DRAFT BASIC ASSESSMENT REPORT:

PROPOSED KLAARWATER LOW INCOME HOUSING DEVELOPMENT, ETHEKWINI METROPOLITAN MUNICIPALITY, KWAZULU-NATAL.

MARCH 2019

Terratest (Pty) Ltd Reference No. 41747

EDTEA REF: DM/0034/2018

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VERIFICATION PAGE

TITLE:

PROPOSED KLAARWATER LOW INCOME HOUSING DEVELOPMENT, ETHEKWINI METROPOLITAN MUNICIPALITY, KWAZULU-NATAL.

PROJECT NO.:	DATE:	REPORT STATUS:
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AUTHOR: Ms Riona Patak	**CLIENT CONTACT PERSON:** Ms. Nelisiwe Mlotshwa

SYNOPSIS:

Draft Basic Assessment for the proposed development of the Klaarwater Low Income Housing Development, eThekwini Metropolitan Municipality, KwaZulu-Natal.

KEY WORDS:

Basic Assessment, EMPr, Klaarwater, low income housing, NEMA (Act 107 of 1998) EIA Regulations 2014 (as amended, 2017), GNR 326, GNR 327, GNR 324

QUALITY VERIFICATION

This report has been prepares under the controls established by a quality management system that meets the requirements of ISO9001: 2015, which has been independently certified by DEKRA Certification under certificate number 90906882.

VERIFICATION	CAPACITY	NAME	SIGNATURE	DATE
By Author	Environmental Scientist	Riona Patak		01/03/2019
Checked by	Senior Environmental Consultant	Imke Summers		01/03/2019
Authorised by	Executive Associate	Magnus van Rooyen		01/03/2019

File name:	\\dcjgi02-pmb\Terratest\02 ACTIVE Projects Terratest\41747 - Klaarwater Housing BA\1. PROJECT\7. Reports

Executive Summary

Terratest (Pty) Ltd has been appointed by eThekwini Municipality to undertake the environmental services required for the construction works associated with the formalisation of low income housing in three areas located within Klaarwater, near Pinetown, eThekwini Metropolitan Municipality, KwaZulu-Natal. The development includes the provision and upgrading of sewers and associated services. The three areas comprise the following:

Phase 1A - 30°51'24.031"E; 29°51'44.52"S: The development footprint of Phase 1A, including service infrastructure, is approximately 4.18 hectares. Development on this site will comprise formalisation of existing housing which is currently established on the site, and the installation and upgrading of service infrastructure within the boundaries of the development footprint.

Phase 1B - 30°51'39.627"E; 29°51'36.463"S: The development footprint of Phase 1B, including service infrastructure, is approximately 3.5 hectares. Development on this site will comprise formalisation of existing housing which is currently established on the site, and the installation and upgrading of service infrastructure within the boundaries of the development footprint.

Phase 1C - 30°51'38.934"E; 29°51'22.723"S: The development footprint of Phase 1C, including service infrastructure, is approximately 1.19 hectares. The site is currently undeveloped however it has been highly disturbed through anthropogenic impacts, including illegal sand mining. Development on this site will comprise greenfield development of low income housing and will be an extension of the existing Nazareth Island low income housing complex.

The temporary housing site will be used on a rotational basis, first providing temporary housing for beneficiaries currently located within Phase 1A. Once the construction of dwellings in Phase 1A is completed then the beneficiaries will be moved to their formal dwellings and beneficiaries currently located within Phase 1B will be relocated to the temporary housing area while they await the completion of their formal dwellings. On completion of Phase 1B, construction of Phase 1C will commence, which will provide additional housing opportunities for beneficiaries in the area.

The public participation process undertaken involves consultation with the relevant authorities, non-government organisations (NGO's), neighbouring landowners, community members and other identified Interested and Affected Parties (IAPs). A pre-application meeting was held with the Department of Economic Development, Tourism and Environmental Affairs (EDTEA): eThekwini District on 25 July 2017. Public Participation involved the establishment of six (6) English and isiZulu site notices placed throughout the site on 27 February 2019 to notify members of the general public of the Basic Assessment Process for the proposed development. Notification letters were also distributed to the IAPs and Stakeholders. A Public Meeting was not deemed necessary as significant interest has not been shown by the community with respect to the proposed development. However, the relevant ward councillors have been notified of the proposed development.

Three specialist studies were undertaken and included a Heritage Impact Assessment, a Wetland and Biodiversity Assessment and a Geotechnical Assessment. The Heritage Impact Assessment was undertaken by eThembeni Cultural Heritage to determine if any items of cultural or historical value would be impacted on during construction. A baseline Wetland and Biodiversity Assessment was undertaken by Terratest (Pty) Ltd to determine the impact that the proposed construction would have on surrounding wetlands, watercourses and DMOSS area. A Geotechnical Assessment was undertaken by Moore Spence Jones to determine the underlying characteristics of the area for earthworks, foundations and materials usage. No fatal flaws were identified by any of the Specialist Studies provided that certain mitigation measures ares put in place. Furthermore, a Water Use Licence Application (WULA) is currently being undertaken by Terratest (Pty) Ltd. The WULA is being applied for to obtain the necessary approvals from the Department of Water and Sanitation (DWS) in terms of the National Water Act of 1998, as amended.

The Draft BA Report and Environmental Management Programme (EMPr) have been circulated to registered IAPs for review and comment as part of the legislated 30 day public participation process.

To date no comments have been received via the other notification means i.e. advert, postrs, notification sheets. Comments received on the Draft BA Report and EMPr will be consolidated and included in the Final BA Report, which will be submitted to the KwaZulu-Natal Department of Economic Development, Tourism and Environmental Affairs (EDTEA) for a decision on Environmental Authorisation (EA). Construction cannot commence until such time as a positive EA is obtained.

This BA Report has been drafted in accordance with the NEMA: EIA Regulations, 2014, as amended, and adheres to the requirements contained in Appendix 1 of GNR 326 of 2017, as noted in Table 1.

TABLE 1: Content of a BA Report (2014 EIA Regulations)

2014 EIA Regulations	Description of EIA Regulations Requirements for BA Reports	Location in the BA Report
Appendix 1, Section 3 (a)	Details of – (i) The EAP who prepared the report; and the expertise of the EAP; and (ii) The expertise of the EAP, including a curriculum vitae.	Section 2 & Appendix 1
Appendix 1, Section 3 (b)	The location of the activity, including – (i) The 21 digit Surveyor General code of each cadastral land parcel; (ii) Where available, the physical address and farm name; (iii) Where the required information in items (i) and (ii) is not available, coordinates of the boundary of the property or properties	Section 3
Appendix 1, Section 3 (c)	A plan which locates the proposed activity or activities applied for at an appropriate scale, or, if it is – (i) A linear activity, a description and coordinates of the corridor in which the proposed activity or activities is to be undertaken; or (ii) On land where the property has not been defined, the coordinates within which the activity is to be undertaken.	Section 4
Appendix 1, Section 3 (d)	A description of the scope of the proposed activity, including – (i) All listed and specified activities triggered; (ii) A description of the activities to be undertaken, including associated structures and infrastructure.	Section 4
Appendix 1, Section 3 (e)	A description of the policy and legislative context within which the development is proposed including an identification of all legislation, policies, plans, guidelines, spatial tools, municipal development planning frameworks and instruments that are applicable to this activity and are to be considered in the assessment process.	Section 5
Appendix 1, Section 3 (f)	A motivation for the need and desirability for the proposed development including the need and desirability of the activity in the context of the preferred location.	Section 6
Appendix 1, Section 3 (h)	A full description of the process followed to reach the proposed preferred activity, site and location within the site, including- (i) Details of all alternatives considered; (ii) Details of the Public Participation Process undertaken in terms of Regulation 41 of the Regulations, including copies of the supporting documents and inputs; (iii) A summary of the issues raised by interested and affected parties, and an indication of the manner in which the issues were incorporated, or the reasons for not including them; (iv) The environmental attributes associated with the alternatives focusing on the geographical, physical, biological, social, economic, heritage and cultural aspects; (v) The impacts and risks identified for each alternative, including the nature, significance, consequence, extent, duration, and probability of the impacts, including the degree to which the impacts- (aa) Can be reversed; (bb) May cause irreplaceable loss of resources; and (cc) Can be avoided, managed, or mitigated. (vi) The methodology used in deterring and ranking the nature, significance, consequences, extent, duration and probability of potential environmental impacts and risks associated with the alternatives; (vii) Positive and negative impacts that the proposed activity and alternatives will have on the environment and on the community that may be affected focusing on the geographic, physical, biological, social, economic, heritage and cultural aspects; (viii) The possible mitigation measures that could be applied and level of residual risk; (ix) The outcome of the site selection matrix; (x) If no alternatives, including alternative locations for the activity were investigated, the motivation for not considering such and;	Section 7 Section 8 Section 8 Section 11 Section 11 Section 13 Section 13 Section 12 Section 13 Section 7

2014 EIA Regulations	Description of EIA Regulations Requirements for BA Reports	Location in the BA Report
	(xi) A concluding statement indicating the preferred alternatives, including preferred location of the activity.	Section 14
Appendix 1, Section 3 (i)	A full description of the process undertaken to identify, assess and rank the impacts the activity will impose on the preferred location through the life of the activity, including- (i) A description of all environmental issues and risks that were identified during the environmental impact assessment process; and (ii) An assessment of the significance of each issue and risk and an indication of the extent to which the issue and risk could be avoided or addressed by the adoption of mitigation measures.	Section 13
Appendix 1, Section 3 (j)	An assessment of each identified potentially significant impact and risk, including- (i) Cumulative impacts; (ii) The nature, significance and consequences of the impact and risk; (iii) The extent and duration of the impact and risk; (iv) The probability of the impact and risk occurring; (v) The degree to which the impact and risk can be reversed; (vi) The degree to which the impact and risk may cause irreplaceable loss of resources; and (vii) The degree to which the impact and risk can be avoided, managed or mitigated.	Section 13
Appendix 1, Section 3 (k)	Where applicable, a summary of the findings and impact management measures identified in any specialist report complying with Appendix 6 to these Regulations and an indication as to how these findings and recommendations have been included in the final report.	Section 10
Appendix 1, Section 3 (l)	An environmental impact statement which contains- (i) A summary of the key findings of the environmental impact assessment; (ii) A map at an appropriate scale which superimposes the proposed activity and its associated structures and infrastructure on the environmental sensitivities of the preferred site indicating any areas that should be avoided, including buffers; and (iii) A summary of the positive and negative impacts and risks of the proposed activity and identified alternatives.	Section 14
Appendix 1, Section 3 (m)	Based on the assessment, and where applicable, impact management measures from specialist reports, the recording of the proposed impact management objectives, and the impact management outcomes for the development for inclusion in the EMPr.	Section 11
Appendix 1, Section 3 (n)	Any aspects which were conditional to the findings of the assessment either by the EAP or specialist which are to be included as conditions of authorisation.	Section 10
Appendix 1, Section 3 (o)	A description of any assumptions, uncertainties, and gaps in knowledge which relate to the assessment and mitigation measures proposed;	-
Appendix 1, Section 3 (p)	A reasoned opinion as to whether the proposed activity should or should not be authorised, and if the opinion is that it should be authorised, any conditions that should be made in respect of that authorisation.	Section 15
Appendix 1, Section 3 (q)	Where the proposed activity does not include operational aspects, the period for which the environmental authorisation is required, the date on which the activity will be concluded, and the post construction monitoring requirements finalised.	Section 16
Appendix 1, Section 3 (r)	An undertaking under oath or affirmation by the EAP in relation to- (i) The correctness of the information provided in the report; (ii) The inclusion of the comments and inputs from stakeholders and interested and affected parties; (iii) the inclusion of inputs and recommendations from the specialist reports where relevant; and (iv) Any information provided by the EAP to interested and affected parties and any responses by the EAP to comments or inputs made by interested and affected parties.	Section 18
Appendix 1, Section 3 (s)	Where applicable, details of any financial provisions for the rehabilitation, closure, and ongoing post decommissioning management of negative environmental impacts.	-
Appendix 1, Section 3 (t)	Where applicable, any specific information required by the Competent Authority.	-
Appendix 1, Section 3 (u)	Any other matter required in terms of section 24(4) (a) and (b) of the Act.	-

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FIGURES

PROPOSED KLAARWATER LOW INCOME HOUSING DEVELOPMENT, ETHEKWINI METROPOLITAN MUNICIPALITY, KWAZULU-NATAL.

1 INTRODUCTION

Terratest (Pty) Ltd has been appointed by eThekwini Municipality to undertake the environmental services required for the construction works associated with the formalization of housing in three areas located within Klaarwater, near Pinetown, eThekwini Metropolitan Municipality, KwaZulu-Natal.

Extensive pre-planning and assessment work undertaken by the Applicant and their appointed specialists has informed the selection of the proposed layout for development and this is elaborated on further in other sections of this report (Section 7).

As per GN R326 of the EIA Regulations, 2014, a Basic Assessment (BA) Process must be undertaken in such a manner that the environmental outcomes, impacts and residual risks of the proposed Listed Activity being applied for are noted in the BA Report and assessed accordingly by the Environmental Assessment Practitioner (EAP). In this regard, the requirements of the BA Process are noted in the EIA Regulations (2014), as amended (2017), Listing Notice 1, Appendix 1 of GNR 326 and are consequently adhered to in this report (please refer to Table 1 of the Executive Summary).

Ultimately, the outcome of the BA Process is to provide the Competent Authority, the Department of Economic Development, Tourism and Environmental Affairs (EDTEA), with sufficient information to provide a decision on the Application in terms of Environmental Authorisation (EA), in order to avoid or mitigate any detrimental impacts that the activity may inflict on the receiving environment.

2 DETAILS OF THE ENVIRONMENTAL ASSESSMENT PRACTITIONER (EAP)

Details of the qualified EAPs involved in undertaking the BA Process are noted in Table 2 and the Curriculum Vitae (CV) of the relevant EAPs attached as Appendix 1.

Table 2: Details of EAP

EAP	Qualifications & Professional affiliations	Experience at environmental assessments	Contact details
Mr M. van Rooyen Executive Associate	BSc, BSc Hons, MPhil. (Environmental Management), Pr. Sci. Nat, IAIAsa	13 years	Terratest (Pty) Ltd Tel: (033) 343 6789 Email: vanrooyenm@terratest.co.za
Mr J Richardson Associate	BSc. Hons. Geography and Environmental Management, IAIAsa	11 years	Terratest (Pty) Ltd Tel: (033) 343 6789 Email: richardsonj@terratest.co.za
Ms R. Patak Environmental Scientist	BSc. Hons. Environmental Science, IAIAsa	6 years	Terratest (Pty) Ltd Tel: (033) 343 6789 Email: patakr@terratest.co.za

3 LOCATION OF THE ACTIVITY

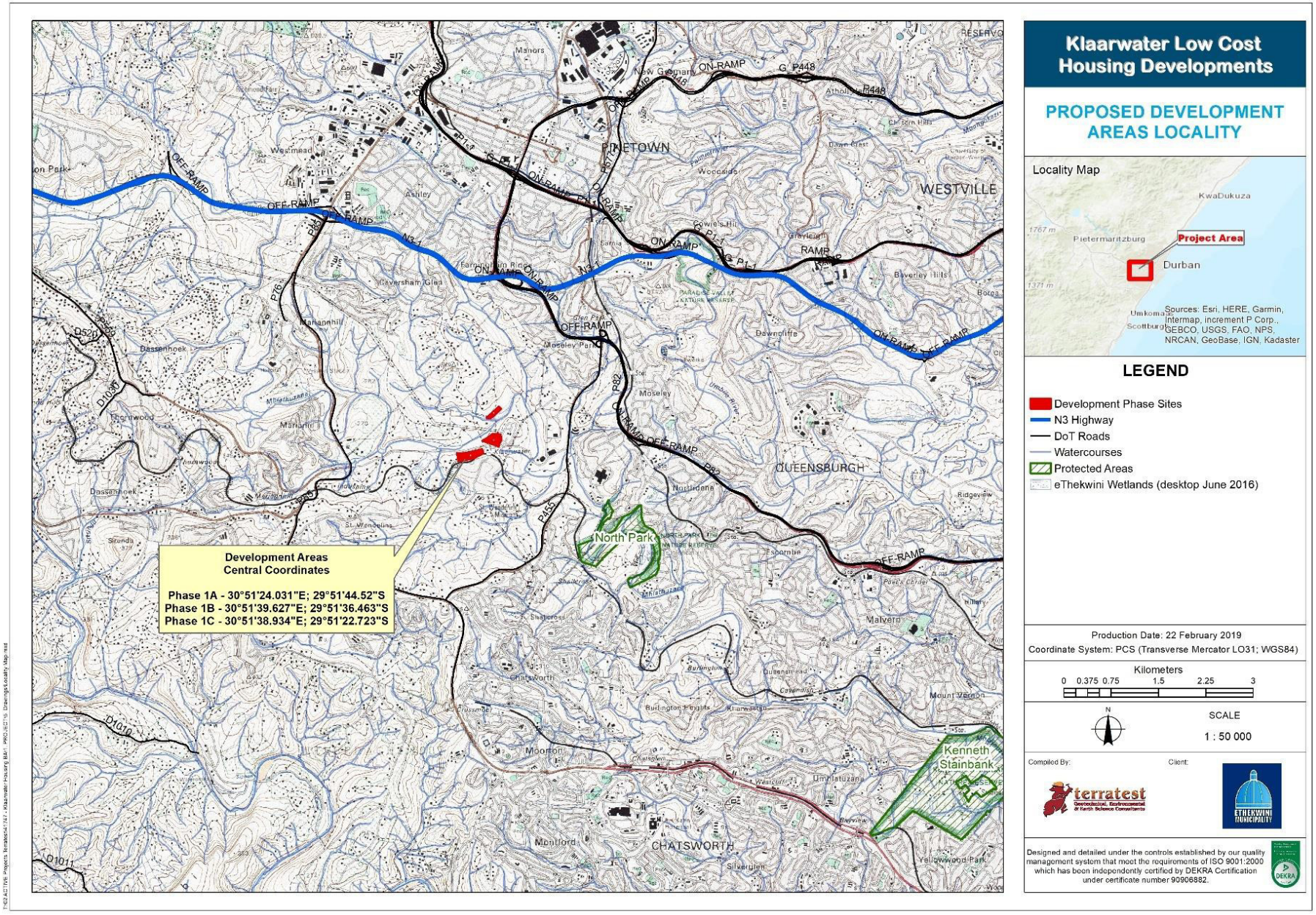
The proposed activity is located within Ward 63 and Ward 13 and Ward of the eThekwini Municipality. The 21-digit Surveyor General (SG) code for the cadastral land parcel, as well as property details and coordinates, are detailed in Table 3.

TABLE 3: Location of proposed development.

PHASE 1A	
21 digit SG code	N0FT02600000693700000

	N0FT02600000693800000 N0FT02600000693900000 N0FT02600000694000000
Physical address / Erf / Farm / Portion	Erf 6937, Erf 6938, Erf 6939 and Erf 6940 Pinetown
Central Coordinates	30°51'54.469"E; 29°51'59.068"S
PHASE 1B	
21 digit SG code	N0FT02600000694300000 N0FT02600000694400000
Physical address / Erf / Farm / Portion	Erf 6943 & Erf 6944 Pinetown
Central Coordinates	30°51'24.031"E; 29°51'44.52"S
PHASE 1C	
21 digit SG code	N0FT02600000694900000 N0FT02600000695000000 N0FT02600000695100000
Physical address / Erf / Farm / Portion	Phase 1C – Erf 6949, Erf 6950 & Erf 6951 Pinetown
Central Coordinates	30°51'38.934"E; 29°51'22.723"S

A Locality Map and Site Layout map of the site are provided in Figure 1 and 2 respectively.


Development Areas
Central Coordinates
Phase 1A - 30°51'24.031"E; 29°51'44.52"S
Phase 1B - 30°51'39.627"E; 29°51'36.463"S
Phase 1C - 30°51'38.934"E; 29°51'22.723"S
Klaarwater Low Cost Housing Developments
PROPOSED DEVELOPMENT AREAS LOCALITY
Locality Map
Project Area
Durban
Pietermaritzburg
KwaDukuza
Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster
LEGEND
Development Phase Sites
N3 Highway
DoT Roads
Watercourses
Protected Areas
eThekwini Wetlands (desktop June 2016)
Production Date: 22 February 2019
Coordinate System: PCS (Transverse Mercator LO31; WGS84)
Kilometers
0 0.375 0.75 1.5 2.25 3
SCALE
1 : 50 000
Compiled By:
Client:
terratest
ETHEKWINI MUNICIPALITY
Designed and detailed under the controls established by our quality management system that meet the requirements of ISO 9001:2000 which has been independently certified by DEKRA Certification under certificate number 90906882.
PINETOWN
WESTVILLE
QUEENSBURGH
CHATSWORTH
North Park
Kenneth Stainbank

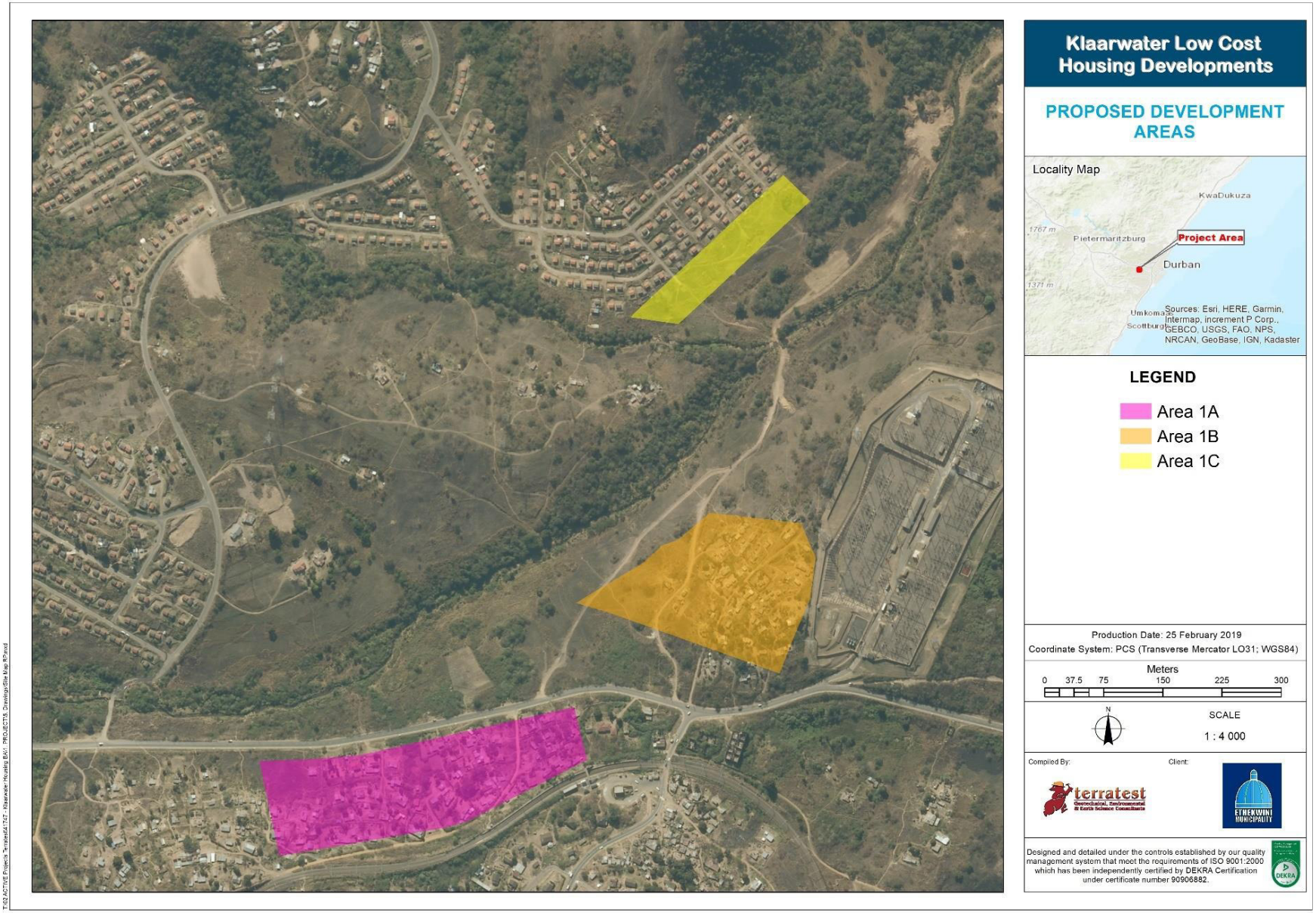


FIGURE 2: Site Map of the Klaarwater Low Cost Housing Development

4 ACTIVITY DESCRIPTION

4.1 APLICABLE LISTED ACTIVITIES

In terms of the Environmental Impact Assessment (EIA) Regulations (2014), as amended (2017) promulgated in terms of the National Environmental Management Act, 1998 (NEMA), certain Listed Activities are specified for which either a Basic Assessment (GN R 983 and 985) or a full Scoping and EIA (GN R 984) is required.

The following Listed Activities in Government Notice (GN) Regulation (R) 327 (Listing Notice 1), and GN R 324 requiring a Basic Assessment (BA) Process will be applicable to the construction:

- *GN R 327 – Item 19:"The infilling or depositing of any material of more than 10 cubic metres into, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock of more than 10 cubic metres from a watercourse."*

    - Proposed access roads will cross wetland and watercourse areas. Additionally the proposed sewage infrastructure will require excavation within the 1:100 year floodline. This activity will therefore be triggered.

Based on the above identified Listed Activity a Basic Assessment (BA) Process is required. The associated Environmental Authorisation (EA) Application form is attached to this Report as Appendix 1 and an organogram of the BA Process is provided in Figure 3 for reference purposes.

4.2 EDTEA PRE-APPLICATION MEETING

A Pre-Application Meeting was held with Ms Y Govender of the EDTEA: eThekwini District on 27 July 2017. The minutes thereof are attached as Appendix 3. The purpose of the Pre-Application Meeting was to introduce the project to the EDTEA and present and confirm the relevant Listed Activities and Specialist Studies pertinent to the proposed development.

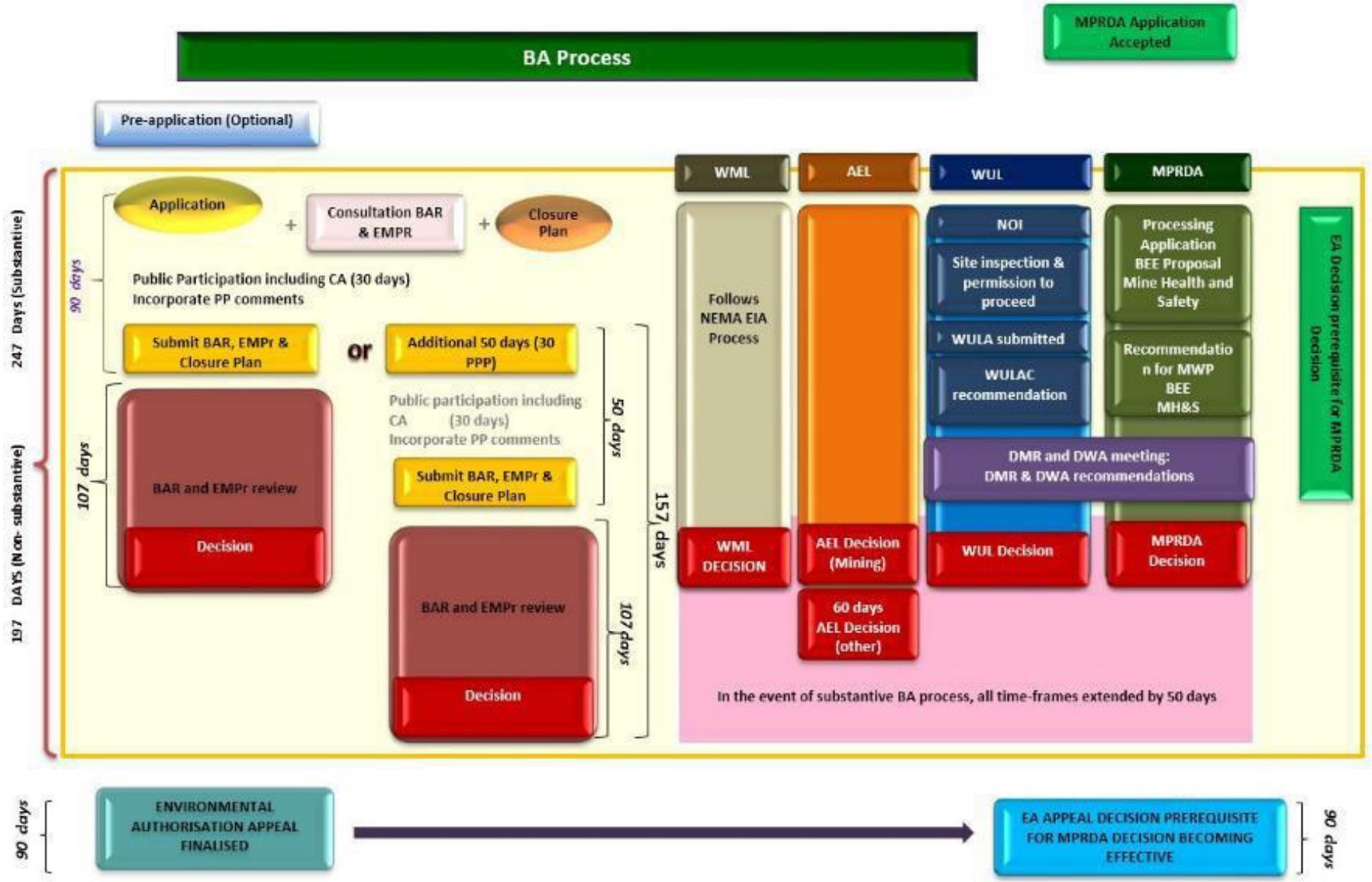


FIGURE 3: Basic Assessment Process Organogram

4.3 DESCRIPTION OF THE ACTIVITY

4.2.1 Project Overview

The project consists of formalisation of housing in three areas located within Klaarwater, near Pinetown, KwaZulu-Natal. The development includes the provision and upgrading of sewers and associated services. The three areas comprise the following:

Phase 1A - 30°51'24.031"E; 29°51'44.52"S

The development footprint of Phase 1A, including service infrastructure, is approximately 4.18 hectares. Development on this site will comprise formalisation of existing housing which is currently established on the site, and the installation and upgrading of service infrastructure within the boundaries of the development footprint. The site is considered to be totally transformed from its natural state as a result of the existing informal housing. Access to this site will be off the existing Wiltshire Road access point. This access road will be upgraded and formalised to provide access to the proposed low income houses.

Phase 1B - 30°51'39.627"E; 29°51'36.463"S

The development footprint of Phase 1B, including service infrastructure, is approximately 3.5 hectares. Development on this site will comprise formalisation of existing housing which is currently established on the site, and the installation and upgrading of service infrastructure within the boundaries of the development footprint. The site is considered to be totally transformed from its natural state as a result of the existing informal housing. Access to this site will be off the existing Wiltshire Road access point. This access road will be upgraded and formalised to provide access to the proposed low income houses.

Phase 1C - 30°51'38.934"E; 29°51'22.723"S

The development footprint of Phase 1C, including service infrastructure, is approximately 1.19 hectares. The site is currently undeveloped however it has been highly disturbed through anthropogenic impacts, including illegal sand mining. Development on this site will comprise greenfield development of low income housing and will be an extension of the existing Nazareth Island low income housing complex. Service infrastructure will be extended from Nazareth Island to within the development footprint to service the proposed low income houses. Access to the erven will be from the extension of existing Nazareth Island roads within the development footprint, namely the extension of 211492 St, 411493 St, 211494 St and 211495 St.

At present, housing in the area comprises primarily informal settlement interspersed with some formal settlement. In order to do the upgrade, sub-standard housing will be totally demolished so that it may be replaced by buildings and services of the higher and more acceptable standard. As the process involves a time period when people will, in effect, be without their housing, the project includes an area designated for temporary housing use and, as such, will be occupied while the proposed housing facilities are being upgraded. The temporary housing area will be located on the footprint of the proposed Phase 1C Site which is currently undeveloped but has been largely transformed through illegal sand mining activities. As per the housing beneficiary's requests, community members will construct their own temporary dwellings on the site. Temporary services such as ablution blocks and water stands will however be installed on this site which will be fenced and secured by the Applicant prior to the temporary occupation of the site by the housing beneficiaries.

The temporary housing site will be used on a rotational basis, first providing temporary housing for beneficiaries currently located within Phase 1A. Once the construction of dwellings in Phase 1A is completed then the beneficiaries will be moved to their formal dwellings and beneficiaries currently located within Phase 1B will be relocated to the temporary housing area while they await the completion of their formal dwellings. On completion of Phase 1B, construction of Phase 1C will commence, which will provide additional housing opportunities for beneficiaries in the area. A Temporary Relocation Report has been provided by the eThekwini Municipality and is found is Appendix 4. Site specific maps indicating features of the receiving environment can be found in Appendix 3.

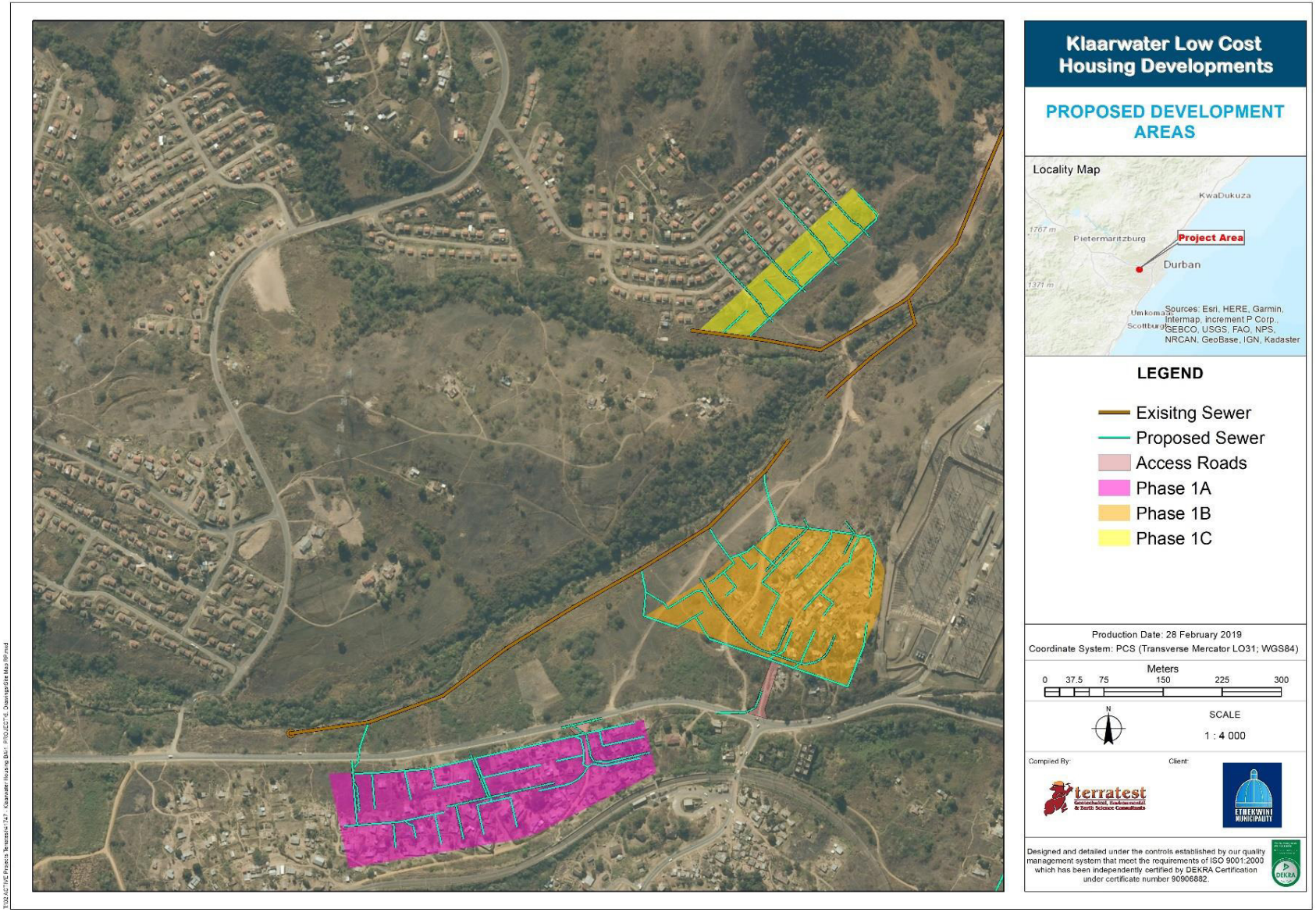


FIGURE 4: Site Layout Map

The proposed project entails the establishment of the following:

1. Upgrading of 325 sites of approximately 340m^2 average size;
2. Bulk services in the form of:

Internal Road Network:

- The following criteria will be followed:
- Access Roads : Up to 100m in length (3m wide on a 6m road reserve)
- Residential Streets: 4.5m wide on an 8m road reserve
- Taxi Collectors: 5.5m wide on 10.5m road reserve
- Concrete pavements

All roads are based on the eThekwini Municipality's "Minimum Engineering Standards for Residential Development Schemes" Roads will be surfaced with either concrete or asphalt.

Sanitation

Internal waterborne sewage systems will be designed in accordance with the eThekwini Waste Water Services standards. The site will connect to the uMhlathuzana trunk main and treated at the uMhlathuzana treatment works.

The standards to be used are as follows:

Pipe material	: uPVC	
Pipe class	: Class 34 (300kPa)	
Pipe diameters	: Main Gravity Main	: 160mm
	:Individual House connection	:110mm
Minimum Grade: Main Gravity Main	: 1:120	
	:Individual House Connection	: 1:60
Maximum Grade	: 1:10 (Anchor blocks required if grade is greater than 1:10)	
Bedding	: Flexible (SANS 1200 LB)	
Manholes	: 1.0m Dia. Precast Concrete (0.75m for head of lines)	
Manhole Spacing	: 80m (Maximum)	
Minimum Cover	: 600mm (Midblock)	
	:1000mm (Road Reserve)	
	:1200mm (Road Crossing)	

Internal Stormwater System

- The difference between pre-development and post-development run off will be controlled in such a way as to maintain pre-development outflows;
- Discharge will either be:
  - Discharged through energy dissipaters directly into uMhlathuzana River; or
  - Collected by side inlets and directed into sub surface spigot and socket pipes systems prior to discharging via headwall outlets with erosion protection, into the uMhlathuzana River.

Storm Water Management

Stormwater management will be in line with the eThekwini Municipality Stormwater Design Manual (May 2008). A majority of the site is bordered by the uMhlathuzana River to the north of the proposed development.

Electricity

eThekwini Electricity Department are the local authority for the area and have confirmed that there is sufficient electrical capacity for the proposed development.

Water Reticulation

eThekwini Water Department are the local authority for the area and have advised that additional capacity for bulks will not be required should the proposed semi pressure level of service be applied. A copy of the Engineering Report can be found within Appendix 5. A copy of the Stormwater Management Plan can be found within Appendix 6.

4.2.2 Water Use Licence Application

A Water Use Licence Application (WULA) is also being applied for as the proposed construction will intercept an identified drainage line and stormwater discharge will occur from the formalised area into the watercourse (uMhlathuzana River). In this regard, the National Water Act (1998 (Act No. 36 of 1998) notes that any water use, as defined in the Act, requires a Water Use Licence. Section 21 of the Act identifies water uses which will require a WULA to be made to the Department of Water and Sanitation (DWS).

Furthermore, any such activity that triggers the above-mentioned, which occurs within 32m of a watercourse, or within the 1:100 year floodline, or within 500m of a wetland, also necessitates the need for a WULA.

An WULA for this project is being made by Terratest (Pty) Ltd under a separate submission to the DWS and does not form part of Environmental Authorisation process.

5 APPLICABLE LEGISLATION, POLICIES AND/OR GUIDELINES

Table 4 provides a list of all the applicable legislation, policies and/or guidelines of any sphere of government that are relevant to the application as contemplated in the EIA regulations.

Table 4: Applicable Legislation

Title of legislation, policy or guideline:	Administering authority:	Date:
National Environmental Management Act (Act 107 of 1998) – for its potential to cause degradation of the environment (Section 28).	Department of Environmental Affairs	1998
Environmental Conservation Act (Act 73) – for potential environmental degradation.	Department of Environmental Affairs	1989
National Water Act (Act 36 of 1998) – for potential to cause pollution of water resources defined under the Act (Section 19).	Department of Water Affairs and Forestry	1998
Conservation of Agricultural Resources Act, 1983 (Act 43 of 1983) – for protection of agricultural resources and for control and removal of alien invasive plants.	National Department of Agriculture	1983
National Environmental Management: Biodiversity Act, 2004 (Act 10 of 2004) – for protection of biodiversity.	Department of Agriculture and Environmental Affairs & Ezemvelo KZN Wildlife	2004
The National Heritage Resources Act (Act No 25 of 1999 as amended) – for the identification and preservation of items of heritage importance.	Department of Arts and Culture (Amafa KwaZulu-Natal)	1999
Integrated Environmental Management Guideline: Guideline on Need and Desirability	Department of Environmental Affairs	2017
Public Participation Guideline in Terms of National Environmental Management Act, 1998 Environmental Impact Assessment Regulations	Department of Environmental Affairs	2017
Guideline 7: Detailed Guide to Implementation of the Environmental Impact Assessment Regulations (2006)	Department of Environmental Affairs and Tourism	2007
eThekwini Metropolitan Municipality By-laws, EMF, SDF and IDP	Municipality	Updated

Title of legislation, policy or guideline:	Administering authority:	Date:
		Accordingly

6 NEED AND DESIRABILITY

The following statement on need and desirability is informed by the Guideline on Need and Desirability[1] issued by the National Department of Environmental Affairs, 2017. This document states that need and desirability this should be based on the principle of sustainability. Furthermore, the assessment of need and desirability is a way of ensuring that a development is ecologically sustainable as well as socially and economically sustainable. The consideration of need and desirability endeavours to ensure a balance between the socio-economic impacts and any possible impacts on people's environmental rights.

6.1 NEED AND DESIRABILITY FOR THE PROPOSED DEVELOPMENT

The proposed project involves the formalisation of informal settlements by upgrading homes and municipal services to three areas within Klaarwater, Pinetown. Informal housing currently dominates the proposed development landscape.

The needs and desirability component of any Environmental Impact Assessment (EIA) must take into account the needs and interests of the of the broader community as reflected in the municipal Integrated Development Plan (IDP) and the Municipal Spatial Development Framework (SDF). In this regard it is considered essential that national, provincial and local policies and strategies support growth in the economy. The strategic plans of the Municipality are required to be widely consulted and look beyond what is needed and desired for a specific area to what is strategically and democratically determined beyond the spatial extent of individual EIA's.

eThekwini Municipality Integrated Development Programme (IDP) 2018/2019

As per the IDP, 2018/2019[2], the provision of adequate shelter is a Municipal priority. There is currently a backlog in housing provision of over 385 000 dwellings (as of the end of December 2017). In the interim, and in order to improve the quality of life in informal settlements in the short term, the following interim measures have begun being provided by the municipality:

- Ablution blocks with male and female toilets and showers;
- Refuse removal services;
- Pedestrian paths with storm water channels;
- Limited road access for emergency and solid waste vehicles;
- Fire breaks; and
- A labor-based maintenance programme.

As the proposed project is in line with the rapid delivery of basic services and formalised households, the project has significant social justice benefits.

Incremental Informal Settlement Upgrading[3]

The proposed project also forms part of the Incremental Informal Settlement Upgrading as more than 250 000 households reside within informal settlements. This programme aims to extend the provision of basic services to informal households within eThekwini Municipality.

eThekwini Municipality Spatial Development Framework

[1] DEA (2017), Guideline on Need and Desirability, Department of Environmental Affairs (DEA), Pretoria, South Africa
[2] http://www.durban.gov.za/City_Government/City_Vision/IDP/Documents/Final%202018_19%20IDP.pdf
[3] http://www.durban.gov.za/City_Services/housing/Pages/Incremental-Informal-Settlement-Upgrading.aspx

As per the Spatial Development Framework[4], the site is existing residential, Durban Metropolitan Open Space System (DMOSS) and future densification area. As only disturbed areas will be formalised, there is no negative anticipated impact on DMOSS. This project is therefore in line with the planning for the area.

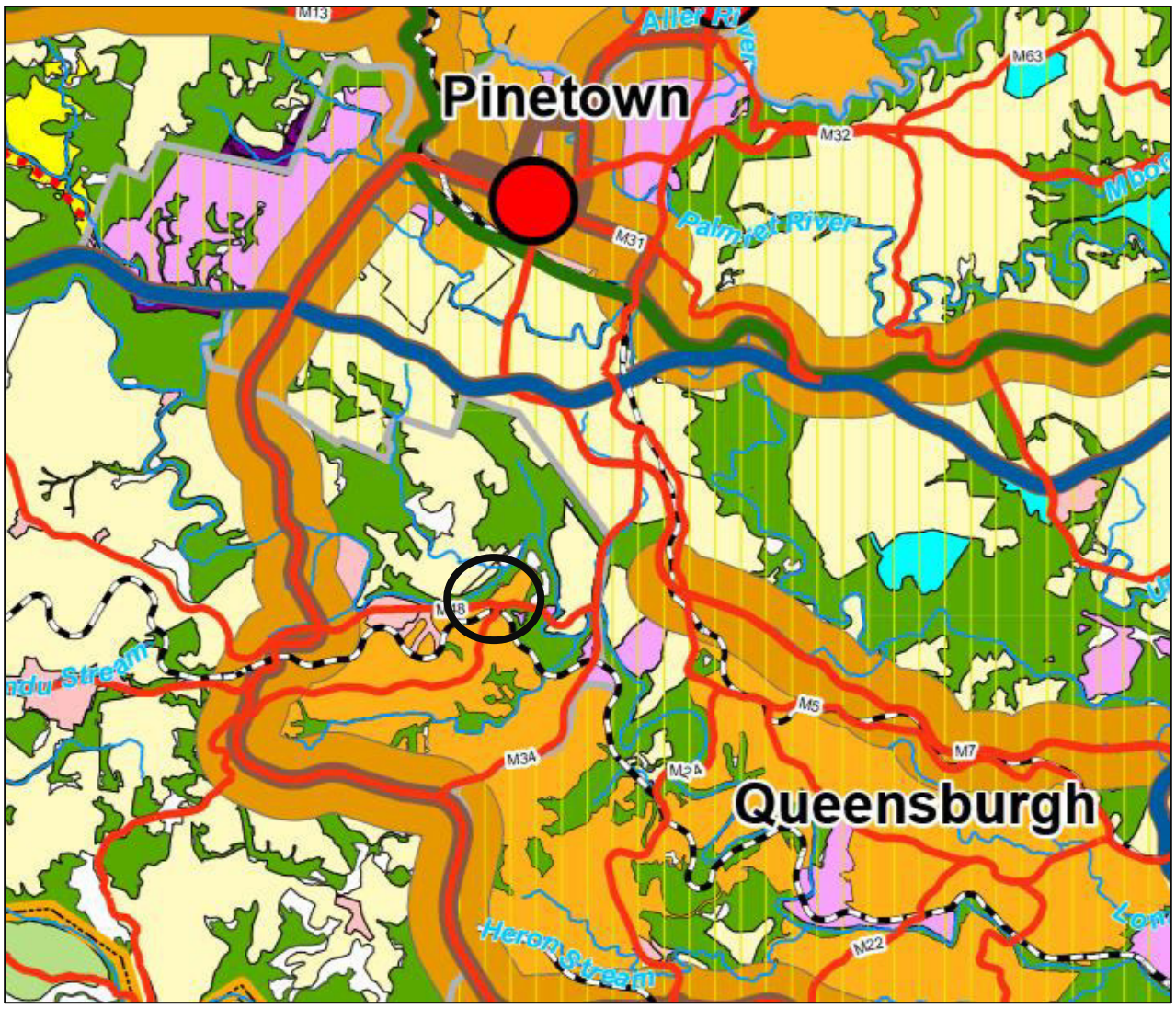


FIGURE 4: Extract of the eThekwini Municipality SDF highlighting the project area.

National Development Plan

Service delivery, which comprises of the formalisation of water provision and sanitation facilities is considered a high priority and the need for this is elaborated in National and Provincial Plans. As per the National development Plan (NDP 2030 Vision), the intention is to improve service delivery for citizens of South Africa. This assists in improving lives of community members. Page 16 of the 2018/2019 Integrated Development Plan (IDP) states: *"The theme for the 2018 KwaZulu-Natal State of the Province Address delivered by Premier Willies Mchunu was "Leading with integrity towards growing an inclusive economy, for integrated, targeted and effective service delivery to improve quality of life"."*

Proposed Project in relation to eThekwini Plans and Policies

Basic Service Delivery is one of the six key performance areas within the 2018/2019 eThekwini Municipality IDP[5]. As the proposed development will provide formalised housing as well as associated services, it is

[5] http://www.durban.gov.za/City_Government/City_Vision/IDP/Documents/Final%202018_19%20IDP.pdf

understood that the project is in line with SDF, IDP and National Development goals. The formalisation of the housing will provide short term employment to contractors and possibly local labourers and a long term housing solutions for the receiving communities. The formalisation of services and housing allows for a better standard of living for all communities involved.

The site is deemed desirable as the formalisation occurs within an already disturbed area. Furthermore, the sites are in proximity to transportation routes and all additional services tie into the existing infrastructure.

An overview of the housing needs in eThekwini Municipality are as follows:

- There is currently a backlog in housing provision of over 385 000 dwellings;
- There are currently. 250 000 households located within informal settlements.

The need for formalised housing which would be provided within the proposed project therefore addresses the needs within the eThekwini Municipality and is in line with the long term planning for the area. The proposed development is likely to provide considerable work opportunities for the local community and encourage local economic development.

Securing Ecological Sustainable Development and Use of Natural Resources

In terms of securing ecological sustainability and the use of natural resources, it needs to be determined how the proposal will impact on the ecological integrity of the area. This was addressed in Section 10 (Specialist Studies) of the BAR which reviews the existing conditions and Section 12 (Impact Assessment) which looks at the potential impacts and mitigating measures required. In this instance the key ecological considerations are flora, fauna and the wetland areas. The potential impacts on these ecological elements have been carefully assessed. The required mitigation measures have been included in the assessment, to ensure that there are no undesirable consequences arising from this development.

In terms of natural resources, the primary consideration is the possible impact the proposed project may have on wetlands, watercourses and DMOSS areas. Mitigation measures have been included in this report and within the EMPr (Appendix 10) to minimise any negative impact on the receiving environment.

With regards to the possible impacts on the cultural heritage of the area a detailed Heritage Impact Assessment was undertaken in 2009. The specialist who undertook this study has highlighted all sensitive areas identified. It is noted that the layouts presented within this report are not within these areas.

Conclusion

In conclusion the following extract from the Guidelines summarise how one should view the need and desirability of a proposal:

“However, to determine if the proposed activity is the best option when considering "need and desirability” must also be informed by the sum of all the impacts considered holistically. In this regard "need and desirability" also becomes the impact summary regarding the proposed activity.”

The proposed areas have been disturbed by anthropogenic activity. Informal settlements are present within limited/no access to water and sanitation facilities. The proposed project is therefore in line with planning initiatives by the eThekwini Municipality. Mitigation measures have been provided for all identified impacts. It can therefore be concluded that the proposed development is both necessary and desirable and is ecologically sustainable, socially and economically justifiable.

7 MOTIVATION FOR THE PREFERRED SITE, ACTIVITY AND TECHNOLOGY ALTERNATIVE

As per the GNR 326, Appendix 1(2)(b), alternatives for the proposed development are to be identified and considered. Chapter 1 of the EIA Regulations provides an interpretation of the word “alternatives”, which is

to mean "*in relation to a proposed activity, means different means of meeting the general purpose and requirements of the activity, which may include alternatives to the -*

a) Property on which or location where the activity is proposed to be undertaken;
b) Type of activity to be undertaken;
c) Design or layout of the activity;
d) Technology to be in the activity; or
e) Operational aspects of the activity;
And includes the option of not implementing the activity."

Based on the above, the following alternatives are presented for the proposed development.

7.1 PREFERRED SITE ALTERNATIVE

Existing informal residential areas are currently established on site. As the areas have already been disturbed by informal housing, these areas are considered the most suitable locations. Alternative sites have been considered (See Figure 5 and Figure 6) however deemed to have greater environmental sensitivities and deemed not suitable as part of the planning process. These areas have therefore been excluded from the report. The sites were excluded on the following factors:

1. Proximity to 1:100 year floodline;
2. Proximity to wetlands;
3. DMOSS areas;
4. SANBI Threatened Ecosystems; and
5. Wetlands.

Two alternate temporary resettlement areas were identified however were found to be within sensitive areas i.e. wetlands and Durban Metropole North Cost Grassland. The Specialist study has concluded that the temporary resettlement area in proximity of Phase 1C not be considered for the proposed purpose due to environmental sensitivities on site. The area which has been labelled Phase 4 within Figure 6 is not considered suitable due to the DMOSS status of the site. These areas have therefore been excluded from the assessment. No other site alternative has therefore been considered.

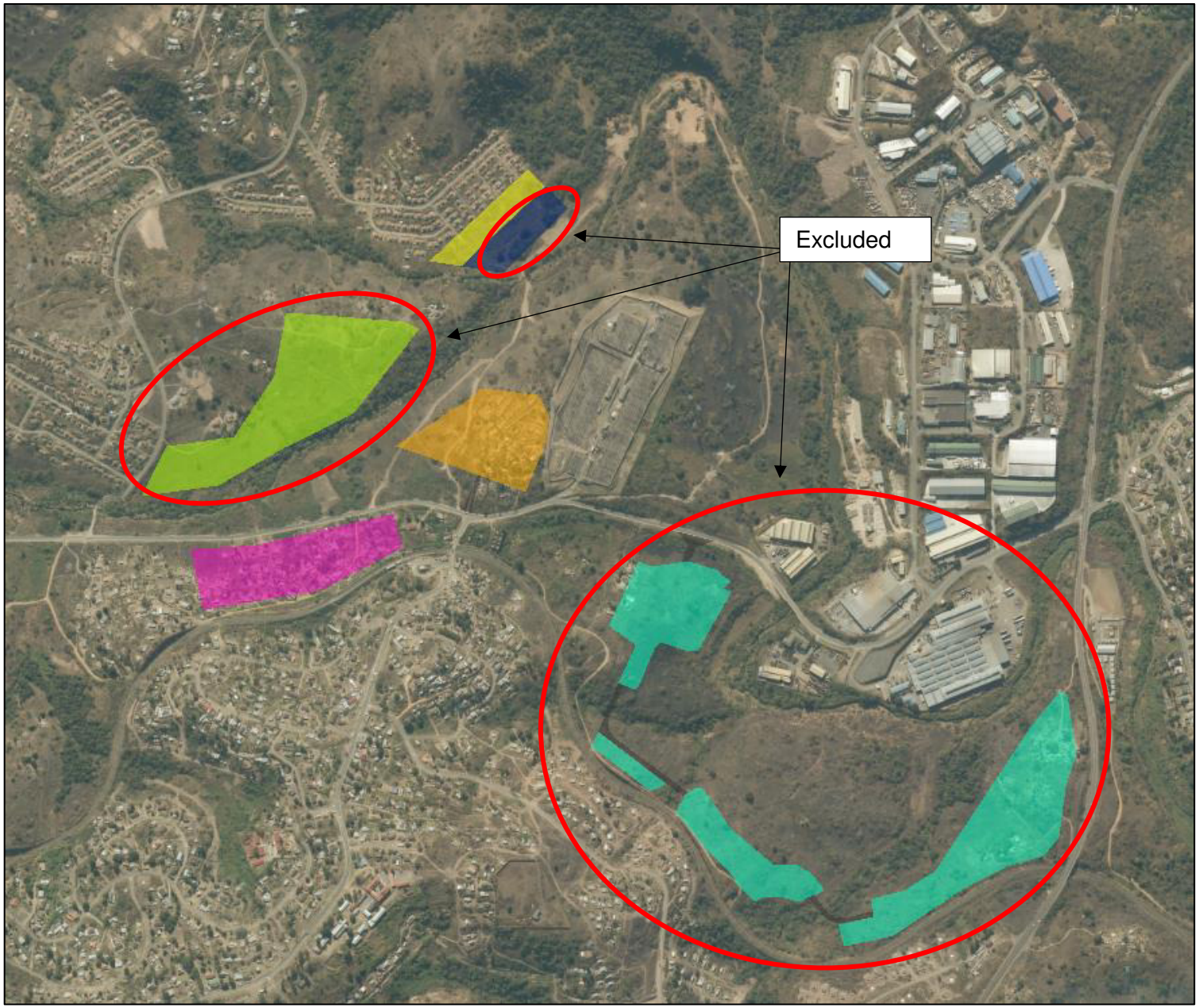


FIGURE 5: Proposed sites investigated as potential locations for the proposed development, but consequently excluded

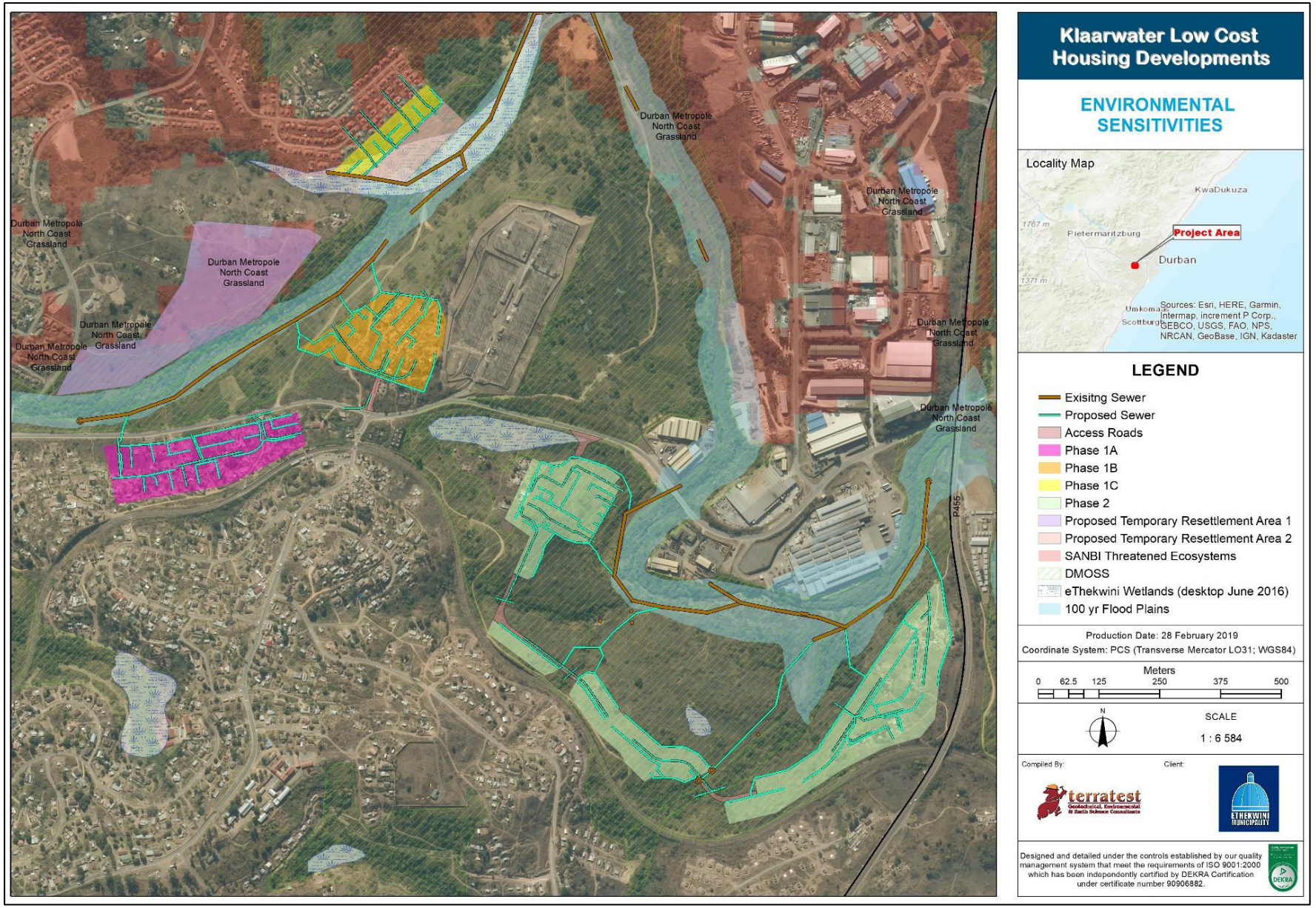


FIGURE 6: Environmental Sensitive areas and site alternatives

7.2 PREFERRED ACTIVITY ALTERNATIVE

No other activity alternative exists that would meet the need and desirability of the Application in terms of the receiving communities, the requirements of the SDF and IDP requirements other than the no-go alternative which would be to retain the site as informal housing. As such alternative activities have not been considered further.

7.3 PREFERRED LAYOUT ALTERNATIVE

The project involves the formalisation of existing households. Works are limited to disturbed areas. The layout is in line with the surrounding formal residential units (grid layout). Furthermore, the areas and layout considered the proximity of the area to sensitive areas, the terrain of the area, the level of disturbance within the area and current services (if any) within the area. As the layout is in line with the surrounding areas, it is deemed to be most suitable. No further layout alternative has been considered. A proposed layout per Phase 1A, 1B and 1C is provided in Figures 7-9 below. Please note that due to the duration of the project, various phases were considered and as such, the labels within the extracts differ to that within the draft Basic Assessment Report.

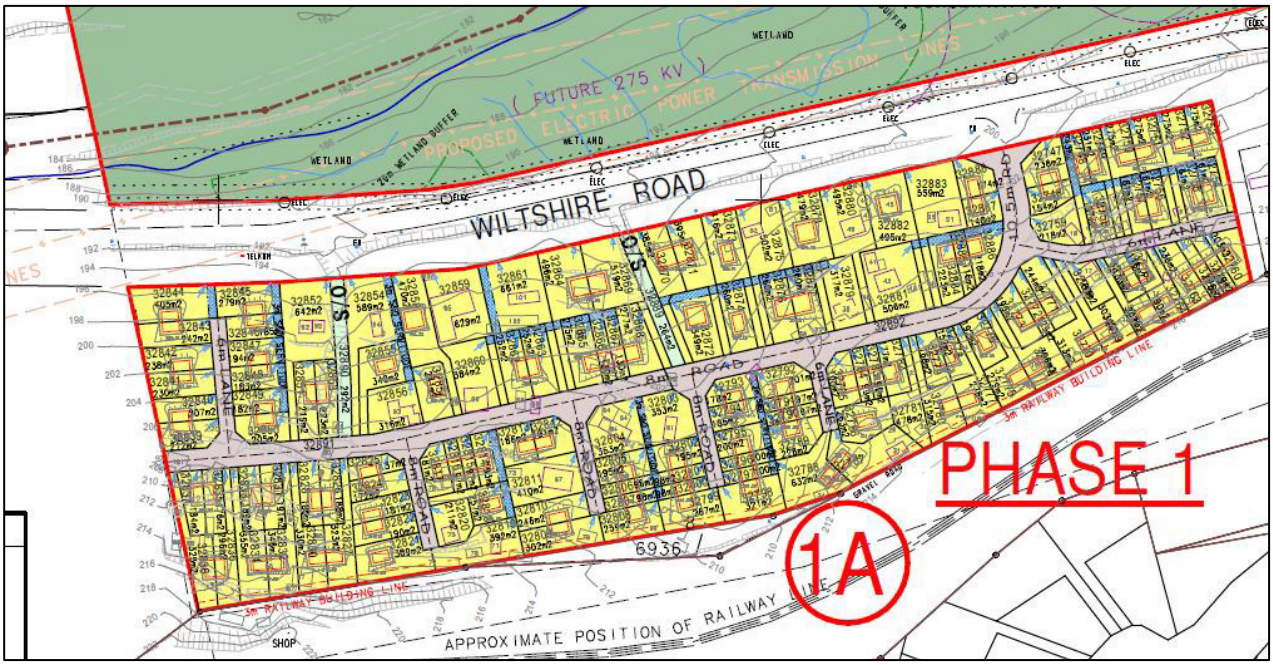


FIGURE 7: Proposed layout of Phase 1A

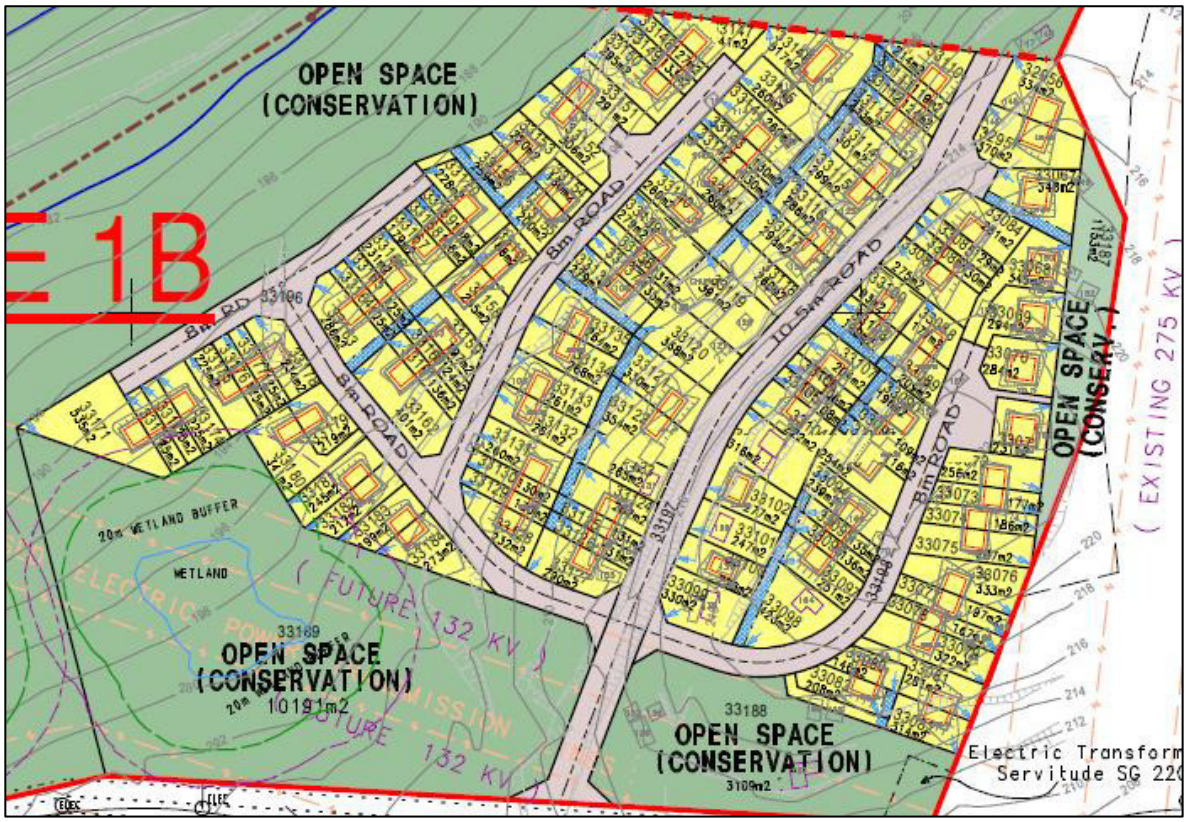


FIGURE 8: Proposed layout of Phase 1B

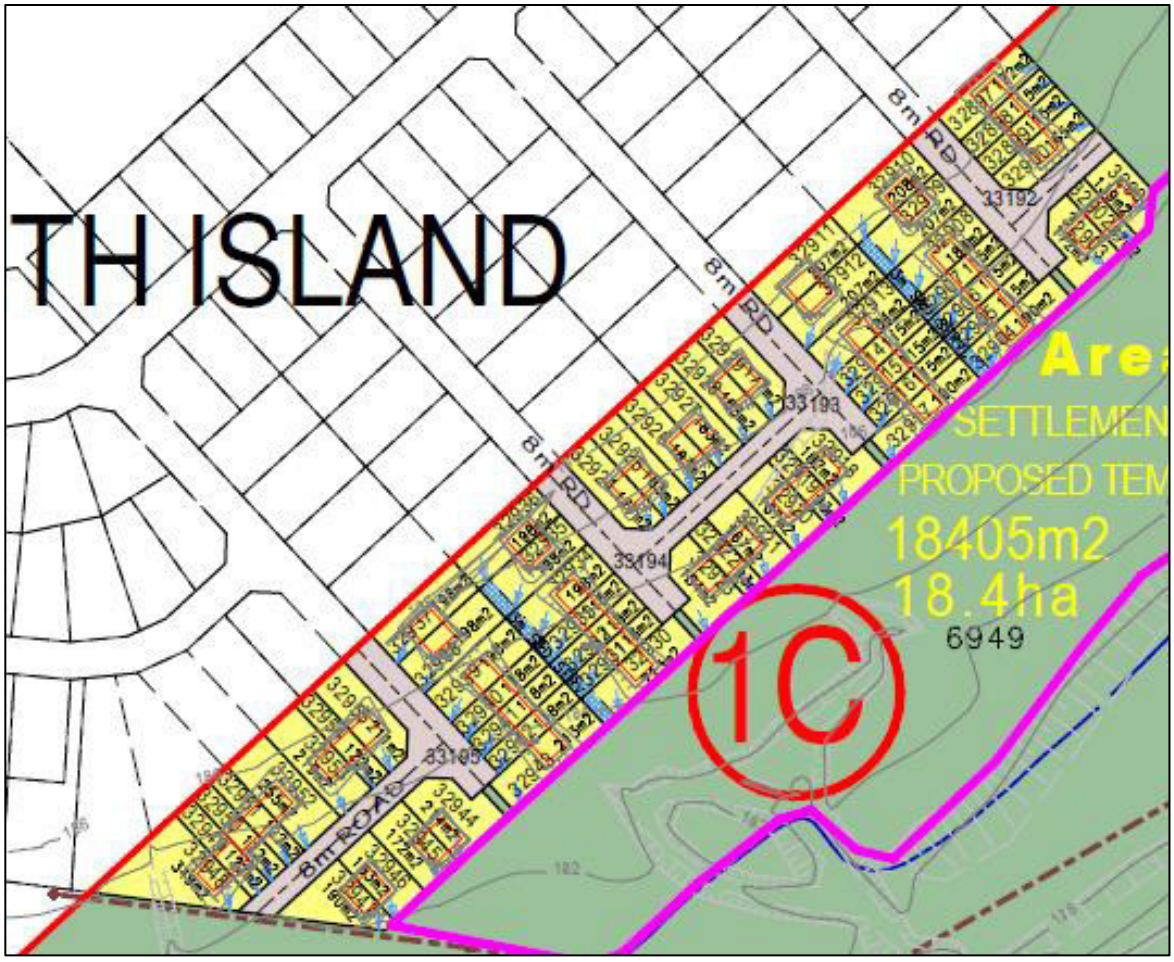


FIGURE 9: Proposed layout of Phase 1C

7.4 NO-GO ALTERNATIVE

The No-go Alternative is to not to formalise the area. Existing and proposed community members will not receive formalised housing and services, no local employment opportunities will be created during the construction phase and no additional income to the local economy will be generated in the short term. Should the no-go alternative be implemented, the area will remain informal and community members will have a sub-standard standard of living.

8 PUBLIC PARTICIPATION

To fulfil the necessary public participation required as part of the BA Process, and in compliance with GN R 326 of the NEMA (Act 107 of 1998) EIA Regulations, 2014 (as amended, 2017), the following methods of stakeholder engagement were conducted by the EAP, as outlined below.

8.1 NEWSPAPER ADVERTISEMENT

A newspaper advertisement was published at the outset of the project to inform the general public of the BA Process. An advertisement was published on 1 March 2019 in English in the Isolezwe newspaper. Proof of publication is provided in Figure 6.

8.2 SITE NOTICE BOARDS

Six (6) site notice boards in total were placed at the entrance of the development and surrounding area. The notice boards were written in English and isiZulu. Figure 7 provides an illustration of the location of the notice boards on site, while Figure 8 provides a copy of the site notice.

The purpose of the notice boards was to inform neighbours, community members and passers-by of the proposed BA Application. The details of the EAP were also provided should any member of the public require additional information or wish to register as an IAP in the Application. Photographs in Plate 1 provide proof that the notice boards were placed on site.

711 Public Notices | 711 Public Notices

NOTICE OF AN APPLICATION FOR ENVIRONMENTAL AUTHORISATION FOR THE PROPOSED KLAARWATER LOW INCOME HOUSING DEVELOPMENT, ETHEKWINI METROPOLITAN MUNICIPALITY, KWAZULU-NATAL. EDTEA REF NO: DM/0034/2018

Notice is hereby given in terms of the National Environmental Management Act, (Act No. 107 of 1998): Environmental Impact Assessment Regulations (2014, as amended), published in terms of Government Notice No. R326 (2014, as amended), of the intent to carry out a Basic Assessment Process for the abovementioned development. The application has been made to the Department of Economic Development, Tourism and Environmental Affairs (EDTEA). The development triggers activities 19 of GN R 327, requiring the undertaking of a Basic Environmental Impact Assessment.

LOCATION: The proposed development will occur within Wards 63 and 13 of eThekwini Municipality, KwaZulu-Natal. Co-ordinates of the site are as follows:
Phase 1A - 30°51'24.031"E; 29°51'44.52"S
Phase 1B - 30°51'39.627"E; 29°51'36.463"S
Phase 1C - 30°51'38.934"E; 29°51'22.723"S

SCOPE OF WORKS: The project consists of formalisation of housing in three areas located within Klaarwater, near Pinetown, KwaZulu-Natal, including the provision and upgrading of sewers and other services.

APPLICANT: eThekwini Metropolitan Municipality: Human Settlements Unit

The report may be viewed on: www.terratest.co.za. Should you wish to register as an Interested and Affected Party (IAP) in this application, please submit your name, contact information and interest in the matter, as well as any comment or queries you may have to: Terratest (Pty) Ltd. Contact Person: Ms Riona Patak; e-mail: patakr@terratest.co.za; Terratest, PO Box 794, Hilton 3245; Tel: 033 343 6789, Fax: 033 343 6788.

FIGURE 10: Advert placed in the Isolezwe newspaper on 1 March 2019

NOTICE OF AN APPLICATION FOR ENVIRONMENTAL AUTHORISATION AND WATER USE LICENCE FOR THE PROPOSED KLAARWATER LOW INCOME HOUSING DEVELOPMENT, ETHEKWINI METROPOLITAN MUNICIPALITY, KWAZULU-NATAL

TERRATEST (PTY) LTD REF NO.: 41747

EDTEA REF NO: DM/0034/2018

BASIC ASSESSMENT

Notice is hereby given in terms of the National Environmental Management Act (Act 107 of 1998) (NEMA), Environmental Impact Assessment (EIA) Regulations 2014 as amended 07 April 2017 of the intent to carry out a Basic Environmental Impact Assessment. The application will be made to the Department of Economic Development, Tourism and Environmental Affairs (EDTEA).

Activities requiring authorisation: Activity 19 of GNR 327.

Notice is hereby given in terms of Section 41 (4) of the National Water Act (NWA), 1998 (Act 36 of 1998) that a Water Use License is being applied for. An application has been made to the Department of Water and Sanitation (DWS) for the above mentioned site. Due to the nature of this project, water use in terms of Sections 21(c) and (i) under the NWA (No. 36 of 1998) are applicable, thus requiring a water use licence.

LOCATION: The proposed development will occur within Wards 63 and 13 of eThekwini Municipality, KwaZulu-Natal. Co-ordinates of the site are as follows:
Phase 1A - 30°51'24.031"E; 29°51'44.52"S
Phase 1B - 30°51'39.627"E; 29°51'36.463"S
Phase 1C - 30°51'38.934"E; 29°51'22.723"S

SCOPE OF WORKS: The project consists of formalisation of housing in three areas located within Klaarwater, near Pinetown, KwaZulu-Natal, including the provision and upgrading of sewers and other services.

APPLICANT: eThekwini Metropolitan Municipality: Human Settlements Unit

Should you wish to register as an Interested and Affected Party (IAP) in either of these Applications, please submit your name, contact information and interest in the matter, as well as any comments or queries you may have to:

Terratest (Pty) Ltd
Contact Person: Ms Riona Patak
Email: patakr@terratest.co.za
Tel: 033 343 6789
Fax: 033 343 6701
Address: Terratest, PO Box 794, Hilton, 3245

terratest
Geotechnical, Environmental & Earth Science Consultants

ISAZISO NGESICELO SOKUGUNYAZA NGOKWEZEMVELO KANYE NELAYISENSI YOKUSETSHENZISWA KWAMANZI KOMSEBENZI OHLONGOZWAYO WOKWAKHIWA KWEZINDLU E-KLAARWATER, KUMASIPALA WASETHEKWINI, KWAZULU NATALI

TERRATEST (PTY) LTD REF NO.: 41747

EDTEA REF NO: DM/0034/2018

UCWANINGO LWEZEMVELO OLUYISISEKELO

Lesi saziso sikhishwa ngokoMthetho kaZwelonke wezeMvelo (National Environmental Management Act, No. 107 of 1998) kanye nemithethonqubo yokucwaninga ngokwezemvelo (Environmental Impact Assessment Regulations 2014, ngokuchibiyelwa kwayo), eshicilelwe kwiSaziso sikaHulumeni u-GNR 326, mayelana nehloso yokwenza ucwaningo oluyisisekelo ngalomsebenzi ohlongozwayo. Isicelo sizofakwa kuMnyango wezokuThuthukiswa koMnotho, ezokuVakasha kanye nezeMvelo (EDTEA). Lomsebenzi ohlongozwayo ubandakanya umsebenzi osohlwini lwemisebenzi edinga ukugunyazwa ngokwezemvelo: Umsebenzi 19 oHlwini u-GNR 327.

Lesi saziso sikhishwa futhi ngokweSigaba 41 (4) soMthetho kaZwelonke wezaManzi (National Water Act, No. 36 of 1998), ngokuthi kuzofakwa isicelo eMnyangweni wezaManzi (DWS) selayisensi yokusetshenziswa kwamanzi ngokweSigaba 21 (c) no (i) saloMthetho.

INDAWO: Lomsebenzi uhlongozwa ku-Ward 63 no-Ward 13 woMasipala waseThekwini, kwaZulu Natali. Izinkomba zezindawo okuhlongozwa khona lomsebenzi zibhaleka kanje:
Phase 1A - 30°51'24.031"E; 29°51'44.52"S
Phase 1B - 30°51'39.627"E; 29°51'36.463"S
Phase 1C - 30°51'38.934"E; 29°51'22.723"S

UMSEBENZI OHLONGOZWAYO: Umsebenzi ohlongozwayo umayelana nokwakhiwa kwezindlu kanye nokwakhiwa kwenqalasizinda yokuthutha indle, nezinye izinsiza emanxiweni amathathu ase-Klaarwater, ngase-Pinetown, kwaZulu Natali.

UMFAKI SICELO: uMasipala waseThekwini: uMnyango wezokuHlala kwaBantu

Uma ufisa ukubhaliswa njengomunye othintekayo noma onendaba ngalezi zicelo zalomsebenzi ohlongozwayo, uyacelwa uthumele imininingwane yakho kanye nokuthinteka noma ukuphawula kwakho ngalomsebenzi kuMeluleki wezeMvelo kulemininingwane elandelayo:

Umeluleki wezeMvelo: Terratest (Pty) Ltd
Umxhumanisi: Mnz. Sandile Nkomonde
Email: patakr@terratest.co.za
Tel: 033 343 6789
Fax: 033 343 6701
Address: Terratest, PO Box 794, Hilton, 3245

terratest
Geotechnical, Environmental & Earth Science Consultants

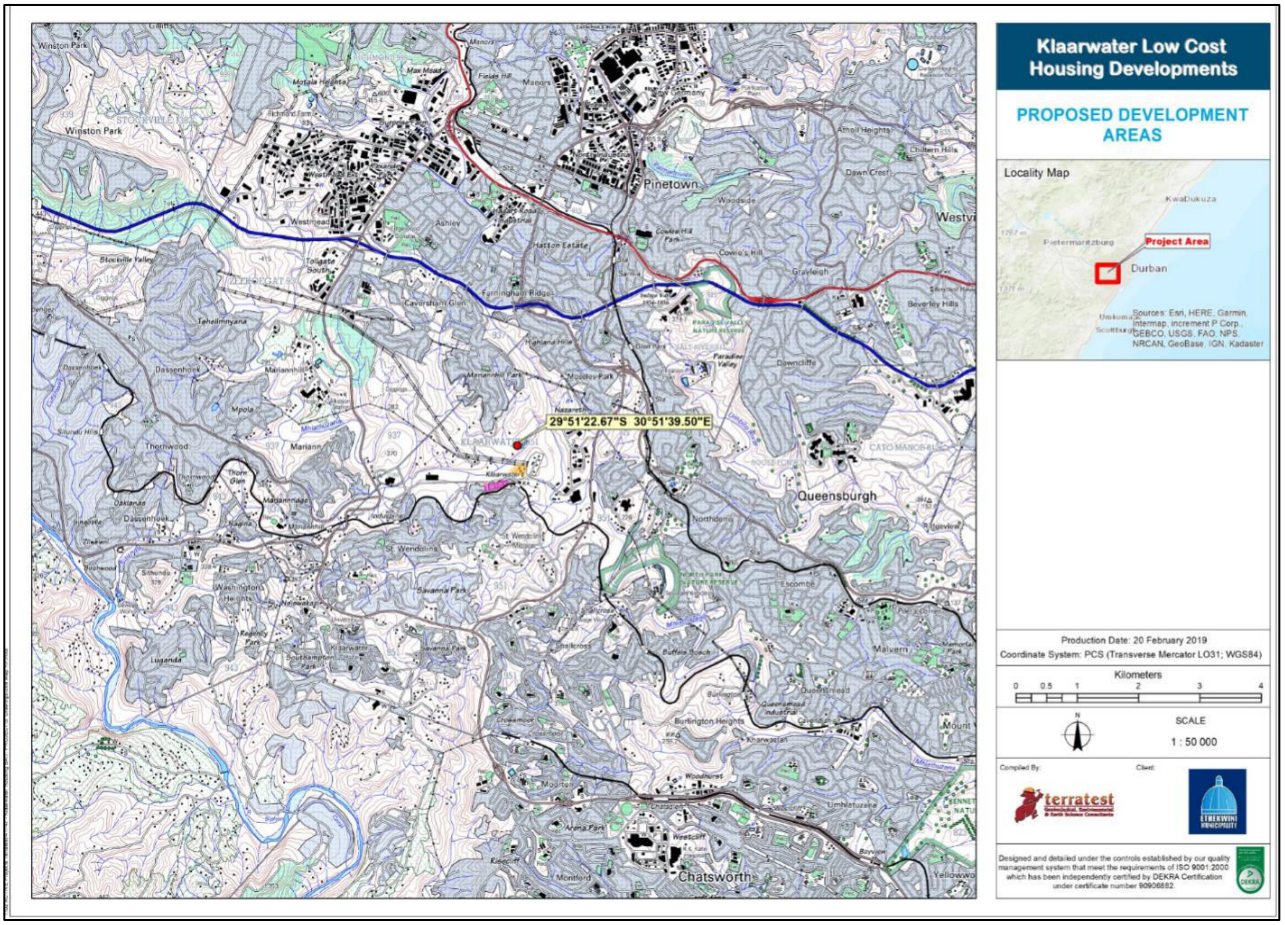


FIGURE 7: Copy of the site notice placed on site, written in English and isiZulu with the contact details of the EAP.

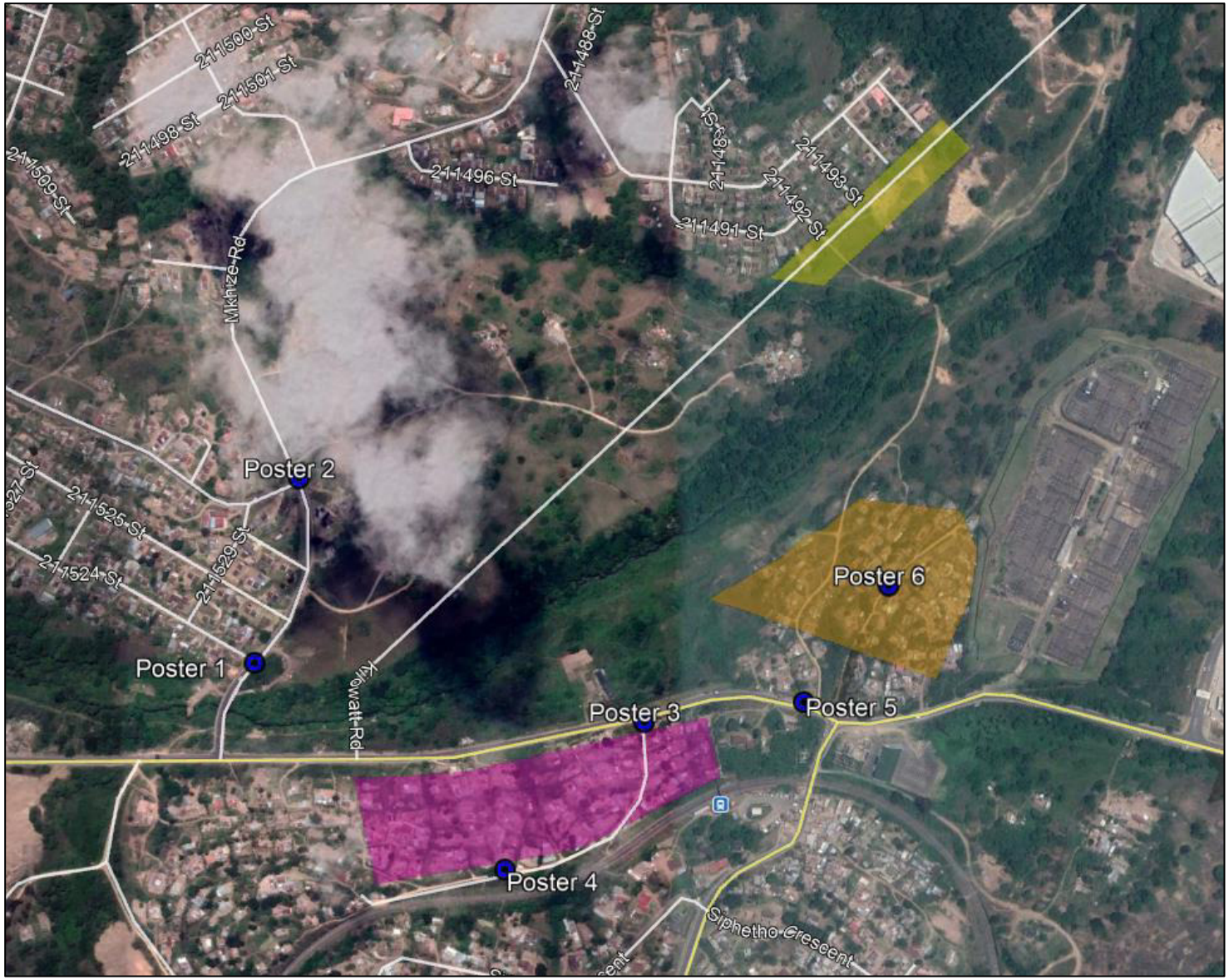


FIGURE 8: Location of the six site notices placed at various location on site [Map source: Google Earth 2019]

PLATE 1: Notice boards placed at various locations on site

8.3 WRITTEN NOTIFICATION TO AUTHORITIES AND NEIGHBOURS

8.3.1 Interested and Affected Parties (IAPs)

A register of IAPs was compiled as per Section 42 of the EIA Regulations, 2014 (as amended, 2017). This included all relevant authorities, Government Departments, the Local Municipality, the District Municipality, relevant conservation bodies and non-governmental organisations (NGO's), as well as neighbouring landowners and the surrounding community. This register will be regularly updated to include those IAPs responding to the newspaper advertisement, site notice boards and Notification Letters. A copy of the IAP Register is included as Appendix 7 of this report.

8.3.2 Notification Letter

A Notification Letter was compiled and circulated to all identified IAPs by email. The purpose of the Notification Letter was to provide preliminary information regarding the project and its location. Furthermore, the Notification Letter invited preliminary comments from IAPs and requested those notified to provide details of other potential IAPs which they may be aware of. A copy of the Notification Letter is included as Appendix 7 of this report.

8.4 COMMENT RECEIVED

To date, no comment has been received based the placement of the advertisement, the site notices and the circulation of the Notification Letter. All comments received following the availability of the Draft BA will be compiled in a Comments and Responses Report which will be included in the Final BA Report for submission to EDTEA for review and a decision on Environmental Authorisation.

8.5. CIRCULATION OF DRAFT BASIC ASSESSMENT REPORT FOR COMMENT

Copies of the Draft BA Report will be circulated to the following Key Stakeholders and IAPs for review and comment on 1 March 2019.

- Ezemvelo KZN Wildlife: Mr Andy Blackmore;
- Amafa Akwazulu-Natal: SAHRIS;
- Department of Water and Sanitation: Ms N. Mokoena / MR S Govender;
- eThekwini Municipality: Environmental Planning & Climate Protection Department: Ms S. Makhwedza and Mr R. Stow;
- EDTEA: eThekwini District: Ms Y. Govender
- Department of Transport: Ms Judy Reddy;
- Eskom: Ms Michelle Nicol;
- Department of Human Settlement: T Biyela;
- DAFF: Ms N Sontangane; and
- DARD: Ms L Boucher.

All registered IAPs were notified of the availability of the Draft BA Report and the deadline for comments, on 1 March 2019.

Further, one copy of the report was placed in the Pinetown Public Library on 1 March 2019 and a copy was made available to download on the Terratest website (www.terratest.co.za).

The Application for Environmental Authorisation was submitted to EDTEA on 13 December 2018, and the reference number DM/0034/2018 was allocated to the project. All IAPs and Key Stakeholders were notified of the submission on 1 March 2019 and were consequently afforded 30 days in which to provide comments. To date, no comments have been received by Stakeholders or Interested and Affected Parties.

9 DESCRIPTION OF THE BASELINE ENVIRONMENT

9.1 TOPOGRAPHY

The sites are considered to be gentle to moderately sloped. The proposed areas have been developed upon informally and the Geotechnical Assessment as recommended areas in which to cut and fill were necessary.

Phase 1A:

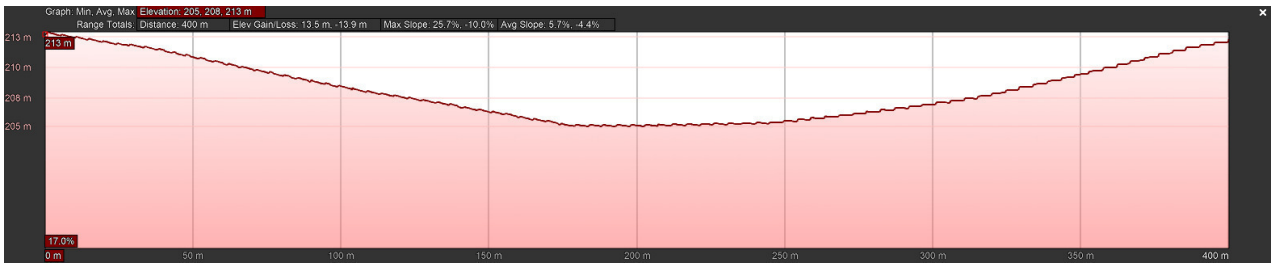


FIGURE 11: Gradient from east to west (Phase 1A)

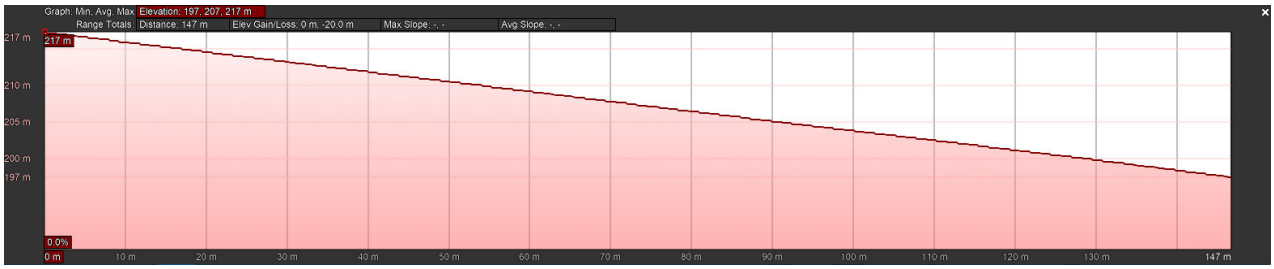


FIGURE 12: Gradient from north to south (Phase 1A)

Phase 1B:

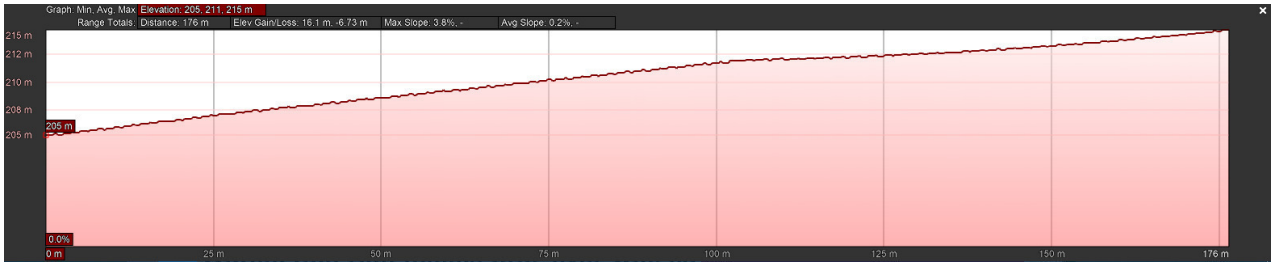


FIGURE 13: Gradient from east to west (Phase 1B)

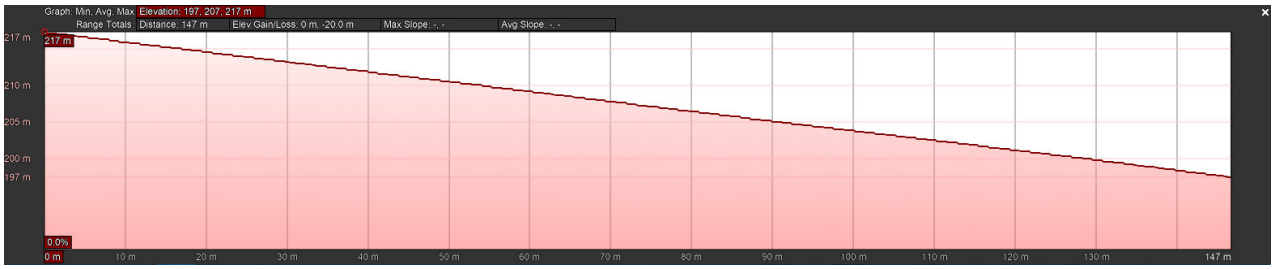


FIGURE 14: Gradient from north to south (Phase 1B)

Phase 1C:

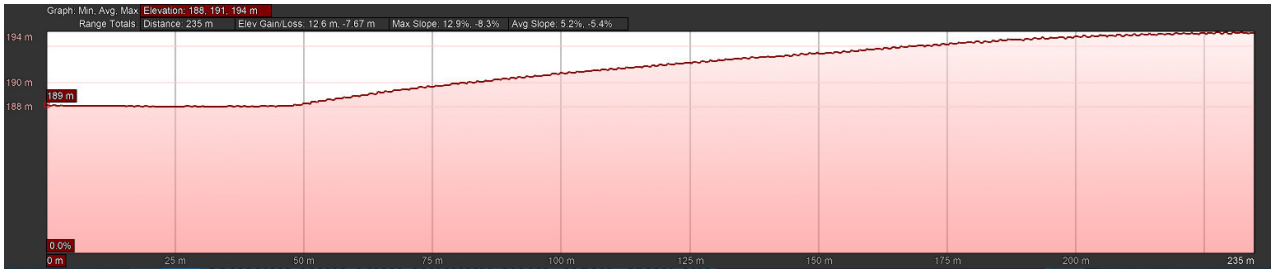


FIGURE 15: Gradient from east to west (Phase 1C)

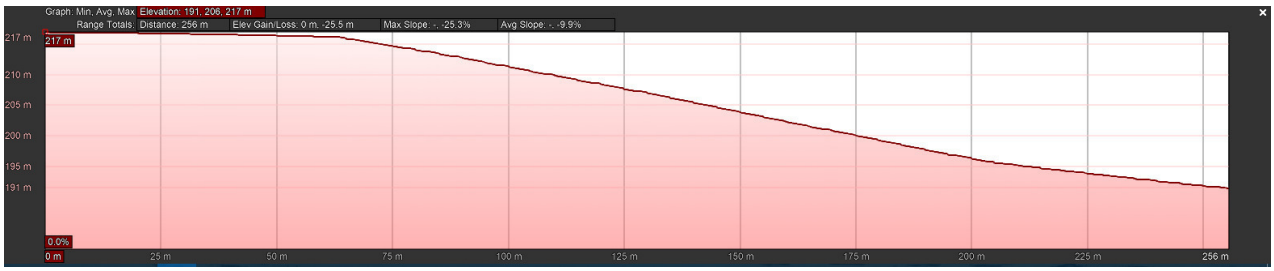


FIGURE 16: Gradient from north to south (Phase 1C)

9.2 VEGETATION

Interrogation of the vegetation database, 2011, maintained by Ezemvelo KZN Wildlife indicated that the all of the proposed development sites are modelled to comprise the KwaZulu-Natal Coastal Belt Thornveld vegetation type. This vegetation type is recorded to be on steep valley sides and hilly landscape mainly associated with drier larger river valleys in the rain shadow of the rain bearing frontal weather systems from the east coast. Bushed grassland, bushland and bushland thicket and open woodland.

This finding was confirmed in a site assessment undertaken by Indiflora CC in 2008 which evaluated all of the proposed development areas, with the exception of Development Area 3 (as per the specialist report reference), in terms of vegetation and biodiversity characteristics. No proposed development sites fall within areas which have been identified as Critically Endangered or Endangered Ecosystems in terms of the SANBI Threatened Ecosystems Database.

In terms of conservation planning, all of the development areas fall within 5km of the North Park Nature Reserve Protected Area and the Roosfontein Nature Reserve Stewardship Site.

Additionally, certain sites fall within Durban Metropolitan Open Space System (DMOSS), as elaborated on below, at a site-specific level.

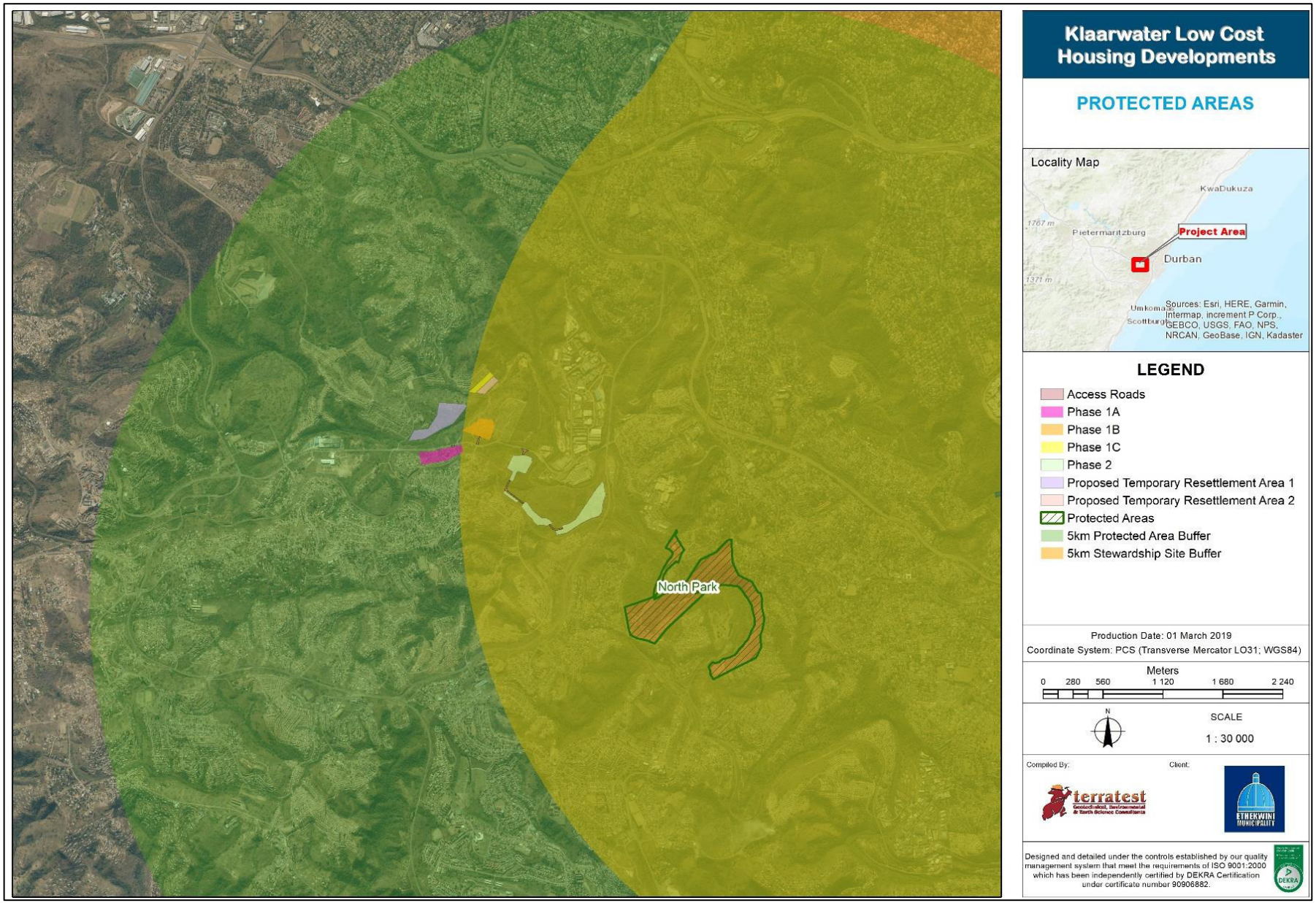

North Park
Klaarwater Low Cost Housing Developments
PROTECTED AREAS
Locality Map
KwaDukuza
Pietermaritzburg
Project Area
Durban
Umkomaas
Scottburgh
Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster
LEGEND
Access Roads
Phase 1A
Phase 1B
Phase 1C
Phase 2
Proposed Temporary Resettlement Area 1
Proposed Temporary Resettlement Area 2
Protected Areas
5km Protected Area Buffer
5km Stewardship Site Buffer
Production Date: 01 March 2019
Coordinate System: PCS (Transverse Mercator LO31; WGS84)
Meters
0 280 560 1 120 1 680 2 240
N
SCALE
1 : 30 000
Compiled By:
terratest
Client:
ETHEKWINI MUNICIPALITY
Designed and detailed under the controls established by our quality management system that meet the requirements of ISO 9001:2000 which has been independently certified by DEKRA Certification under certificate number 90906882.
DEKRA

FIGURE 17: Proposed development in relation to protected areas and stewardship sites

Phase 1A

The site inspection undertaken by the Terratest (Pty) Ltd concluded that the vegetation in this area is totally transformed from its natural state as a result of the development of the site to informal housing (see plate 2). This supports the findings of the 2008 Indiflora CC assessment report which highlights the area as being transformed with heavy infestations of alien invasive species being noted on the site. Development of this site and associated service infrastructure would therefore not require the clearance of any indigenous vegetation as defined in GN R 327 and 324 the NEMA: EIA Regulations of 2014, as amended.

This area does not fall within any DMOSS conservation areas.

PLATE 2: Overview of Phase 1A

Phase 1B

This area was not assessed within the 2008 Indiflora CC assessment report. The site inspection undertaken by the consultants did however conclude that the remanence of vegetation within the area is highly degraded from its natural state through anthropogenic influences, but does however exhibit certain characteristics of indigenous vegetation[6] in terms of the definitions as contained within the NEMA: EIA Regulations of 2014 as amended. In terms of the overall area of indigenous vegetation located on the site, it is estimated that approximately 0.45 hectares of indigenous vegetation as defined in the Act persists. Development on this site will therefore not trigger Listed Activities contained within the NEMA: EIA Regulations of 2014, as amended (2017), associated with the clearance of indigenous vegetation as the clearance falls below the Listed Activity thresholds of 1 hectare.

A small proportion of the site (approximately 35%) falls within an area which has been identified as DMOSS conservation area, this area being classified as “grassland”. However during the site inspection, it was confirmed that this area has already been transformed as a result of anthropogenic influence and what appears to be illegal sand mining activities on the site (see Plate 3).

[6] **“indigenous vegetation”** refers to vegetation consisting of indigenous plant species occurring naturally in an area, regardless of the level of alien infestation and where the topsoil has not been lawfully disturbed during the preceding ten years;

PLATE 3: Overview of Phase 1B

Phase 1C

The site inspection undertaken by Terrarest (Pty) Ltd concluded that the vegetation within this area is totally transformed from its natural state as a result of the development of the site to informal housing (see Plate 4). This supports the findings of the 2008 Indiflora CC assessment report which highlights the area as being primarily transformed in the vicinity of the adjacent substation and under the associated power lines. Furthermore, it is also clear that since the 2008 Indiflora CC assessment was undertaken there has been an expansion of the informal settlement in this area which has resulted in the loss of a greater area of indigenous vegetation surrounding this site. Development of this site and associated service infrastructure would therefore not require the clearance of any of indigenous vegetation as defined in the NEMA: EIA Regulations of 2014, as amended (2017).

A very small proportion of the site (approximately 13% - calculated at a desktop level) falls within an area which has been identified through the eThekwini Municipality DMOSS database as a DMOSS conservation area, this area being classified as “freshwater wetland”. However during the site inspection it was confirmed that this area has already been transformed as a result of anthropogenic influence and expansion of the existing informal settlement. Furthermore, neither the consultants or the 2008 Sivest Wetland Delineation identified any wetland environments within this portion of the development area.

PLATE 4: Overview of Phase 1C

9.3 GEOLOGY

The site is underlain by a mantle of colluvial and residual soils which overlie sandstone and bedrock of the Natal Group. As per the Engineering Report and Geotechnical Report, residual soils, developed by in situ weathering on the sandstone bedrock extend to an average depth of 1 metres, ranging from 0.6 and 1.5m below ground level.

9.4 SURFACE HYDROLOGY

The Exemvelo KZN Wildlife, NFEPA and eThekwini Municipality, wetlands and flood plains databases have been interrogated. DMOSS identified a wetland area in close proximity to the site. The proposed upgrading of services and access roads does result in the crossing of watercourses. Details of which are provided in Section 10 below.

9.5 CURRENT LAND USE

The land is currently used as informal residential area, including housing, access roads, dumped waste etc. Open spaces within the identified sites have been largely transformed due to sand mining activities.

9.6 AREAS OF CULTURAL/HERITAGE SIGNIFICANCE

No areas of cultural or heritage significance, such as graves or places of worship were identified during the site visit to the three proposed phases within this report. As the project involves the formalisation of existing buildings, no areas of significance are anticipated to be disturbed.

9.7 CLIMATE

The region falls within a tropical climate which experiences summer rainfall, with some rainfall in winter. Summers are humid with temperatures general peaking at 32.6ºC. Winters are temperate, with minimum temperatures rarely dropping below 5.8ºC. Mean annual precipitation is approximately 989 mm, requiring sufficient management of stormwater / seepage / runoff and consequently infrastructure.

10 SPECIALIST STUDIES

Please note the following: As the project was initially proposed in 2009, a majority of the Specialist studies were concluded within that year. The Wetland and Biodiversity Report was updated by Terratest (Pty) Ltd in 2018. The Geotechnical, Heritage and Traffic Impact Assessment were not updated. Reference within the reports may therefore include references to areas mentioned in Section 7 and therefore the naming within the Specialist Studies do not align with the naming within this report.

10.1 WETLAND AND BIODIVERSITY ASSESSMENT

A Wetland and Biodiversity Assessment Report was conducted by Terratest (Pty) Ltd in April of 2018. Prior to conducting a site visit, the Ezemvelo KZN Wildlife Wetland (2014) and the National Freshwater Ecosystem Priority Areas (NFEPA) (2011) databases were examined. During the site visit, the entire area of the proposed upgrade was examined and assessed. Results thereof are provided in the sub-sections that follow and in Appendix 8 (Drainage Line and Wetland Assessment Report).

10.1.1 Drainage line crossings

All of the watercourse crossings identified within the entire project footprint (five crossings in total) are located in Development Site 1. Of the five crossings identified, four of them are on the same channel. All of the watercourse crossings are for sewer reticulation, with GPS co-ordinates listed in Table 5.

TABLE 5: Watercourse crossing points

Site	Coordinates		Comment
1	29°51'44.58"S	30°51'24.89"E	All of these crossings are on the same watercourse channel.
2	29°51'43.93"S	30°51'24.54"E	
3	29°51'43.38"S	30°51'24.30"E	
4	29°51'42.81"S	30°51'24.01"E	
5	29°51'43.37"S	30°51'20.01"E	Very small episodic watercourse.

10.1.2 Wetland Areas

The wetlands delineated in the present study have all been impacted upon by various human activities. These include historical sand mining or agriculture, and the development of a cut-and-fill platform in Development Site 3. For this reason, the systems are considered to have a PES value of “D” or “E”.

10.1.3 Conclusions and recommendations

It has been concluded that the upgrading of the housing within the three development sites poses a minor threat to the environment. This is due to the high level of transformation of the area. No fatal flaws have been identified.

As per the Wetland and Biodiversity Assessment, a monitoring programme is recommended. The programme must include the following actions:

- The Environmental Control Officer (ECO) who oversees the various components of the project must be thoroughly familiar with the recommendations put forward in Section 9 of the Wetland and Biodiversity Assessment and also with the content of the project Environmental Management Programme. The construction process must then be monitored for compliance with the mandated actions. Monitoring must be done at intervals which are appropriate to the work being done, but on a monthly basis as a minimum.
- The ECO must have sight of the contractors’ method statements prior to their implementation and must also have sight of the contractors’ time schedules and plans.
- The ECO will be able to discuss with the Resident Engineer issues that could potentially stop works.
- The ECO must take especial care to see that the handling and removal of rubble and other builders wastes are done properly.
- A post-construction monitoring programme must be set in place. It will include examination of at least the following items:
  - **Alien weed invasion:** No alien weed invasion may be tolerated within a year of completion of the project. This point is of particular importance as the area is prone to alien weed invasion.
  - **Rehabilitation of the pipeline trenches**: The correct placement of the soil layers must be done. This is of key importance at the watercourse crossings. At such sites the compaction of the soil must be done correctly done. The trenches must be revegetated with either the recommended grass mix or with salvaged plants which are demonstrably viable.
  - **Rehabilitation of the working servitude**: The working servitudes at all watercourse crossings, whether road or pipeline, must be returned to their pre-construction condition or better.
  - **Stability of watercourse banks**: The banks must be left in a stable condition.
  - **Soil erosion:** No soil erosion may be accepted anywhere in the working area, including the site camp and laydown areas.
  - **Sewer pipe leakage or spillage:** All new pipes must be carefully surveyed for signs of leakage or spillage. Problems must be reported immediately.

10.2 TRAFFIC IMPACT ASSESSMENT

Groundwork PMC was appointed by the eThekwini Municipality to conduct the Traffic Impact Assessment for the proposed project. The assessment was undertaken in April of 2018 in accordance with the eThekwini Municipality’s Manual for Traffic Impact Assessments and Site Traffic Assessments.

10.2.1 Conclusions and Recommendations

- There would only be issues at the St Wendolins Road and Wiltshire Road intersection. The worst movement at this intersection will be a Level of Service (LoS) F[7]. It is therefore recommended that this intersection be converted to a single lane roundabout. After being converted to a roundabout all movements at this intersection will operate at LoS B or better.
- Analysis at the other three intersections showed that there would be no issues with the worst LoS being a LoS C.
- Due to some of the sites within the proposed development area already being informally inhabited it is expected that the actual trips generated by this development will be less than what was calculated in the report.
- This proposed RDP housing development is expected to create an increase in both the number of pedestrians and taxis in the surrounding area. This increase will not be significant enough that there will be a need for additional facilities such as pedestrian crossings and taxi laybys on the existing road network.

Copies of the Traffic Impact Assessment are found in Appendix 8.

10.3 GEOTECHNICAL ASSESSMENT

A Geotechnical Investigation was undertaken by Moore Spence Jones in February of 2009 for the proposed upgrade. The areas were found to comprise of a mantle of colluvial and residual soils which overlie sandstone and bedrock of the Natal Group.

10.3.1 Conclusions and Recommendations

The sites are considered suitable for the proposed development provided that the geotechnical recommendations for the design and construction of the building platform are followed:

- All unsuitable fill, i.e. garden refuse and general waste, should be removed to spoil.
- All vegetation and organically enriched topsoil to a depth of between 100 and 200mm should be scalped off the areas over which fills are to be built, and stockpiled for later topsoiling of slopes, open space and garden areas.
- Where fills are to be built, the natural ground surface should be well compacted before fill placement commences. This is to minimise the possibility of collapse settlement in the underlying colluvial sands.
- Fills should be compacted in minimum 200mm loose layers to at least 93% Modified AASHTO maximum dry density. Boulders larger than 2/3 of the layer thickness should not be included in the fill material.
- Pockets or layers of more clayey materials encountered in the cuttings, particularly in the road bed, which are likely to give rise to compaction and moisture retention problems should be selectively spoiled.
- The building platforms should be graded to direct water away from the fill and cut edges.
- Fill embankment slopes should not be steeper than 1 vertical to 2 horizontal.
- Cuts in soil should not be steeper than 1 vertical to 1.5 horizontal. The slopes will be very susceptible to erosion until properly vegetated.
- Mere cut and fill slopes exceed 3.0 metres in height, special consideration should be given to their design.
- Cuts in sandstone bedrock may range from subvertical to 1 vertical to 0.5 horizontal, depending on the nature of jointing and structure of the rockmass.
- Requirements for subsoil drainage behind fills and at the toe of cuttings will need to be assessed during construction.

[7] Level of service (LOS) is a qualitative measure used to analyse roadways and intersections by categorizing traffic flow and assigning quality levels of traffic based on performance measure like vehicle speed, density, congestion, etc. Levels are graded from A (free flow) to F (forced or breakdown flow).

- Extreme care should be taken to mitigate the effect of seasonal rain on the highly erodible sandy soils making up fills and cuts. Grassing should be cared out as soon as possible after the earthworks phase is complete.

Copies of the Geotechnical Assessment are found in Appendix 8 and all recommendations within the Geotechnical Report have been included in the EMPr (see Appendix 10).

10.4 HERITAGE IMPACT ASSESSMENT

A Heritage Impact Assessment was undertaken by eThembeni Cultural Heritage in January of 2009 for the proposed upgrade.

10.4.1 Conclusions and Recommendations

One place of worship was identified however it must be noted that this is located outside the proposed locations within this report and the proposed development will therefore not have an impact on the area.

11 IMPACT ASSSESSMENT AND MITIGAITON MEASURES

11.1 IMPACT ASSESSMENT METHODOLOGY

The EIA Regulations, 2014, as amended (2017), prescribe requirements to be adhered to and objectives to be reached when undertaking Impact Assessments. These are noted in the following sections contained within the EIA Regulations (2014), as amended (2017):

- Regulation 326, Appendix 1, Section 2 and Section 3 – Basic Assessment Impact Requirements; and
- Regulation 326, Appendix 2 and Appendix 3 – Environmental Impact Assessment Requirements.

In terms of these Regulations, the following should be considered when undertaking an Impact Assessment:

- *A description and assessment of the significance of any environmental impact including:*
  - Cumulative impacts that may occur as a result of the undertaking of the activity during the project life cycle;
  - Nature of the impact;
  - Extent and duration of the impact;
  - The probability of the impact occurring;
  - The degree to which the impact can be reversed;
  - The degree to which the impact may cause irreplaceable loss of resources; and
  - The degree to which the impact can be mitigated.

The overall significance of an impact / effect has been ascertained by attributing numerical ratings to each identified impact. The numerical scores obtained for each identified impact have been multiplied by the probability of the impact occurring before and after mitigation. High values suggest that a predicted impact / effect is more significant, whilst low values suggest that a predicted impact / effect is less significant. The impact assessment criteria used to obtain significance scores and consequently provide an interpretation of overall significance is included in Appendix 9 of this document.

12 IMPACTS IDENTIFIED

No reasonable and / or practical site alternatives exist that would meet the need and desirability of this Application. As such only the Preferred Site Alternative has been assessed within this document. The no-go alternative would be to not develop within this area. The land will continue to function as per the current state.

Based on the above factors, impacts have been identified for the proposed construction of the low-income housing development as well as relevant mitigation measures. See Table 7.

TABLE 6: Impacts identified and associated mitigation measures

Impact	Description	Mitigation
Soil	• Potential disturbances include compaction, physical removal and potential pollution; • The exposed soil surfaces have the potential to erode easily if left uncovered; • Potential loss of stockpiled topsoil and other materials if not protected properly; • Insufficient stormwater control measures may result in localised high levels of soil erosion, possibly creating dongas or gullies; • Drainage line bank instability could cause erosion; • Increased erosion could result in increased sedimentation which could impact on ecological processes; • The additional hardened surfaces created during construction and operation will increase the amount of stormwater runoff, which has the potential to cause erosion; • Contamination of soil; • Physical disturbance of the soil and plant removal may result in soil erosion/loss; and • Erosion and potential soil loss from cut and fill activities.	• Soil erosion prevention measures should be implemented such as gabions, sand bags etc. whilst energy dissipaters should be constructed at any surface water outflow points. The sites should be monitored weekly for any signs of off-site siltation. All areas impacted by earth-moving activities should be re-shaped post-construction to ensure natural flow of runoff and to prevent ponding. All exposed earth should be rehabilitated promptly with suitable vegetation to stabilize the soil; • The area surrounding the drainage lines must be regularly checked for signs of erosion. If erosion is evident, corrective action must be taken; • Any exposed earth should be rehabilitated promptly with suitable vegetation to protect the soil. Vigorously growing grasses planted with fertiliser are very effective at covering exposed soil. It is important to note, that the use of fertilisers, must be undertaken with caution and must not be allowed, in any circumstances, to run into drainage lines, to avoid any possible eutrophication impacts.
Vegetation and fauna	• Disturbance of the site may lead to encroachment of alien plant species on-site and into the surrounding areas; • Increase in alien invasive species could lead to a possible loss in biodiversity; and • Potential off-site pollution as a result of accidental spillages of petrochemicals or concrete.	• Identify sensitive fauna and flora prior to construction works; • Site personnel must undergo Environmental Training and be educated on keeping any vegetation disturbance to a minimum; • Poaching or harvesting of indigenous flora / fauna is strictly forbidden; • Alien plant encroachment must be monitored and prevented as outlined in the EMPr (Appendix 10); • All exposed earth should be rehabilitated promptly with suitable vegetation to protect the soil. Vigorous grasses planted with fertiliser are very effective at covering exposed soil. Necessary rehabilitation measures (e.g. burning, seeding, removing alien plants etc.) should be introduced to ensure species composition reverts to a more natural state (with regards to affected areas). Indigenous vegetation with deep set root systems is advisable to limit soil loss on site. Alternatively, water dissipating mechanisms may be implemented on-site to help stabilize the surrounding soil and provide a platform for the growth of vegetation. • No hunting is permitted on-site or the surrounding areas;

Impact	Description	Mitigation
		• No animals required for hunting e.g. dogs, under the supervision of construction workers, should be allowed into the area. All construction personnel on the property should be informed of this ruling; and • Any construction personnel found to be poaching in the area should be subjected to a disciplinary hearing.
Noise pollution	• Potential dust generation from soil stripping, vehicle traffic on the access roads and motor vehicle fumes will have an impact on air quality; • Potential increase in noise from the operation of machinery and equipment, as well as the construction vehicle traffic; • Potential noise from generators; and • Dust and noise will be created during the Construction Phase, which may impact on the local community.	• All construction machinery and equipment must be regularly serviced and maintained to keep noise, dust and possible leaks to a minimum, as per the requirements of the EMPr; • Generators must be placed in sound attenuating rooms to limit noise impacts. and • Road dampening should be undertaken to prevent excess dust during construction.
Waste	• There is potential for the site and surrounding areas to become polluted if construction activities are not properly managed (e.g. oil / bitumen spills, litter from personnel on-site, sewage from ablutions etc.); and • Waste generation could be created by the following: - Solid waste - plastics, metal, wood, concrete, stone; - Chemical waste- petrochemicals, resins and paints; and - Sewage as may be generated by employees.	• All waste generated on-site during construction must be adequately managed. Separation and recycling of different waste materials is supported; • All solid wastes should be disposed of at a registered landfill site and records maintained to confirm safe disposal; • Adequate scavenger-proof refuse disposal containers should be supplied to control solid waste on-site; • It should be ensured that existing waste disposal facilities in the area are able to accommodate the increased waste generated from the proposed construction; • Chemical waste should be stored in appropriate containers and disposed of at a licensed disposal facility; • Portable sanitation facilities should be erected for construction personnel. Use of these facilities should be enforced (these facilities should be kept clean so that they are a desired alternative to the surrounding vegetation). These facilities should also be monitored and serviced regularly so as to prevent contamination of the water resources. • The construction site should be inspected for litter on a daily basis. Extra care should be taken on windy days. Precautions should be taken to avoid litter from entering drainage lines;

Impact	Description	Mitigation
		• Soil that is contaminated with, e.g. cement, petrochemicals or paint, should be disposed of at a registered waste disposal site and is NOT to be deposited into any drainage lines; and • It must be ensured that all hazardous contaminants are stored in designated areas that are sign-posted, lined with an appropriate barrier and bunded to 110% of the volumes of liquid being stored to prevent the bio-physical contamination of the environment (ground and surface water and soil contamination). Hazardous substance storage must not take place within 100m of a watercourse or within the 1:100 year floodline; and • Any significant spills on-site must be reported to the relevant Authority (e.g. Department of Water and Sanitation / Municipality etc.) and must be remediated as per the EMPr (Appendix 11).
Socio-Economic	• Creation of job opportunities for skilled personnel (e.g. engineers, specialists etc.) and non-skilled personnel (e.g. labourers); • Skills development of the local community through employment opportunities; • Social anxiety may arise should the surrounding community not be adequately notified of the proposed activity; and • Possible economic benefits to suppliers of building materials in the local area as goods and services may be purchased from these entities during the construction phase.	• Inform the surrounding communities and general public of the proposed activity as soon as possible. This will serve to ease potential social anxiety. Such notification can be conducted through the Public Participation Process; • Local people should be employed where possible.
Safety and security	• There is potential for construction labour to trespass onto neighbouring properties; and • Construction personnel / construction vehicles – movement of construction personnel and vehicles may pose a potential health and safety risk to road users and local residents.	• Any construction personnel found to be trespassing must be subjected to a disciplinary hearing; • Construction workers / construction vehicles should take heed of normal road safety regulations, thus all personnel must obey and respect the law of the road. A courteous and respectful driving manner should be enforced and maintained so as not to cause harm to any individual; and • A designated speed limit should be set by the developer to limit possible road strikes.
Noise	• Disruption to residents through increased activity and noise in the area.	• All construction machinery and equipment must be regularly serviced and maintained to keep noise, dust and possible leaks to a minimum, as per the requirements of the EMPr (Appendix 11); • Operational Hours: No works shall be executed between sunset and sunrise and on the non-working and special non-working days as stated in

Impact	Description	Mitigation
		the Contract Data unless otherwise agreed between the Engineer and Contractor; and • Construction personnel should be made aware of the need to prevent unnecessary noise such as hooting and shouting.
Water Resources	• Contamination of ground and surface water and soil; • Drainage lines may be polluted due to accidental spillages of petrochemicals from vehicles and equipment, or concrete from construction; • Malfunction of system may release effluent into the natural environment; and • The additional hardened surfaces created during construction will increase the amount of stormwater runoff, which has the potential to cause erosion and create turbidity in surrounding drainage lines.	• Appropriate stormwater / surface water management measures must be put in place before construction commences and maintained throughout the lifetime of the development; • An appropriate number of toilets (1 toilet for every 20 workers) must be provided for labourers during the Construction Phase. These must be maintained in a satisfactory condition and a minimum of 100m away from any water resources and outside of the 1:100 year floodline; • Any contaminated water associated with construction activities must be contained in separate areas or receptacles such as Jo-Jo tanks or water-proof drums, and must not be allowed to enter into drainage lines; • The Construction Camp should be positioned on previously disturbed areas (if possible) and outside of the 1:100 year floodline; • Soil erosion prevention measures must be implemented and energy dissipaters must be constructed at any surface water outflow points. The site should be monitored by the Contractor weekly for any signs of off-site siltation. All areas impacted by earth-moving activities must be re-shaped post-construction to ensure natural flow of runoff and to prevent ponding; • Appropriate silt control mechanisms must be installed around all soil excavations to prevent silt from entering drainage lines; • Should any excavations require dewatering, this is to occur through an adequately designed silt trap prior to discharge. All silt traps are to be regularly monitored and maintained to ensure efficient and effective use; • All recommendations noted in the Wetland and Biodiversity Assessment Report (Appendix 8) must be adhered to.

13 IMPACT ASSESSMENT

Table 7 presents the impact assessment findings in relation to the proposed construction activities and impacts and mitigation measures provided in Table 6.

Table 7: Assessment of Impacts (Preferred Site, Layout and Activity)

Nature of Impact	Spatial extent		Severity/ intensity/ magnitude		Duration		Resource loss	Reversibility		Probability		Significance without mitigation	Significance with mitigation
	Without	With	Without	With	Without	With		Without	With	Without	With		
Soil impacts	3	1	5	2	3	1	3	3	1	0.7	0.3	11.9	2.4
Flora and Fauna impacts	3	1	3	1	1	1	1	3	1	0.4	0.2	4.4	1
Waste	2	1	3	1	1	1	1	1	1	0.3	0.2	1.6	0.5
Safety and Security	2	1	2	1	1	1	1	1	1	0.2	0.1	1.4	0.5
Noise Impacts	2	1	3	2	1	1	1	1	1	0.3	0.2	2.4	1.2
Water Resources	3	1	4	2	3	1	4	3	1	0.7	0.2	11.9	1.8
Traffic Impacts	3	1	4	1	3	1	1	3	1	0.6	0.2	8.4	1
Overall impact significance												6	1.2
												LOW	LOW

13.1 SIGNIFICANCE

Based on the outcome of the significance scoring noted in Table 7, the overall significance impact without mitigation, is considered to be Low. With mitigation, the overall significance impact is considered to be even Lower.

The greatest impact of significance is considered to be impacts on soil and water resources. This is related predominantly to the construction activities and associated spills / contamination and watercourse crossings that could occur during the construction phase. This is, however, a temporary impact, the duration of which is anticipated to last for the construction period only. However, with the correct mitigation measures employed as noted in Table 6 and as per the EMPr (Appendix 10), these impacts can be significantly reduced.

14 ENVIRONMENTAL IMPACT STATEMENT

Assuming all phases of the project adhere to the conditions stated in the EMPr (Appendix 10) it is believed that the impacts associated with the proposed construction will have no significant, adverse, long term environmental impact on the surrounding environment.

Positive impacts associated with construction include:

- Provision of formalised housing and hygiene services to the receiving community;
- Economic growth and development;
- Alignment with various strategies of the eThekwini Metropolitan Municipality; and
- Employment opportunities and skills development.

It is perceived that these impacts will have sustainable benefits.

It must be ensured that the construction phase, in no way, hampers the health of any of the ecological systems identified on site, and that post-construction rehabilitation leaves the surrounding environments in an as good, if not better, state.

After the construction phase of the project, the contractors must ensure that all hazardous materials are removed from the site and that site is rehabilitated as per the requirements of the EMPr (Appendix 10).

Any alien plant management programmes that are implemented during the construction phase must be maintained during the construction defects liability period.

15 RECOMMENDATIONS OF THE EAP

The proposed development should not result in impacts on the natural or social environment that are highly detrimental, nor result in undue risks to the natural environment. The nature and types of negative impacts do not outweigh the potential benefits of this project, provided that the short term localised impacts of the construction phase are adequately mitigated. In this regard, an EMPr has been compiled and is attached to this report (see Appendix 10).

It is recommended that external monthly EMPr monitoring takes place by an independent Environmental Control Officer (ECO) to ensure that the requirements of the EMPr are being correctly implemented, thus ensuring the protection of the surrounding environment during construction. Audit reports are to be consequently compiled by the ECO and submitted to the relevant project members, including the Project Manager. The Project Manager is responsible for ensuring that the monthly Environmental Audit Report is submitted to the EDTEA: Compliance and Monitoring for the duration of the construction period.

It is the recommendation of the EAP that the following management and mitigation measures be incorporated into any project approvals which may be issued:

- Prior to the start of operations the contractor must produce a method statement indicating how the construction process will be undertaken.
- Ideally, the construction work should be done in the dry season when plants are senescent and stream flows are at their lowest;
- All conditions and requirements of the project Environmental Management Programme (EMPr) (Appendix 10) must be adhered to; and
- All recommendations noted in the Wetland and Biodiversity Assessment Report (Appendix 8) must be adopted and followed by the contractor.
- All recommendations noted in the Geotechnical Assessment Report (Appendix 8) must be adopted and followed by the contractor.

All of the above recommendations have been incorporated into the EMPr (Appendix 10).

It is the EAPs recommendation that the Preferred Alternative should be adopted. Based on the above, it is the opinion of the EAP the Application should be granted a positive decision on Environmental Authorisation.

16 CONSTRUCTION TIMEFRAMES

It is requested that the Environmental Authorisation, if issued by the Competent Authority, be valid for a period of ten (10) years from the date of signature.

17 SUBMISSION AND CONSIDERATION OF DOCUMENTATION BY THE COMPETENT AUTHORITY

It is to be noted that in terms of the EIA Regulations (2014), GNR 326 43(2), all State Departments that administer a law relating to a matter affecting the environment, specific to the Application, must submit comments within 30 days to the EAP as per the request of the EAP. Should no comment be received within the 30 day commenting period, it will be assumed that the relevant State Department has no comment to provide. In this regard, all Key Stakeholders and registered IAPs were requested to submit comment to the EAP upon the initial circulation of the Draft BA Report (1 March 2019).

18 UNDERTAKING

Terratest (Pty) Ltd hereby confirms that the information provided in this report is correct at the time of compilation and was compiled with input provided by the Applicant (eThekwini Municipality).

Terratest (Pty) Ltd further confirms that all comments received to date from Stakeholders and IAPs have been included in this report. Further, a record has been created and will continue to be updated with comments received in respect of this Environmental Authorisation Application. All comments received will be consolidated and incorporated into all subsequent reports, either submitted to IAPs for comment, or the EDTEA for consideration and decision-making.

For Terratest (Pty) Ltd:

R. Patak
Environmental Scientist

19 REFERENCES

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