigenous vegetation**
PLANNING, DESIGN AND DEVELOPMENT PHASE	
Potential impact and risk:	**Loss of Cape Flats Dune Strandveld of approximately 55.35ha (semi-intacta and degraded) and ecological processes due to vegetation clearing during construction phase**
Nature of impact:	**Loss of Cape Flats Dune Strandveld and ecological processes due to vegetation clearing during construction phase.** **NEGATIVE**
Extent and duration of impact:	**REGIONAL (without mitigation)** **SITE (with mitigation)**
Consequence of impact or risk:	**Loss of endangered vegetation and disturbance of ecological processes.** **VERY HIGH (without mitigation)** **HIGH (with mitigation)**
Probability of occurrence:	**HIGHLY PROBABLE (without mitigation)** **PROBABLY (with mitigation)**
Degree to which the impact may cause irreplaceable loss of resources:	**HIGH**
Degree to which the impact can be reversed:	**LOW**
Indirect impacts:	**LOW**
Cumulative impact prior to mitigation:	**HIGH**
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**VERY HIGH**
Degree to which the impact can be avoided:	**LOW (without mitigation)** **MEDIUM (with mitigation)**
Degree to which the impact can be managed:	**LOW (without mitigation)** **MEDIUM (with mitigation)**
Degree to which the impact can be mitigated:	**Medium**

Proposed mitigation:	**Offset of the residual loss of Degraded and Semi-intact vegetation. Rehabilitation of vegetation within the detention pond and wetland area.**
Residual impacts:	**HIGH**
Cumulative impact post mitigation:	**MEDIUM**
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**HIGH**
OPERATIONAL PHASE	
Potential impact and risk:	**N/A**
DECOMMISSIONING AND CLOSURE PHASE	
Potential impact and risk:	**N/A. The development will not be decommissioned.**

Alternative 1:	**Loss of species of conservation concern (SCC)**
PLANNING, DESIGN AND DEVELOPMENT PHASE	
Potential impact and risk:	**At least three SCC were found on the site. The collective loss of these species would have a high negative impact.**
Nature of impact:	**NEGATIVE**
Extent and duration of impact:	**SITE**
Consequence of impact or risk:	**HIGH (without mitigation)** **LOW (with mitigation)**
Probability of occurrence:	**HIGHLY PROBABLE (without mitigation)** **PROBABLY (with mitigation)**
Degree to which the impact may cause irreplaceable loss of resources:	**HIGH**
Degree to which the impact can be reversed:	**LOW**
Indirect impacts:	**LOW**
Cumulative impact prior to mitigation:	**HIGH (without mitigation)** **MEDIUM (with mitigation)**
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**HIGH**
Degree to which the impact can be avoided:	**LOW**
Degree to which the impact can be managed:	**LOW**
Degree to which the impact can be mitigated:	**Medium**
Proposed mitigation:	**Mark off the detention pond and wetland area to ensure no loss to the creeping fountainbush (Psoralea repens – Near Threatened)**
Residual impacts:	**HIGH**
Cumulative impact post mitigation:	**MEDIUM**
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**HIGH**
OPERATIONAL PHASE	
Potential impact and risk:	**N/A**
DECOMMISSIONING AND CLOSURE PHASE	
Potential impact and risk:	**N/A. The development will not be decommissioned.**

Alternative 1:	**Socio-economic Impacts**
PLANNING, DESIGN AND DEVELOPMENT PHASE	
Potential impact and risk:	**Employment opportunities** **Housing opportunities**
Nature of impact:	**Job creation during the construction phase**
Extent and duration of impact:	**Local to regional and medium term**
Consequence of impact or risk:	**Reducing poverty and improvement on quality of life**
Probability of occurrence:	**Highly probable**
Degree to which the impact may cause irreplaceable loss of resources:	**Entails no loss of resources**

Degree to which the impact can be reversed:	**No need to be reversed as it is a positive impact**
Indirect impacts:	**None**
Cumulative impact prior to mitigation:	**Medium Positive**
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**Medium Positive**
Degree to which the impact can be avoided:	**No need to avoid impact as it is a positive impact**
Degree to which the impact can be managed:	**Low**
Degree to which the impact can be mitigated:	**Low**
Proposed mitigation:	• **The project must aim to appoint local labour during the construction phase** • **Local SMME's must be used for construction where possible**
Residual impacts:	**None**
Cumulative impact post mitigation:	**Medium Positive**
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**Medium Positive**
OPERATIONAL PHASE	
Potential impact and risk:	**Potential positive socio-economic impact once the development advances to the construction of the top structures and business facilities phase.** **This application is however only for the civil engineering component.**
Nature of impact:	**N/A**
Extent and duration of impact:	**Local to regional and long term**
Consequence of impact or risk:	**Reduced poverty alleviation and improvement on quality of life**
Probability of occurrence:	**Probable**
Degree to which the impact may cause irreplaceable loss of resources:	**No loss**
Degree to which the impact can be reversed:	**Medium to High Positive.**
Indirect impacts:	**None**
Cumulative impact prior to mitigation:	**Medium-High. Unemployment and compromised quality of life is a national problem.**
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**Medium to High Positive.**
Degree to which the impact can be avoided:	**N/A – positive impact**
Degree to which the impact can be managed:	**Same as the above**
Degree to which the impact can be mitigated:	**Same as the above**
Proposed mitigation:	**Same as the above**
Residual impacts:	**None**
Cumulative impact post mitigation:	**Medium – High.**
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**Medium.**
DECOMMISSIONING AND CLOSURE PHASE	
Potential impact and risk:	**N/A. The development will not be decommissioned.**

Alternative 1:	**Visual Impact**
PLANNING, DESIGN AND DEVELOPMENT PHASE	
Potential impact and risk:	**Change in 'sense of place' of the area**
Nature of impact:	**The site will be transformed from a vacant site to a construction site**
Extent and duration of impact:	**Local and short term**
Consequence of impact or risk:	**None**
Probability of occurrence:	**Probable**
Degree to which the impact may cause irreplaceable loss of resources:	**No loss of resources**

Degree to which the impact can be reversed:	**Reversible**
Indirect impacts:	**None**
Cumulative impact prior to mitigation:	**Low negative**
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**Low negative**
Degree to which the impact can be avoided:	**Cannot be avoided**
Degree to which the impact can be managed:	**Low**
Degree to which the impact can be mitigated:	**Low**
Proposed mitigation:	**General good practice must be implemented during construction.** **Good housekeeping must be maintained for the duration of the construction phase.** **The site is always to be kept neat and tidy.**
Residual impacts:	**None**
Cumulative impact post mitigation:	**Negligible**
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**Negligible**
OPERATIONAL PHASE	
Potential impact and risk:	**Even though the visual nature of the site will change from a vacant site to a levelled and cleared site, this is not regarded as a visual impact as it will be in line with the surrounding area and sense of place, given that the site is surrounded by similar developments.**
DECOMMISSIONING AND CLOSURE PHASE	
Potential impact and risk:	**N/A. The development will not be decommissioned.**

ALTERNATIVE 2: Second draft concept block layout (excludes the no-go sensitive area)

Alternative 2:	**Impacts on human health and well-being**
PLANNING, DESIGN AND DEVELOPMENT PHASE	
Potential impact and risk:	**Potential NOISE AND DUST generation during the construction phase**
Nature of impact:	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.
Extent and duration of impact:	**Local and short term**
Consequence of impact or risk:	**Potential impact on people's health and wellbeing**
Probability of occurrence:	**Likely**
Degree to which the impact may cause irreplaceable loss of resources:	**Dust and noise impacts will not entail irreplaceable loss of resources**
Degree to which the impact can be reversed:	**The impact cannot be reversed but can be effectively mitigated**
Indirect impacts:	**None**
Cumulative impact prior to mitigation:	**Low negative (due to other construction projects in the area)**
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**Medium**
Degree to which the impact can be avoided:	**Construction activities**
Degree to which the impact can be managed:	**High**

Degree to which the impact can be mitigated:	**High**
Proposed mitigation:	**1. <u>Dust Mitigation:</u>** **REFER TO THE DUST MANAGEMENT PLAN AS ATTACHED IN APPENDIX** • **Dust levels specified in the National Dust Control Regulations (GN 827 of November 2013) may not be exceeded. i.e. dust fall in residential areas may not exceed 600mg/m2/day, measured using reference method ASTM D1739;** • **A Complaints Register must be available at the site office for inspection by the ECO of dust complaints that may have been received.** • **The appointed Environmental Control Officer (ECO) must undertake a site inspection once per week, 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.** • **Cleared areas should be provided with a suitable cover as soon as possible, and not left exposed for extended periods of time.** • **Stockpiles of topsoil, spoil material and other material that may generate dust must be protected from wind erosion (e.g. covered with netting, tarpaulin or other appropriate measures.** • **Speed limits must be enforced in all areas, including public roads and private property to limit the levels of dust pollution. The speed limit should be set at 20-40km/h.** • **Dust must be suppressed on access roads and the construction site during dry and or windy periods by the regular application of water or a biodegradable soil stabilisation agent. Water used for this purpose must be used in quantities that will not result in the generation of excessive run off.** • **All vehicles transporting sand need to have tarpaulins covering their loads which will assist in any windblown sand occurring off the trucks.** • **Material loads should be properly covered during transportation.** **2. <u>Noise Mitigation:</u>** • **Building is to occur from 8:00am in the morning to 5:00pm in the afternoon only. Building is to occur on weekdays only and not on weekends or public holidays** • **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.**
Residual impacts:	**None**
Cumulative impact post mitigation:	**Negligible**
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**Low**
OPERATIONAL PHASE	
Potential impact and risk:	**N/A Dust and Noise impacts are not anticipated during the operational phase**
DECOMMISSIONING AND CLOSURE PHASE	
Potential impact and risk:	**N/A. The proposed development will not be decommissioned**

Alternative 2:	**Soil and groundwater contamination**
PLANNING, DESIGN AND DEVELOPMENT PHASE	
Potential impact and risk:	**Potential contamination of soil and groundwater by INAPPROPRIATE WASTE MANAGEMENT PRACTISES**
Nature of impact:	Contamination of soil and groundwater by INAPPROPRIATE WASTE MANAGEMENT PRACTISES, fuel and oil spills, chemical toilet spills and inappropriate cement mixing.
Extent and duration of impact:	**Local and short term**
Consequence of impact or risk:	**Potential soil and/or groundwater contamination**
Probability of occurrence:	**Likely**
Degree to which the impact may cause irreplaceable loss of resources:	**Un-managed spills or other inappropriate waste management operations can entail irreplaceable loss of resources**
Degree to which the impact can be reversed:	**The impact cannot be reversed but can be effectively mitigated**
Indirect impacts:	**None**
Cumulative impact prior to mitigation:	**Medium due to other illegal littering and dumping in the area**
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**Medium**
Degree to which the impact can be avoided:	**Construction activities**
Degree to which the impact can be managed:	**High**
Degree to which the impact can be mitigated:	**High**
Proposed mitigation:	**ALSO REFER TO STORWATER MANAGEMENT PLAN AS INCLUDED IN APPENDIX D** **1) Liquid Waste:** • **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.** • **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.** • **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 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 Nelson Mandela Bay 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.**
Residual impacts:	**None**
Cumulative impact post mitigation:	**Negligible**
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**Low**
OPERATIONAL PHASE	
Potential impact and risk:	**N/A. No impacts on soil and groundwater are anticipated during the operational phase.**
DECOMMISSIONING AND CLOSURE PHASE	
Potential impact and risk:	**N/A. The proposed development will not be decommissioned**

Alternative 2:	**Ecological impact – permanent loss of indigenous vegetation**
PLANNING, DESIGN AND DEVELOPMENT PHASE	
Potential impact and risk:	**Loss of Cape Flats Dune Strandveld of approximately 55.35ha (semi-intacta and degraded) and ecological processes due to vegetation clearing during construction phase**
Nature of impact:	**Loss of Cape Flats Dune Strandveld and ecological processes due to vegetation clearing during construction phase.** **NEGATIVE**
Extent and duration of impact:	**REGIONAL (without mitigation)** **SITE (with mitigation)**
Consequence of impact or risk:	**Loss of endangered vegetation and disturbance of ecological processes.** **VERY HIGH (without mitigation)** **HIGH (with mitigation)**
Probability of occurrence:	**HIGHLY PROBABLE (without mitigation)** **PROBABLY (with mitigation)**

Degree to which the impact may cause irreplaceable loss of resources:	**HIGH**
Degree to which the impact can be reversed:	**LOW**
Indirect impacts:	**LOW**
Cumulative impact prior to mitigation:	**HIGH**
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**VERY HIGH**
Degree to which the impact can be avoided:	**LOW (without mitigation)** **MEDIUM (with mitigation)**
Degree to which the impact can be managed:	**LOW (without mitigation)** **MEDIUM (with mitigation)**
Degree to which the impact can be mitigated:	**Medium**
Proposed mitigation:	**Offset of the residual loss of Degraded and Semi-intact vegetation. Rehabilitation of vegetation within the detention pond and wetland area.**
Residual impacts:	**HIGH**
Cumulative impact post mitigation:	**MEDIUM**
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**HIGH**
OPERATIONAL PHASE	
Potential impact and risk:	**N/A**
DECOMMISSIONING AND CLOSURE PHASE	
Potential impact and risk:	**N/A. The development will not be decommissioned.**

Alternative 2:	**Loss of species of conservation concern (SCC)**
PLANNING, DESIGN AND DEVELOPMENT PHASE	
Potential impact and risk:	**At least three SCC were found on the site. The collective loss of these species would have a high negative impact.**
Nature of impact:	**NEGATIVE**
Extent and duration of impact:	**SITE**
Consequence of impact or risk:	**HIGH (without mitigation)** **LOW (with mitigation)**
Probability of occurrence:	**HIGHLY PROBABLE (without mitigation)** **PROBABLY (with mitigation)**
Degree to which the impact may cause irreplaceable loss of resources:	**HIGH**
Degree to which the impact can be reversed:	**LOW**
Indirect impacts:	**LOW**
Cumulative impact prior to mitigation:	**HIGH (without mitigation)** **MEDIUM (with mitigation)**
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**HIGH**
Degree to which the impact can be avoided:	**LOW**
Degree to which the impact can be managed:	**LOW**
Degree to which the impact can be mitigated:	**Medium**
Proposed mitigation:	**Mark off the detention pond and wetland area to ensure no loss to the creeping fountainbush (Psoralea repens – Near Threatened)**
Residual impacts:	**HIGH**
Cumulative impact post mitigation:	**MEDIUM**
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**HIGH**
OPERATIONAL PHASE	
Potential impact and risk:	**N/A**
DECOMMISSIONING AND CLOSURE PHASE	
Potential impact and risk:	**N/A. The development will not be decommissioned.**

Alternative 2:	**Socio-economic Impacts**
PLANNING, DESIGN AND DEVELOPMENT PHASE	
Potential impact and risk:	**Employment opportunities** **Housing opportunities**
Nature of impact:	**Job creation during the construction phase**
Extent and duration of impact:	**Local to regional and medium term**
Consequence of impact or risk:	**Reducing poverty and improvement on quality of life**
Probability of occurrence:	**Highly probable**
Degree to which the impact may cause irreplaceable loss of resources:	**Entails no loss of resources**
Degree to which the impact can be reversed:	**No need to be reversed as it is a positive impact**
Indirect impacts:	**None**
Cumulative impact prior to mitigation:	**Medium Positive**
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**Medium Positive**
Degree to which the impact can be avoided:	**No need to avoid impact as it is a positive impact**
Degree to which the impact can be managed:	**Low**
Degree to which the impact can be mitigated:	**Low**
Proposed mitigation:	• **The project must aim to appoint local labour during the construction phase** • **Local SMME's must be used for construction where possible**
Residual impacts:	**None**
Cumulative impact post mitigation:	**Medium Positive**
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**Medium Positive**
OPERATIONAL PHASE	
Potential impact and risk:	**Increased economic opportunities** **Increased housing opportunities**
Nature of impact:	**Increased economic**
Extent and duration of impact:	**Local to regional and long term**
Consequence of impact or risk:	**Poverty alleviation and improvement on quality of life**
Probability of occurrence:	**Probable**
Degree to which the impact may cause irreplaceable loss of resources:	**No loss**
Degree to which the impact can be reversed:	**No need to be reversed as it is a positive impact**
Indirect impacts:	**None**
Cumulative impact prior to mitigation:	**None**
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**High Positive**
Degree to which the impact can be avoided:	**No need to be avoided as this is a positive impact**
Degree to which the impact can be managed:	**Same as the above**
Degree to which the impact can be mitigated:	**Same as the above**
Proposed mitigation:	**Same as the above**
Residual impacts:	**None**
Cumulative impact post mitigation:	**None**
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**High positive**
DECOMMISSIONING AND CLOSURE PHASE	
Potential impact and risk:	**N/A. The development will not be decommissioned.**

Alternative 2:	**Visual Impact**

PLANNING, DESIGN AND DEVELOPMENT PHASE	
Potential impact and risk:	**Change in 'sense of place' of the area**
Nature of impact:	**The site will be transformed from a vacant site to a construction site**
Extent and duration of impact:	**Local and short term**
Consequence of impact or risk:	**None**
Probability of occurrence:	**Probable**
Degree to which the impact may cause irreplaceable loss of resources:	**No loss of resources**
Degree to which the impact can be reversed:	**Reversible**
Indirect impacts:	**None**
Cumulative impact prior to mitigation:	**Low negative**
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**Low negative**
Degree to which the impact can be avoided:	**Cannot be avoided**
Degree to which the impact can be managed:	**Low**
Degree to which the impact can be mitigated:	**Low**
Proposed mitigation:	**General good practice must be implemented during construction.** **Good housekeeping must be maintained for the duration of the construction phase.** **The site is always to be kept neat and tidy.**
Residual impacts:	**None**
Cumulative impact post mitigation:	**Negligible**
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**Negligible**
OPERATIONAL PHASE	
Potential impact and risk:	**Even though the visual nature of the site will change from a vacant site to a levelled and cleared site, this is not regarded as a visual impact as it will be in line with the surrounding area and sense of place, given that the site is surrounded by similar developments.**
DECOMMISSIONING AND CLOSURE PHASE	
Potential impact and risk:	**N/A. The development will not be decommissioned.**

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)

Alternative 3:	**Ecological impact – permanent loss of indigenous vegetation**
PLANNING, DESIGN AND DEVELOPMENT PHASE	
Potential impact and risk:	**Loss of Cape Flats Dune Strandveld of approximately 55.35ha (semi-intacta and degraded) and ecological processes due to vegetation clearing during construction phase**
Nature of impact:	**Loss of Cape Flats Dune Strandveld and ecological processes due to vegetation clearing during construction phase.** **NEGATIVE**
Extent and duration of impact:	**REGIONAL (without mitigation)**

	SITE (with mitigation)
Consequence of impact or risk:	**Loss of endangered vegetation and disturbance of ecological processes.** **VERY HIGH (without mitigation)** **HIGH (with mitigation)**
Probability of occurrence:	**HIGHLY PROBABLE (without mitigation)** **PROBABLY (with mitigation)**
Degree to which the impact may cause irreplaceable loss of resources:	**HIGH**
Degree to which the impact can be reversed:	**LOW**
Indirect impacts:	**LOW**
Cumulative impact prior to mitigation:	**HIGH**
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**VERY HIGH**
Degree to which the impact can be avoided:	**LOW (without mitigation)** **MEDIUM (with mitigation)**
Degree to which the impact can be managed:	**LOW (without mitigation)** **MEDIUM (with mitigation)**
Degree to which the impact can be mitigated:	**Medium**
Proposed mitigation:	**Offset of the residual loss of Degraded and Semi-intact vegetation. Rehabilitation of vegetation within the detention pond and wetland area.**
Residual impacts:	**HIGH**
Cumulative impact post mitigation:	**MEDIUM**
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**HIGH**
OPERATIONAL PHASE	
Potential impact and risk:	**N/A**
DECOMMISSIONING AND CLOSURE PHASE	
Potential impact and risk:	**N/A. The development will not be decommissioned.**

Alternative 2:	**Loss of species of conservation concern (SCC)**
PLANNING, DESIGN AND DEVELOPMENT PHASE	
Potential impact and risk:	**At least three SCC were found on the site. The collective loss of these species would have a high negative impact.**
Nature of impact:	**NEGATIVE**
Extent and duration of impact:	**SITE**
Consequence of impact or risk:	**HIGH (without mitigation)** **LOW (with mitigation)**
Probability of occurrence:	**HIGHLY PROBABLE (without mitigation)** **PROBABLY (with mitigation)**
Degree to which the impact may cause irreplaceable loss of resources:	**HIGH**
Degree to which the impact can be reversed:	**LOW**
Indirect impacts:	**LOW**
Cumulative impact prior to mitigation:	**HIGH (without mitigation)** **MEDIUM (with mitigation)**
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**HIGH**
Degree to which the impact can be avoided:	**LOW**
Degree to which the impact can be managed:	**LOW**
Degree to which the impact can be mitigated:	**Medium**
Proposed mitigation:	**Mark off the detention pond and wetland area to ensure no loss to the creeping fountainbush (Psoralea repens – Near Threatened)**
Residual impacts:	**HIGH**
Cumulative impact post mitigation:	**MEDIUM**

Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**HIGH**
OPERATIONAL PHASE	
Potential impact and risk:	**N/A**
DECOMMISSIONING AND CLOSURE PHASE	
Potential impact and risk:	**N/A. The development will not be decommissioned.**

Alternative 3: Preferred Alternative	**Socio-economic Impacts**
PLANNING, DESIGN AND DEVELOPMENT PHASE	
Potential impact and risk:	**Employment opportunities** **Housing opportunities**
Nature of impact:	**Job creation during the construction phase**
Extent and duration of impact:	**Local to regional and medium term**
Consequence of impact or risk:	**Reducing poverty and improvement on quality of life**
Probability of occurrence:	**Highly probable**
Degree to which the impact may cause irreplaceable loss of resources:	**Entails no loss of resources**
Degree to which the impact can be reversed:	**No need to be reversed as it is a positive impact**
Indirect impacts:	**None**
Cumulative impact prior to mitigation:	**High Positive**
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**High Positive**
Degree to which the impact can be avoided:	**No need to avoid impact as it is a positive impact**
Degree to which the impact can be managed:	**Low**
Degree to which the impact can be mitigated:	**Low**
Proposed mitigation:	• **The project must aim to appoint local labour during the construction phase** • **Local SMME's must be used for construction where possible**
Residual impacts:	**None**
Cumulative impact post mitigation:	**High Positive**
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**High Positive**
OPERATIONAL PHASE	
Potential impact and risk:	**Increased economic opportunities** **Increased housing opportunities**
Nature of impact:	**Increased economic opportunities due to increase in total footprint of development (housing and business opportunities) due to development of entire site** **Increased housing opportunities due to increase in total footprint of development (housing and business opportunities) due to development of the entire site**
Extent and duration of impact:	**Local to regional and long term**
Consequence of impact or risk:	**Poverty alleviation and improvement on quality of life**
Probability of occurrence:	**Probable**
Degree to which the impact may cause irreplaceable loss of resources:	**No loss**
Degree to which the impact can be reversed:	**No need to be reversed as it is a positive impact**
Indirect impacts:	**None**
Cumulative impact prior to mitigation:	**None**
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**High Positive**
Degree to which the impact can be avoided:	**No need to be avoided as this is a positive impact**
Degree to which the impact can be managed:	**Same as the above**
Degree to which the impact can be mitigated:	**Same as the above**
Proposed mitigation:	**Same as the above**
Residual impacts:	**None**

Cumulative impact post mitigation:	**None**
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**High positive**
DECOMMISSIONING AND CLOSURE PHASE	
Potential impact and risk:	**N/A.** **The development will not be decommissioned.**

NO-GO ALTERNATIVE

MEDIUM NEGATIVE EOCLOGICAL IMPACT
The no-go option entails the maintaining of the status quo of the site. In this case, the no-go option would mean that the development will not take place and that there will consequently be no clearance of vegetation cover for the sake of development.
The site will remain as is, undeveloped.
Deterioration of the vegetation is however probable due to the alien invasive species and illegal activities such as littering, dumping and the establishment of informal housing on the site.

HIGH NEGATIVE SOCIO_ECONOMIC IMPACT
The no-go alternative will fail to address the dire need for housing in the Khayelitsha– as well as larger City of Cape Town area.
Given the scale of the proposed housing development, a considerable economic contribution to the local community in the form of employment opportunities will also be foregone should the development not take place.
Should the property remain vacant it will also most likely attract vagrancy, littering and other undesirable activities thereby compromising the safety qualify of life of the local community.

8.3.1. Uncertainties, Assumptions and Gaps in Knowledge

The following uncertainties and gaps in knowledge were identified in the assessment undertaken:

- That management will act in a responsible manner and act when incidents occur to determine the cause and/or rectify the cause of the problem.
- That the available data, including Topo-cadastral maps, Orthophotographs, geological maps and DWS national ground water database information, are reasonably accurate.
- That management will act in a responsible manner and act when incidents occur to determine the cause and/or rectify the cause of the problem.
- That the installation of equipment at the facility is conducted by competent, trained contractors. In addition, all equipment must be adequately maintained.
- That the equipment used fulfils its design requirements and is not faulty.
- That the available data, including topo-cadastral maps, orthophotographs, geological maps and DWS national ground water database information, are reasonably accurate.
- There are no uncertainties which have arisen from investigations undertaken by the EAP and by specialists which materially affect this application.

9. CONCLUSION AND WAY FORWARD

It is SEC's recommendation that the development should be allowed to proceed. This recommendation is based on the outcome of the impact assessment process, which has been informed by SEC's professional experience in environmental management as well as on specialist input.

There is a dire need for housing in the South African context.
This proposed development will provide for approximately 5500 new housing opportunities.

The development will also provide for employment opportunities during the construction phase of the development and permanent employment opportunities after construction at the new planned businesses, schools, worship facilities, creches, social amenities, etc.

The most prominent impact from an environmental perspective is the permanent loss of endangered vegetation. Considering the current housing demand, probability of land invasion and social ills such as dumping and sand mining, the integrity of the small patches of intact vegetation on site cannot be guaranteed.

The Preferred Alternative was deemed to be the most feasible, as it takes into consideration both socio-economic and ecological factors relating to the planned development with a mix of land uses.

The development should be constructed and operated with the implementation of all the mitigation measures recommended by the specialists and required by the commenting authorities. All these measures are contained in the EMP, which is attached as **Appendix F**. The implementation of the EMP should therefore be a condition of the Environmental Authorisation.

Report compiled by:	**Report reviewed by:**
	
Chantel Müller MPhil Environmental Management	Adrian Sillito *Pr. Sci.Nat Registration Number 400046/93*

SILLITO ENVIRONMENTAL CONSULTING (PTY) LTD