



# DRAFT BASIC ASSESSMENT REPORT

*For the proposed establishment of a residential development  
on Portion 23 of 5, Farm lot H of Weston No. 13026 in Bruntville, Mooi River  
Mpofana Local Municipality, uMgungundlovu District of KwaZulu-Natal*

**DEDTEA reference: pending**



**Compiled by**

Susan Machpesh & Swazi Kubheka  
NatureStamp (Pty) Ltd  
Tel 033 343 1352  
Email [swazi@naturestamp.com](mailto:swazi@naturestamp.com)

**Compiled for**

Kgosi Sedumedi  
Threshold Project Managers  
Cell 072 449 2993  
E-mail [kgosi@thresholdpm.co.za](mailto:kgosi@thresholdpm.co.za)

**January 2019**

## Contents

1.	OBJECTIVES OF BASIC ASSESSMENT REPORT .....	4
2.	ENVIRONMENTAL ASSESSMENT PRACTITIONER .....	4
3.	SCOPE OF PROPOSED DEVELOPMENT .....	5
3.1	Project background and description.....	5
3.2	Proposed activity .....	6
3.3	Location of preferred site .....	6
3.4	Detailed site plan .....	7
4.	POLICY AND LEGISLATIVE CONTEXT .....	7
4.1	National Environmental Management Act (No 107 of 1998, NEMA) .....	7
4.2	National Environmental Management: Waste Act (No 59 of 2018, NEMWA) .....	8
4.3	National Water Act (No. 36 of 1998, NWA) .....	8
4.4	The Constitution of South Africa .....	10
4.5	National Heritage Resources Act (No. 25 of 1999, NHRA) .....	10
4.6	The KwaZulu-Natal Heritage Act (No.4 of 2008) .....	11
5.	GUIDELINES AND SPATIAL PLANS .....	11
5.1	National Freshwater Ecosystem Priority Areas .....	11
5.2	EKZNW Biodiversity Planning Tool .....	11
5.3	Integrated Development Plan .....	11
5.4	Spatial Planning Framework.....	12
6.	CONSIDERATION OF ALTERNATIVES .....	12
6.1	Alternative sites / location .....	12
6.2	Alternative activity .....	12
6.3	Alternative design / layout.....	12
6.4	Alternative technology .....	13
6.5	No-Go Alternative .....	13
7.	NEED AND DESIRABILITY .....	13
7.1	Need and desirability for the proposed development .....	13
7.2	Need and desirability for the preferred location.....	15
8.	SPECIALIST IMPACT ASSESSMENT .....	15
8.1	Watercourse Delineation and Functional Assessment .....	15
8.2	Traffic Impact Assessment .....	17
8.3	Vegetation Assessment.....	18
9.	COMPLETE IMPACT ASSESSMENT.....	19
9.1	General waste .....	19
9.2	Water Use.....	19
9.3	Effluent.....	20
9.4	Stormwater Management.....	21
9.5	Air emission .....	21
9.6	Energy.....	22

9.7	Viewshed .....	22
9.8	Noise .....	22
9.9	Freshwater .....	22
9.10	Cultural / historical .....	22
9.11	Biodiversity .....	23
9.12	Spatial Planning.....	24
9.13	Surrounding landuse.....	24
10.	IMPACT SUMMARY AND SCORING.....	25
10.1	Ranking of environmental issues and risks.....	25
10.2	Significant scoring of impacts.....	25
10.3	Management of impacts.....	26
11.	PUBLIC PARTICIPATION .....	27
11.1	Notification of proposed application .....	27
11.2	IAP comments.....	28
11.3	Summary of IAP issues .....	28
12.	ASSUMPTIONS AND KNOWLEDGE GAPS .....	29
13.	CONCLUDING STATEMENTS .....	30
13.1	Environmental impact statement .....	30
13.2	Balance of Impacts .....	32
13.3	Proposed monitoring and auditing schedule .....	32
13.4	Proposed conditions of the Environmental Authorization.....	33
13.5	Reasoned opinion of EAP on Environmental Authorization.....	34

## Tables

Table 1	Summary of development specifications .....	6
Table 2	Table outlining legislation relevant to the application .....	7
Table 3	Listed Activities .....	8
Table 4	Water Use activities and relevance to the site .....	9
Table 6	Proposed water use .....	20
Table 5	Proposed effluent generated .....	20
Table 7	Landuses within 500m of the proposed development.....	24
Table 8	Potential impacts of the development and mitigation measures.....	26
Table 9	Summary of IAP issues raised and response .....	28
Table 10	Summary of impacts and mitigation .....	31
Table 11	Summary of positive and negative impacts .....	32

## Figures

Figure 1	Proposed residential duplex, road network and green open space areas .....	6
Figure 2	Watercourse features identified within 500 meters of the Bruntville farm boundary (Lot H) .....	16

Figure 3 Access Position.....	17
Figure 4 Vegetation on the site (red) and the surrounding area.....	18
Figure 5 Minset Classification Map for the proposed Bruntville housing.....	23
Figure 6 Extract from UMgungundlovu District Municipality (2018).....	24

## Acronyms

BAR	Basic Assessment Report
BID	Background Information Document
BPA	Biodiversity Priority Area
CARA	Conservation of Agricultural Resources Act (No. 43 of 1983)
CBA	Critical Biodiversity Area
CME	Compliance, Enforcement and Monitoring Unit
DAFF	Department of Agriculture, Forestry and Fisheries
DEDTEA	Department of Economic Development, Tourism and Environmental Affairs
DOT	Department of Transport
DWS	Department of Water and Sanitation
EKZNW	Ezemvelo KwaZulu-Natal Wildlife
EA	Environmental Authorization
EAP	Environmental Assessment Practitioner
ECO	Environmental Control Officer
EIR	Environmental Impact Report
EKZNW	Ezemvelo KZN Wildlife
ELU	Existing Lawful Use
EMF	Environmental Management Framework
EMPr	Environmental Management Programme
EWT	Endangered Wildlife Trust
FEPA	Freshwater Ecosystem Priority Area
GA	General Authorization
HIA	Heritage Impact Assessment
HGM	Hydrogeomorphic
IAP	Interested and Affected Party
IDP	Integrated Development Plan
KZN	KwaZulu-Natal
IWULA	Integrated Water Use License Application
MAR	Mean Annual Runoff
NEMA	National Environmental Management Act (No. 107 of 1998)
NEMWA	National Environmental Management Waste Act (No 59 of 2008)
NFEPA	National Freshwater Ecosystems Priority Areas
NSDP	National Spatial Development Perspective
NWA	National Water Act (No. 36 of 1998)
PA	Protected Area
PES	Present Ecological State (referring to wetland heath)
QC	Quaternary Catchment
SAHRIS	South African Heritage Resources Information System
SANBI	South African National Biodiversity Institute
SANRAL	South African National Roads Agency
SAHRA	South African Heritage Resources Agency
SDF	Spatial Development Framework
SWMP	Stormwater Management Plan
UMDM	UMgungundlovu District Municipality
WARMS	Water Authorisation and Registration Management System
WESSA	Wildlife and Environment Society of South Africa
WUL	Water Use License
WULA	Water Use License Application

## Annexures

### Annexure A

#### EAP details

- A1 Curriculum Vitae
- A2 EAP Declaration of Independence

### Annexure B

#### Maps

- B1 Locality Map
- B2 Layout Plan
- B3 Bruntville MINSET Map

### Annexure C

#### Specialist Reports

- C1 Watercourse Delineation
- C2 Traffic Impact Assessment
- C3 Vegetation Assessment

### Annexure D

#### Impact Assessment

- D1 Significant Scoring

### Annexure E

#### Public Participation

- E1 Comments Received from BID
- E2 Comments & Response Sheet
- E3 IAP Register
- E4 Background Information Document
- E5 Site Notices
- E6 Newspaper Advertising
- E7 Photographs of pamphlets
- E8 Site Photographs

### Annexure F

#### Additional Information

- F1 UMgungundlovu District Municipality IDP
- F2 Mpofana Local Municipality IDP 2014/2015
- F3 Amafa Application form and payment proof
- F4 Mpofana Spatial Planning Framework
- F5 EMF for the UMgungundlovu District Municipality
- F6 Bruntville pre-application meeting minutes DEDTEA

### Annexure G

#### Environmental Management Programme

- G1 Draft Environmental Management Programme

## 1. OBJECTIVES OF BASIC ASSESSMENT REPORT

This report has been prepared in accordance with **Appendix 1 of GN 326, Environmental Impact Assessment (EIA) regulation 2014, amended 2017.**

The objective of the basic assessment process is to, through a consultative process –

- (a) determine the policy and legislative context within which the proposed activity is located and how the activity complies with and responds to the policy and legislative context;
- (b) identify the alternatives considered, including the activity, location, and technology alternatives;
- (c) describe the need and desirability of the proposed alternative;
- (d) through the undertaking of an impact and risk assessment process, inclusive of cumulative impacts which focused on determining the geographical, physical, biological, social, economic, heritage, and cultural sensitivity of the sites and locations within sites and the risk of impact of the proposed activity and technology alternatives on these aspects to determine –
  - a. the nature, significance, consequence, extent, duration, and probability of the impacts occurring to; and
  - b. the degree to which these impacts—
    - can be reversed;
    - may cause irreplaceable loss of resources; and
    - can be avoided, managed or mitigated; and
- (e) through a ranking of the site sensitivities and possible impacts the activity and technology alternatives will impose on the sites and location identified through the life of the activity to –
  - a. identify and motivate a preferred site, activity and technology alternative;
  - b. identify suitable measures to avoid, manage or mitigate identified impacts; and
  - c. identify residual risks that need to be managed and monitored.

## 2. ENVIRONMENTAL ASSESSMENT PRACTITIONER

Environmental Assessment Practitioners and Specialists involved in this EIA, do so under **Section 13 of GN 326, Environmental Impact Assessment (EIA) regulation 2014, amended 2017.**

The EAP details are as follows –

**Name: Susan Machpesh (nee Carter-Brown)**  
**Qualifications: BSc, (Equine Sci); Dip Education; BSc Hon, (Enviro Sci)**  
**Professional affiliations: International Association for Impact Assessment**  
**Experience at environmental assessments (years): 8 years**  
**Role: Project Leader**

Susan has been practising as an EAP for the past 7 years. She has conducted EIA's for a range of developments: housing estates, pipelines, roads, poultry houses, dairies, breaking new land and the like. This has given her a sound knowledge and understanding of the process, as well as the intricacies of different developments. Susan has attended various courses on wetland assessment (Tools for Wetland Delineation, Pretoria 2010; WET-Health; WET-EcoServices, Rhodes University 2010; WET-Health workshop, WESSA 2011). Susan manages a catchment restoration project in the upper Umzimvubu River, as funded by the Department of Environmental Affairs with Lima Rural Development Foundation. She is a member of the KZN Wetland Forum, IAIA KZN and the South African Wetland Society.

**Name: Swazi Kubheka**  
**Qualifications: BSc, MSc (Enviro Sci)**  
**Professional affiliations: International Association for Impact Assessment**  
**Experience at environmental assessments (years): 2 years**  
**Role: Environmental Assessment Practitioner (EAP)**

Swazi recently obtained her Master's degree, Environmental Science from the University of KwaZulu-Natal in 2018. Her research project was investigating the Incorporation of Biodiversity Recommendations into Environmental Authorisations in KZN. Swazi has planning and biodiversity conservation experience from Ezemvelo KZN Wildlife (2014-2016), under the Integrated Environmental Management (IEM) Land Use Planning Section. Swazi joined the NatureStamp team in April 2018 and is developing a specialization in environmental impact assessments, environmental management plans as well as environmental auditing, amongst other activities.

**Name:** Bruce Scott-Shaw

**Qualifications:** BSc, MSc, PhD (Hydrology)

**Professional affiliations:** International Association for Impact Assessment

**Experience at environmental assessments (years):** 5 years

**Role:** Watercourse Delineation; and GIS mapping

Bruce is a hydrologist, whose focus is broadly on hydrological perspectives of land use management and climate change. Throughout his university career he has mastered numerous models and tools relating to hydrology, soil science and GIS. Some of these include ACRU, SWAT, ArcMap, Idrisi, SEBAL, MatLab and Loggernet. He has some basic programming skills on the Java and CR Basic platforms. He has spent most of his spare time doing field work for numerous companies and researchers. Bruce has completed his PhD which focuses on rehabilitation of alien invaded riparian zones and catchments using indigenous trees. The aim is to select Working for Water (WfW) sites throughout the country and use micro-meteorological techniques to measure the water use of both the indigenous and alien tree species in the riparian areas. This research will assist in land rehabilitation and restoration in the highly sensitive riparian areas. A modelling approach has been incorporated into the research to improve the spatial resolution of the research and to work as a management tool. Bruce has worked on numerous projects for the CSIR and Ezemvelo KZN wildlife which has included micrometeorological work, EIAs and wetland mapping for KZN. Bruce has presented his research around the world, where most recently he represented South Africa at the Singapore International Water Week on water policy and implementation.

The abovementioned EAPs and specialists undertake under oath the following –

- (i) the correctness of the information provided in the reports;
- (ii) the inclusion of comments and inputs from stakeholders and Interested and Affected Parties (IAPs);
- (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 IAPs.

See the Declaration of independence in Annexure A2; and Annexure A1 for CV's.

Signed: 15 December 2018

 Susan Machpesh (Project Leader)	 Swazi Kubheka (EAP)
--	---

### 3. SCOPE OF PROPOSED DEVELOPMENT

#### 3.1 Project background and description

The proponent, Threshold Project Managers, would like to develop middle income housing units on Portion 23 of Farm Lot H Weston13026, located in Bruntville near Mooi River.

The development site is 11 954m<sup>2</sup> in extent; and the proposed development would comprise the following -

- Residential duplexes: 6 833m<sup>2</sup>
- Road Network: 4 116m<sup>2</sup>
- Green Open Space: 1 005m<sup>2</sup>
- **TOTAL: 11 954m<sup>2</sup>**

This residential development is aimed at providing housing for young professionals and other individuals working in and around Mooi River who cannot afford high income housing but do not qualify for government housing.

The site is currently an untransformed and vacant property. The proposed development would add value to the area through an increased supply of accommodation facilities.

See the site layout in figure 1 and Annexure B2.





Figure 1 Proposed residential duplex, road network and green open space areas

### 3.2 Proposed activity

The development would have the following specifications -

Table 1 Summary of development specifications

Description	Area / volume / distance	Comment
Area of site	11 954m <sup>2</sup>	
Number of flat units	100 -120 units	The EIA will assess for 120 units
Units Size	55m <sup>2</sup>	
Maximum persons per unit	4	
Maximum Resident Population	480	
Storeys	2 to 3 storeys	The EIA will assess for 3 storeys
Number of parking bays	90 with 0.75 bays/unit	

### 3.3 Location of preferred site

#### Physical address and farm name

Portion 23 of Farm Lot H Weston 13026  
 Bruntville  
 Mpfana Local Municipality  
 uMgungundlovu District Municipality  
 KwaZulu-Natal.

The proposed site is located along the N3 approximately 200m south-east of Mooi River Toll Plaza. See Locality Map in Annexure B1.

#### Co-ordinates

29°13' 12.67" south; 30° 0'20.37"E.

#### 21 digit surveyor general code

SG Key: NOFT0 0000001302600023



### 3.4 Detailed site plan

See the detailed layout in Annexure B2.

See the site photographs in Annexure E8.

## 4. POLICY AND LEGISLATIVE CONTEXT

There exists several legislation in South Africa that promotes protection and sound management of the natural environment. This assessment is governed by the following legislation -

**Table 2 Table outlining legislation relevant to the application**

Title of legislation, policy or guideline	Administering authority	Date
National Environmental Management Act (No. 107 of 1998)	Department of Agriculture and Environmental Affairs	1998
National Environmental Management: Waste Act (No. 59 of 2008)	Department of Agriculture and Environmental Affairs	2008
National Water Act, 1998 (No. 36 of 1998)	Department of Water Affairs	1998
Integrated Environmental Management (IEM)	Department of Environment and Agriculture	2002
South Africa's Constitution (No. 108 of 1996), including the Bill of Rights (Chapter 2, Section 24)	The State	1996
Hazardous Substances Act (No 15 of 1973)	Various Departments	1973
National Environmental Management: Biodiversity Act, 2004 (No.10 of 2004)	Department of Agriculture and Environmental Affairs & Ezemvelo KZN Wildlife	2004
Atmospheric Pollution Prevention (No. 45 of 1965)	Department of Agriculture and Environmental Affairs	1965
Health Act (No 63 of 2003)	Department of Health	2003
Conservation of Agricultural Resources Act, 1983 (No. 43 of 1983)	Department of Agriculture, Forestry and Fisheries	1983
Animal Health Act (No. 7)	Department of Veterinary Health	2002
Publication of Need and Desirability Guideline in terms of the Environmental Impact Assessment Regulations, 2010 (GNR 792 of 2012)	Department of Environmental Affairs	2012
uMngeni Municipality Integrated Development Plan, 2011/18-2021/22	Department of Environmental Affairs	2018
National Spatial Development Perspective, 2006	The Presidency of South Africa	2006
KwaZulu-Natal Provincial Growth and Development Strategy	KZN Provincial Planning Commission	2014
UMgungundlovu District Municipality SEA	UMgungundlovu District	2013

### 4.1 National Environmental Management Act (No 107 of 1998, NEMA)

NEMA is South Africa's overarching environmental legislation and has, as its primary objective, to provide for co-operative, environmental governance by establishing: principles for decision-making on matters affecting the environment, institutions that will promote co-operative governance and procedures for co-ordinating environmental functions exercised by organs of state, and to provide for matters connected therewith.

The principles of the Act focus on providing for people's basic needs in a socially, economically and environmentally sustainable manner. Environmental management aims to satisfy people's needs by acknowledging that all elements of the environment are linked and interrelated. Environmental responsibility and justice for harmful activities is pursued as a vital component to effective environmental management.

The activities required for the development of a residential development have the potential to cause detrimental impacts on the environment and hence trigger the following activities under the EIA Regulations 2014, amended 2017 -

**Table 3 Listed Activities**

Number of Govt notice	Activity No.	Description of listed activity	Relevance to project
GNR 327	27.	The clearance of an area of <u>1 hectares or more</u> , but less than 20 hectares of <u>indigenous vegetation</u> , except where such clearance of indigenous vegetation is required for-  (i) the undertaking of a linear activity; or (ii) maintenance purposes undertaken in accordance with a maintenance management plan.	More than 1 ha of indigenous vegetation would be cleared for the proposed development.

Accordingly, an EIA, in the form of a Basic Assessment Report (BAR) is being undertaken in application for Environmental Authorization from the Department of Economic Development, Tourism and Environmental Affairs (DEDTEA) before commencement of the abovementioned listed activity.

The Basic Assessment process involves the following steps –

- i. Refine the plan with project team
- ii. Conduct pre-application meeting with DEDTEA officials
- iii. Get landowner consent (if required)
- iv. Conduct specialist studies (as required)
- v. Develop Interested and Affected Party (IAP) register
- vi. Conduct Public Participation Process
  - a. Circulate Background Information Document (BID) to all IAPs
  - b. Advertise in newspaper
  - c. Site notice
  - d. Public meeting
- vii. Address any issues raised; amend plan if required
- viii. Write draft Basic Assessment Report (dBAR)
- ix. Submit Application Forms to the Department and pay application fee
- x. Circulate dBAR for 30 days to all IAPs
  - a. Obtain comments...
- xi. Submit final BAR to Department within 90 days of submission of application forms
- xii. Department has 107 days to make a decision on project
- xiii. Department notifies EAP and proponent of decision
- xiv. EAP has 14 days to notify all IAPs of decision and their right to appeal the decision within 20 days.

This project is currently in the draft BAR phase, with a draft BAR being circulated to stakeholders and IAPs for a period of 30 days for comment.

#### **4.2 National Environmental Management: Waste Act (No 59 of 2018, NEMWA)**

The National Environmental Management: Waste Act (NEMWA, Act 59 of 2008) has been consulted and there are no there are no activities triggered. Therefore, there is no need for a Waste Management License application.

#### **4.3 National Water Act (No. 36 of 1998, NWA)**

The NWA aims to develop the major legislation regarding the efficient and sustainable use of water resources. The purpose of the Act is stated in Section 2 as:

- Meeting the basic human needs of present and future generations;
- Promoting equitable access to water;
- Redressing the results of past racial and gender discrimination;
- Promoting the efficient, sustainable and beneficial use of water in the public interest;
- Facilitating social and economic development;
- Providing for growing demand for water use;
- Protecting aquatic and associated ecosystems and their biological diversity;

- Reducing and preventing pollution and degradation of water resources;
- Meeting international obligations;
- Promoting dam safety; and
- Managing floods and droughts.

The proponent must consider these aspects and ensure that the residential development is in the best interest of all parties. It is therefore important to conduct watercourse studies to determine the effects that will be felt by surrounding parties, currently and in the future, as well as the impacts that will be placed on the environment.

Section 21 of the NWA lists water use activities that either have Existing Lawful Use, can be Generally Authorised or require a Water Use License (WUL). The relevance of these water use activities to the proposed development are provided in the table below.

**Table 4 Water Use activities and relevance to the site**

	<b>Water use activity</b>	<b>Potential relevance to project</b>
<b>S21 (a)</b>	taking water from a water resource;	N / A
<b>S21 (b)</b>	storing water;	N / A
<b>S21 (c)</b>	impeding or diverting the flow of water in a watercourse;	Development within 500m of a wetland
<b>S21 (d)</b>	engaging in a stream flow reduction activity (currently only commercial afforestation);	N / A
<b>S21 (e)</b>	engaging in a controlled activity - activities which impact detrimentally on a water resource (activities identified in section 37(1) or declared as such under section 38(1); namely – <ul style="list-style-type: none"> <li>• Irrigation of any land with waste or water containing waste which is generated through an industrial activity or a waterworks;</li> <li>• An activity aimed at the modification of an atmospheric precipitation;</li> <li>• A power generation activity which alters the flow regime of a water resource; or</li> <li>• Intentional recharge of an aquifer with any waste of water containing waste</li> </ul>	N / A
<b>S21 (f)</b>	discharging waste or water containing waste into a water resource through a pipe, canal, sewer, sea outfall or other conduit;	N / A
<b>S21 (g)</b>	disposing of waste in a manner which may detrimentally impact on a water resource;	N / A
<b>S21 (h)</b>	disposing in any manner of water which contains waste from or which has been heated in any industrial or power generation process;	N / A
<b>S21 (i)</b>	altering the bed, banks, course or characteristics of a watercourse;	Development within 500m of a wetland
<b>S21 (j)</b>	removing, discharging or disposing of water found underground if it is necessary for the efficient continuation of an activity or for the safety of people; an	N / A
<b>S21 (k)</b>	using water for recreational purposes.	N / A

Water use activities c) and i), speak to development within a 'regulated area of a watercourse', which is described as (GN 509, August 2016) –

- The outer edge of the 1:100 year floodline and/or delineated riparian habitat whichever is the greatest distance, measured from the middle of the watercourse of a river, spring, natural channel, lake or dam;
- In the absence of a determined 1:100 year floodline or riparian area, the area within 100m from the edge of a watercourse where the edge of the watercourse is the first identifiable annual bank fill flood bench; or
- **A 500m radius from the delineated boundary (extent) of the wetland or pan.**

The proposed development site is within 500m of a wetland. Thus, a Risk Assessment is required to determine the risk of the proposed development on the wetland system. If Low Risk, General Authorization (GA) of the water use activities will be permissible. If Moderate to High risk, a WUL is required.

The Department of Water and Sanitation (DWS) will be engaged further through the EIA process.

#### 4.4 The Constitution of South Africa

Section 24 of the Constitution of South Africa (No. 108 of 1996) states that -

*"...everyone has the right ...*

- a) to an environment that is not harmful to their health or well-being; and*
- b) to have the environment protected, for the benefit of present and future generations through reasonable legislative and other measures that ...*
- c) secure ecologically sustainable development and use of natural resources while promoting justifiable economic and social development."*

This protection involves preventing pollution and promoting conservation and environmentally sustainable development. Consulting the Constitution of South Africa ensures that both people and the environment they reside in are considered in the development proposal, and can therefore be adequately protected.

The principle of Sustainable Development has been established in the Constitution of the Republic of South Africa and given effect by NEMA (1998) states that sustainable development means the integration of social, economic and environmental factors into the planning, implementation and decision-making process so as to ensure that development serves present and future generations. Sustainable development requires a cautious approach to economic development that includes the protection of biological biodiversity as well as the prevention of pollution, waste and degradation within ecosystems and the natural environment.

The fact that it is the constitutional right of every South African citizen to have a healthy environment gives strength to environmental legislative framework. It is thus extremely important to ensure that the environment is taken into consideration during the development of Bruntville housing, including the wetland systems that occur in close proximity to the proposed site, as these resources will be important for present and future generations in the area. These environmental aspects are considered in this report and have also been assessed through specialist studies; the vegetation and watercourse assessments in particular.

#### 4.5 National Heritage Resources Act (No. 25 of 1999, NHRA)

Section 38 of the South African NHRA lists various categories of development which prompts the need for a comment or decision from the Provincial Heritage Agency, Amafa KwaZulu-aNatali. The legislation requires that a developer informs Amafa when a listed development occurs and obtains written approval / comment from Amafa as required.

The Section 38 categories are as follows –

- (a) the construction of a road, wall, powerline, pipeline, canal or other similar form of linear development or barrier exceeding 300m in length;
- (b) the construction of a bridge or similar structure exceeding 50 m in length;
- (c) any development or other activity **which will change the character of a site** —
  - (i) **exceeding 5 000m<sup>2</sup> in extent**; or
  - (ii) involving three or more existing erven or subdivisions thereof; or
  - (iii) involving three or more erven or divisions thereof which have been consolidated within the past five years; or
  - (iv) the costs of which will exceed a sum set in terms of regulations by SAHRA or a provincial heritage resources authority;
- (c) the re-zoning of a site exceeding 10 000 m<sup>2</sup> in extent; or
- (d) any other category of development provided for in regulations by SAHRA or a provincial heritage resources authority, must at the very earliest stages of initiating such a development, notify the responsible heritage resources authority and furnish it with details regarding the location, nature and extent of the proposed development.

Due to the fact that the proposed housing development would exceed 5 000 m<sup>2</sup> in extent, as well as the expected change of character within the development footprint, it is necessary to submit the application to Amafa via the South African Heritage Resources Information System (SAHRIS) website.

Amafa KwaZulu-Natal Heritage Council have been invited to provide comment in this application and guide any permitting process which may be required.

In this regard, a Need and Desirability application (Form J) has been submitted to Amafa and the application fee has been paid (see Annexure F3).

#### **4.6 The KwaZulu-Natal Heritage Act (No.4 of 2008)**

In terms of chapter 8 and 9 of the Act, the following heritage resources require approval from the Amafa KwaZulu-Natal Heritage Council before being altered in any way:

- Structures older than 60 years;
- Graves of victims of conflict;
- Traditional burial places;
- Battlefield sites, archaeological sites, rock art sites, palaeontological sites, historic fortifications, meteorite or meteorite impact sites;
- Heritage and Provincial Landmark sites;
- Graves of members of the Royal Family;
- Public monuments and memorials.

None of the abovementioned features are found on the proposed site. Therefore, a Heritage Impact Assessment, nor approval from Amafa (in this regard) is required.

### **5. GUIDELINES AND SPATIAL PLANS**

#### **5.1 National Freshwater Ecosystem Priority Areas**

The National Freshwater Ecosystem Priority Areas (NFEPA, 2011) project provides strategic spatial priorities for conserving South Africa's freshwater ecosystems and supports sustainable use of water resources. Wetlands in South Africa have been mapped on a broad-scale by various stakeholders and are used in the NFEPA project to identify priority wetland ecosystem areas and ensure their protection and sustainable use. NFEPA notes that human activities need to be managed to prevent the degradation of downstream Freshwater Ecosystem Priority Areas (FEPAs) and Fish Support Areas.

#### **5.2 EKZNW Biodiversity Planning Tool**

MINSET is a function or tool with Conservation Planning Software that is used to identify a minimum set of sites that would fulfil the aim firstly of achieving the conservation targets within a number of constraints that can be set by the user. It presents the most efficient solution to achieving conservation targets within other land use constraints. The MINSET output map shows areas that are already protected as Mandatory Reserves (totally irreplaceable) and Negotiable Reserves (most efficient for achieving targets and constraints).

#### **5.3 Integrated Development Plan**

An Integrated Development Plan (IDP) is a five-year plan which local government is required to compile to determine the development needs of the municipality. The projects within the IDP are linked to the municipality's budget. The IDP should be reviewed annually; it does not only determine the status of the identified projects for the previous year but also whether the remaining projects are still relevant and priority.

The review process in formulating an IDP incorporates public participation, which gives citizens opportunity to highlight and prioritise their development needs. The municipality encourages citizens to participate in IDP meetings to ensure that their needs are made known. Citizens can also communicate via their Ward Committees and Ward Councillors.

For this project, the UMgungundlovu District Municipality (2018) and Mpofana (2014/15) IDP were followed.

## 5.4 Spatial Planning Framework

A Spatial Development Framework (SDF) is a framework that seeks to guide, overall spatial distribution of current and desirable land uses within a municipality in order to give effect to the vision, goals and objectives of the municipal IDP. The aims of a SDF are to promote sustainable functional and integrated human settlements, maximise resource efficiency, and enhance regional identity and unique character of a place

For this project, the UMgungundlovu District Municipality SDF (2018) was followed.

The purpose of the land use scheme (see Annexure F1) is to determine development rights and parameters in the Municipality in order to –

- (a) give effect to the policies and plans of national, provincial and municipal government, including the Municipality's own policies and plans;
- (b) protect reasonable individual and communal interests in land;
- (c) promote sustainable and desirable development;
- (d) develop land in a manner that will promote the convenience, efficiency, economy, health, safety and general welfare of the public;
- (e) promote social integration;
- (f) promote economic growth and job creation;
- (g) limit nuisance and undesirable conditions in the development of land;

## 6. CONSIDERATION OF ALTERNATIVES

“Alternatives”, in relation to a proposed activity, means different means of meeting the general purpose and requirements of the activity. Several alternatives are addressed below, in relation to the proposed dam development.

Alternatives should be feasible and reasonable.

### 6.1 Alternative sites / location

The proponent owns the proposed development site and is in the business of property development. The site location and accessibility is appropriate for a residential development.

There is no other property that is relevant, feasible or reasonable to the application. Therefore, no other sites will be considered.

### 6.2 Alternative activity

The proponent is in the business of residential development and would thus be able to efficiently manage and operate the apartments in a professional manner. Furthermore, the proposed site is in a residential area and the proposed development is aligned. The Need and Desirability for a residential development is established (see section 7).

There is no other activity that is relevant, feasible or reasonable to the application. Therefore, no other activities will be considered.

### 6.3 Alternative design / layout

The proponent is constrained by i) size of the site (1.1ha) and ii) the need to build no less than 100 units to make the development feasible.

There are no environmental sensitivities on the site, as verified by specialist studies. Appropriate buffers have been allocated for watercourse features located outside of the site.

The EAP, architect and engineer have taken vegetation, watercourse and findings from the Traffic Impact Assessment into account to develop the proposed Site Plan, as seen in Annexure B2.



It would not be feasible, nor reasonable to assess any other design / layout.

#### **6.4 Alternative technology**

The proponent is constrained by i) size of the site (1.1ha) and ii) the need to build no less than 100 units to make the development feasible. There are no environmental sensitivities of the site include on the site, this was verified by a i) Watercourse Assessment and ii) Vegetation Assessment. Appropriate buffers were allocated for watercourse features located outside of the site. The EAP has taken these factors together with the Traffic Impact Assessment recommendations into account to develop the Site Plan seen in Annexure B2.

The Green building designs, in accordance with the Green Building Council of SA standards, have been taken into consideration where possible. In many instances, it is not feasible for the proponent to apply these standards due to the sale price/target market of units.

Thus, no other technology would be appropriate and will henceforth not be considered.

#### **6.5 No-Go Alternative**

Should the development not proceed, there following losses would ensue –

- The lack of appropriate housing would not be addressed for the local population that is currently increasing;
- No new local employment opportunities would be created;
- No potential increase in customers for surrounding businesses;
- There would be no improvement in efficiency of land use;
- The currently vacant land would not be utilized to meet a need for middle income accommodation;
- It is likely that the vacant land would continue to degrade.

### **7. NEED AND DESIRABILITY**

In this section, a motivation for the need and desirability for the proposed development is given, including the need and desirability of the activity in the context of the preferred development footprint within the approved site.

#### **7.1 Need and desirability for the proposed development**

The strategic context for informing need and desirability is best addressed and determined during the formulation of the sustainable development vision, goals and objectives of Integrated Development Plans (IDPs) and Spatial Development Frameworks (SDFs) during which collaborative and participative processes play an integral part, and are given effect to, in the democratic processes at local government level (reference - GNR 891 of 2014; Guideline on Need and Desirability in terms of the Environmental Impact Assessment Regulations, 2010).

The need and desirability of development must be measured against the contents of the IDP and SDF for the area, and the sustainable development vision, goals and objectives formulated in, and the desired spatial form and pattern of land use reflected in, the area's IDP and SDF respectively.

The SDF seeks to guide the overall spatial distribution of current and desirable land uses within the municipality and provides a broad indication of where different types of development should take place within the municipal area.

The proposed site is located where a large number of people reside within the Mooi River, Bruntville area. Housing is one of the main interventions that is envisaged within this node (Mpofana Local Municipality IDP 2014/2015). In terms of the populations within the Mpofana Municipality, the highest numbers of residents are settled in Ward 1 and 3; the proposed site is found within Ward 1.

The National Spatial Development (NSDP) plan by directing investment in areas closer to developed infrastructure and along development nodes and corridors with high economic activities, seeks to create

decent work, reduce inequality and defeating poverty by labour absorption as well as the composition and rate of growth. The National Spatial Development plan has identified certain areas within the SA economy where employment creation is possible. The key sectors identified have a 2020 goal which is aligned to the municipality's long terms vision. With regard to the key sectors, the municipality's plans are centred around the infrastructure, the agricultural value chain, tourism but without trying to exclude the other sectors. The above mentioned key sectors are vital in not only addressing unemployment but in the economic growth of the municipality.

If there is a need for low-income housing, it must be provided in close proximity to areas of opportunity (Breaking New Ground: from Housing to Sustainable Human Settlement). Bruntville is located in close proximity to Mooi River where there are opportunities for jobs; and community members do not have to spend lot of money paying for transport (Mpofana Local Municipality IDP 2014/2015).

Communities living in Bruntville have access to educational, health and recreational facilities (Mpofana Local Municipality IDP 2014/2015). The principle of self-sufficiency is promoted. Development must be located in a way that reduces the need to travel, especially by car and enables people as far as possible to meet their needs locally.

Mpofana Municipality is attempting to comply with the 12 National outcomes based on the Millennium Development Goals, by taking them into consideration in the budget and IDP process (Mpofana Local Municipality IDP 2014/2015). Amongst these outcomes, the following housing/residential development outcomes have been outlined-

- Sustainable human settlements and improved quality of household life
- Acceleration of housing development delivery
- Improvement of property markets
- More efficient land utilisation and release of state-owned land.

The proposed middle income housing development would enhance the development rights and parameters in the Municipality through the provision of secure housing for young professionals and other individuals who cannot afford high income housing but do not qualify for government housing.

**Benefits that the activity will have for society in general:**

- Adherence to municipal planning guidelines; development of the region consistent with the expected trends and strategic objectives of the municipality;
- Provision of housing, an established need for the area;
- Provision of temporary job opportunities during the Construction Phase (for engineers, labourers etc.)
- Potential for skills development of the local community through employment opportunities.
- Revenue for local businesses supplying the contractors (i.e. construction materials).
- Potential revenue for neighbouring businesses through increased customers.

**Benefits that the activity will have for the local communities where the activity will be located:**

- Approximately 45 temporary employment opportunities would be created during construction, of which all the unskilled labour required would be sourced from local previously disadvantaged communities;
- Creation of job opportunities for skilled personnel (e.g. architect, engineer, land surveyor, relevant specialists etc.).
- Not less than minimal wage (likely to be more) for staff, improving the per capita earnings and benefitting the broader community.

In terms of socioeconomic aspects:

- The anticipated CAPEX value of the project (specifically the value of the dam) upon completion equates to **R30 million**.
- The expected annual turnover to be generated by or as a result of the project equates to **R30 million**.
- **20 new skilled** employment opportunities would be created during the construction phase
- **45 new unskilled** employment opportunities would be created during the construction phase
- **5 new skilled** employment opportunities would be created during the operational phase

- **50 new unskilled** employment opportunities would be created during the operational phase
- The expected value of the additional employment opportunities created during the operational and construction phases equates to **R12 960 000 million**.

## 7.2 Need and desirability for the preferred location

According to the watercourse assessment, there are no watercourse features found within the proposed development site. The assessment indicates a series of modified and disturbed wetlands, which are within 500 meters of the proposed site. Most of these systems are as a result of flow from the N3 and effluent from existing informal households. All wetlands have been afforded a 32m buffer. The current development layout proposed is outside of the buffers zones, approximately 85 -100m from wetlands.

According to the vegetation assessment, there are no plants of conservation concern found within the proposed development site. The site is vacant, degraded and derelict. It is currently being used as a thoroughfare for Bruntville residents to walk to town.

According to the traffic impact assessment, access should be via 1st Main Avenue, for the proposed development. The access must be designed in accordance with the Mpofana Local Municipality standards and specifications.

Additionally, in terms of the physical location of the proposed housing development, the proponent owns the land therefore does not require permission from a third party.

In summary, the proposed site is highly desirable for development due to the following reasons –

- No environmental constraints
- No access / traffic constraints
- Aligned with municipal planning
- Within existing residential, high population area

## 8. SPECIALIST IMPACT ASSESSMENT

### 8.1 Watercourse Delineation and Functional Assessment

**Specialist:** Bruce Scott-Shaw

**Qualifications:** PhD, Hydrology

**Company:** NatureStamp (Pty) Ltd

**Date of Assessment:** 25<sup>th</sup> October 2018

**For full report, see Appendix:** C1

The site is found within Quaternary Catchment V20E and falls under the Thukela WMA (Water Management Area) and the uMngeni waterboard. The site is within the catchment area of the Mooi River (Present Ecological State-PES class B; Largely Natural, WRC 2011).

In accordance with the NFEPA guidelines, the small tributary adjacent to the site (and its associated riparian areas) has not been classified as a FEPA, which indicates that this river system is not a national freshwater conservation priority.

However, the valley bottom wetland associated with the tributary has been classified as a FEPA (PES Class Z1 – heavily to critically modified), which indicates that this river system is a national freshwater conservation priority. The layer codes for River FEPAs and associated sub-quaternary catchments, Fish Support Areas and associated sub-quaternary catchments and Upstream Management Areas.

The current land cover was obtained from various databases. The site is mostly transformed with numerous residential houses and the N3 freeway adjacent to the site. Most of the site is more than 100 meters away from NFEPA wetlands. However, the north-eastern corner is approximately 85 meters from the wetland system. Unfortunately, this section within the 100-meter buffer area is already under residential households.

The site consisted of the following hydro-geomorphic units: seepage wetlands, channelled valley bottom wetlands, numerous drainage lines from housing areas, and effluent ponds from housing areas.

See the figure below for the extent of the delineated wetlands.

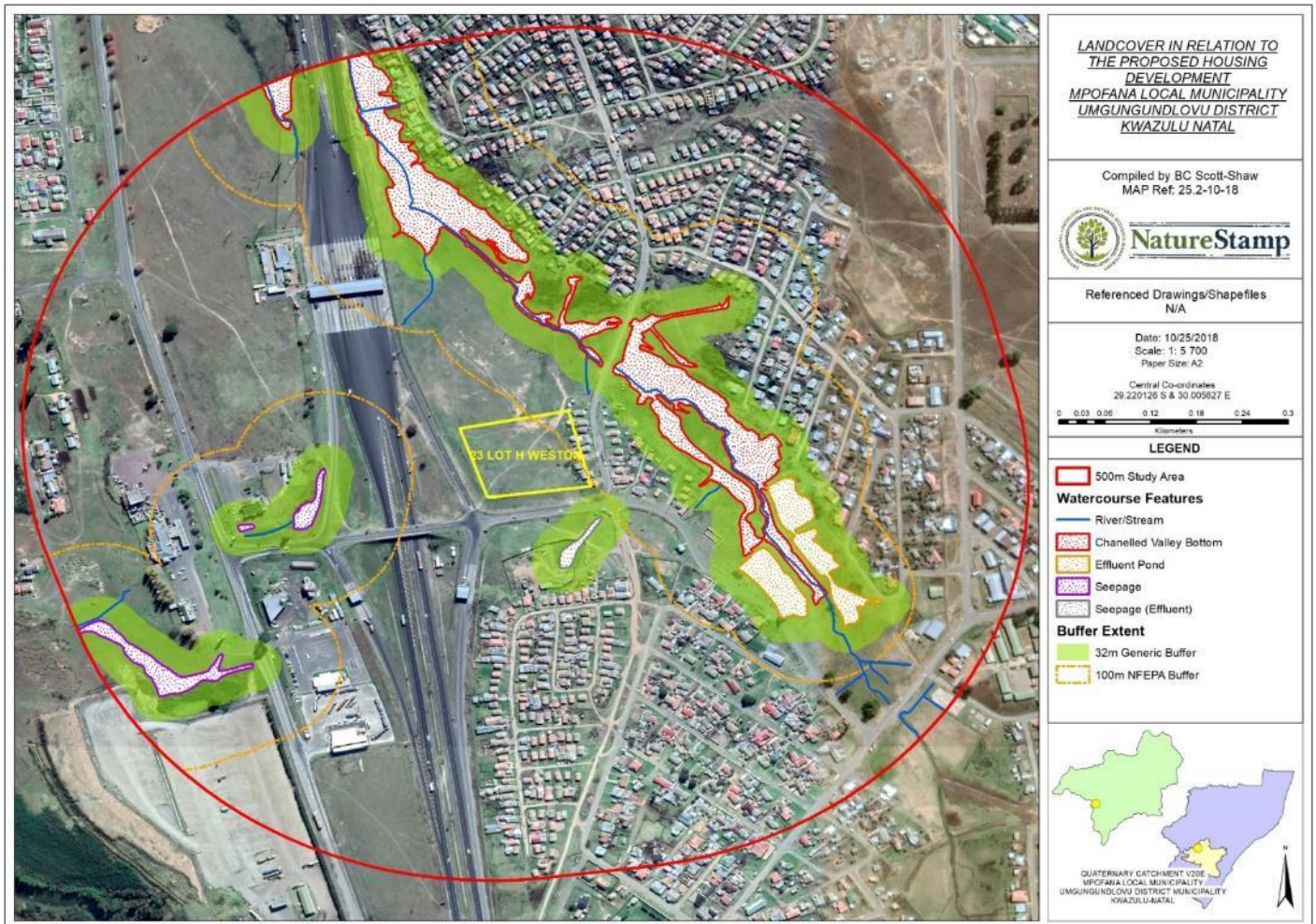


Figure 2 Watercourse features identified within 500 meters of the Bruntville farm boundary (Lot H)

The key findings and recommendations from this assessment are as follows –

- i. The valley bottom wetland area to the north of the site has been identified as a wetland FEPA. FEPAs are strategic spatial priorities for conserving freshwater ecosystems and supporting sustainable use of water resources; the systems need to stay in a good condition to manage and conserve freshwater ecosystems, and to protect water resources for human use. A generic 'no development' buffer of 100m must be applied to FEPA systems.  
 → **The proposed site is more than 100 meters away from these identified systems apart from a small section that has been historically developed.**
- ii. A series of modified and disturbed wetlands were identified within 500 meters of the proposed site. Most of these systems are as a result of flow from the N3 and effluent from households. These wetlands have been afforded a 32m buffer.  
 → **The current development layout is outside of the buffers zones.**
- iii. All effluent and stormwater generated from the housing development must be managed and processed outside of designated buffer zones.  
 → **All effluent would be managed via the municipal waterborne sewage system.**  
 → **See the stormwater management plan in section 9.4.**



## 8.2 Traffic Impact Assessment

**Specialist:** A. Ismail

**Company:** NSA Consulting Engineers

**Date of Assessment:** 19<sup>th</sup> September 2018

**For full report, see Appendix:** C2

It is a common cause that the traffic impacts of new developments are concentrated on the immediate transportation network with these impacts dissipating rapidly further away from the development as more access opportunities become available and traffic disperses onto the broader road network. Consequently, the impacts of the proposed development are limited to adjacent road network, with the key focus on the immediate intersections of -

- 1st Main Avenue and 25th Avenue
- 25th Avenue and R103 (P1-7)
- N3 on ramp (south bound), 25th Avenue and N3 off ramp south bound
- N3 on ramp (north bound), 25th Avenue and N3 off ramp north bound

The road network and proposed access point is illustrated in the figure below.



**Figure 3 Access Position**

Observations during the morning peak hour revealed that there is a consistent flow of traffic along the R103 (P1-7) and 25th Avenue. The area surrounding the proposed development is predominately residential in nature.

The proposed access onto 1<sup>st</sup> Avenue would cater for full directional movements and will need to be a minimum of 6 meters wide to accommodate two-way vehicle movements. All gates to the residential development must remain open during normal operating hours. The proposed main entrance will have a security guard house with security personnel that will be on duty all hours, 24/7.

According to the manual: UTG 7: Geometric Design of Urban Residential Streets Roads - a minimum sight distance of 45.0m for a design speed of 40km/h is required. The sight distance to the right and left of the proposed site access is in excess of 45.0m.

The access would be designed in accordance with the Mpofana Local Municipality standards and specifications. All driveway ramps would have a maximum gradient of 15% with a minimum 30m vertical curve radius.

The proposed development would provide for a maximum of 90 parking bays. All parking should be provided within the curtilage of the site. The minimum parking requirement is a town planning item and hence the final amount of parking that is required will be determined by the Mpofana Local Municipality. All parking facilities, accesses and driveways are to be designed and dimensioned in accordance with the schedule of guidelines for off-street parking.

### 8.3 Vegetation Assessment

**Specialist:** Peter le Roux

**Qualifications:** MSc (Agriculture)

**Company:** Private

**Date of Assessment:** 2<sup>nd</sup> October 2018

**For full report, see Appendix:** C3

The proposed Bruntville residential property is located within vegetation type Gs8 Mooi River Highland Grassland, see the figure below (Mucina and Rutherford 2006). The authors, Mucina and Rutherford, describe the vegetation as: *grassland dominated by short bunch grasses. Heteropogon contortus, Themeda triandra and Tristachya leucothrix are dominant in well managed veld.*

Current land use on the study site is grazing by livestock with no evidence of previous cultivation; however, it is highly likely that the site was used for parking machinery and stockpiling materials during construction of the N3 freeway.



Figure 4 Vegetation on the site (red) and the surrounding area

Large-scale and ongoing disturbance on the site is evident in the vegetation which comprises very short grass, numerous weeds and low species diversity.



From the species recorded, the site was not representative of Gs8 Mooi River Highland Grassland: the indicator species for primary grassland were absent, and the grassland was degraded and dominated by species associated with disturbed veld, eg. *Aristida junciformis*, *Eragrostis curvula*, *E. plana*, *Sporobolus africanus*, and weeds such as *Kikuyu*, *Plantago major*, *Richardia scabra* and *Datura* species.

Past construction of embankments and removal of soils or subsoils from the site has also contributed to site disturbance, resulting in a highly transformed environment supporting pioneer weeds and secondary grassland species.

Given the "Irreplaceable" status of Mooi River Highland Grassland it was important to determine whether the vegetation of the site was representative of Gs8.

It is concluded that the site is transformed and not representative of Gs8. No plants of conservation concern were found on the site and it was highly unlikely that any would occur – this is consistent with other studies done on degraded Midlands grasslands, where red data species were also absent.

The site does not appear to have been cultivated in the past and should therefore qualify as 'indigenous vegetation'; however, being transformed it is no longer representative of Mooi River Highland Grassland.

It is concluded that the site has very low vegetation-related development constraints. An assessment of links with adjacent undeveloped land indicated that the vegetation on the land to the north of the site was very similar to the study area.

## 9. COMPLETE IMPACT ASSESSMENT

### 9.1 General waste

#### During construction

Approximately 10m<sup>3</sup> of construction waste would be generated per month.

It would be collected in a combination of skips and waste receptacles located on-site.

The following conditions would be adhered to -

- Private construction contractors must provide proof of appropriate landfills used, and these records would be kept on file by the proponent.
- Skips and waste receptacles would be located on site in designated storage / collection areas prior to being safely disposed of and would not cause any surface and groundwater pollution, or pose any health hazards.
- All waste material generated would be disposed of at the nearest licensed municipal landfill site at the Bruntville area. Safe disposal certificates would be kept on record.
- If contaminated soil or other hazardous materials required disposal (unlikely), a private waste management service provider would be contacted (e.g. Enviroserv).

Recycling of suitable materials would be undertaken as appropriate.

#### During operation

The waste produced would be collected by the municipal services designated to do so, and disposed of at the licenced site.

A Service Level Agreement for general waste removal is required between the developer and the Mpofana Municipality / UMGungundlovu District. This should be a condition of the Environmental Authorisation.

Comment is sought from the relevant municipal office in this regard.

### 9.2 Water Use

#### During construction

During the construction phase, water must be brought in by tanker by the construction contractors.

There should be no access by construction tankers to water resources in proximity to the site for the re-filling and washing of vehicles and machinery.

### During operation

During operation, potable water for the residential development would be sourced from the municipality.

The domestic water use for the proposed residential development is calculated using figures from the "Guidelines for Human Settlement Planning and Design, Volume 2 (CSIR, 2000)", as follows –

**Table 5 Proposed water use**

	litres	cubic metres
Litres used per person (medium income)	135,00	0,14
No. people per unit	4,00	0,00
No. units	120,00	0,12
Water use per day	64 800,00	64,80
Water use per month	1 944 000,00	1 944,00
Water use per year	23 328 000,00	23 328,00

Note that the maximum water required has been assessed: as per 120 units and 4 people per unit.

The annual volume of potable water required for the proposed development to be received from the municipality would be **23 328 cubic metres per year**.

A Service Level Agreement for provision of potable water to the development is required between the developer and the Mpofana Municipality / UMgungundlovu District. This should be a condition of the Environmental Authorisation.

Comment is sought from the relevant municipal office in this regard.

## 9.3 Effluent

### During construction

An appropriate number of temporary, chemical toilet facilities (at least 1 toilet for every 20 workers) would be provided for labourers during the construction Phase. These would be maintained in a satisfactory condition and must be positioned a minimum of 100m away from any water resources. The toilet service provider would be responsible for taking away and disposing of the toilet waste, as consistent with their respective Waste Management License.

The EMPr and subsequent ECO monitoring would check that no form of secondary pollution would arise from the disposal of refuse or sewage from the construction toilets.

### During operation

Effluent (sewage and greywater) would be connected to the municipality main waterborne sewage line and discharged to a municipality approved Waste Water Treatment Works (WWTW).

It is estimated that 95% of water used in each household would be disposed of and treated as effluent.

**Table 6 Proposed effluent generated**

	litres	cubic metres
Litres used per person (medium income)	128,25	0,13
No. people per unit	4,00	0,00
No. units	120,00	0,12
Effluent generated per day	61 560,00	61,56
Effluent generated per month	1 846 800,00	1 846,80
Effluent generated per year	22 161 600,00	22 161,60

Note that the effluent generated has been assessed: as per 120 units and 4 people per unit.

The annual volume of effluent generated from the proposed development, and required to be treated via the municipal WWTW would be **22 161 cubic metres per year**.

A Service Level Agreement for effluent connection, removal and treatment is required between the developer and the Mpofana Municipality / uMgungundlovu District. This should be a condition of the Environmental Authorisation.

Comment is sought from the relevant municipal office in this regard.

#### **9.4 Stormwater Management**

The increase in hard surfaces, as a result of roofing and buildings has the potential to increase peak stormwater flows.

The objective of stormwater management is to propose structural and management controls to prevent stormwater runoff from having detrimental impacts on the receiving environment.

The following controls must be implemented at the Bruntville site-

- All effluent and stormwater generated from the housing development should be managed and processed outside of designated buffer zones.
- Correctly spaced curbing at the edge of the parking area would allow access at frequent intervals for runoff off the parking area into a vegetated bed.
- Erosion control measures must be considered to support the parking bay retention bank from undercutting.
- Natural rockeries should be installed at outflow points off the retaining wall to reduce runoff velocity and dissipate energy – thus reducing potential for erosion.
- Indigenous vegetation should be encouraged in the parking area.
- Erosion protection should be established through the means of planting indigenous vegetation, or securing natural rockeries to create formal 're-entry' points for all stormwater.
- Appropriate erosion and protection barriers/structures should be considered for stockpile and movement areas.
- Appropriate erosion and energy dissipation features (rockeries / densely vegetated area) must be created in concentrated flow / outflow area where soil wash is possible.
- Vehicles should be continually monitored for oil and fuel leaks to prevent contamination of stormwater runoff.
- Vehicles/machinery should be parked away from the watercourse and buffer zones when not in use.
- The establishment of grass, plants and trees on site would cause the majority of runoff water to be collected by the vegetation and percolate into the soil.
- Jojo tanks would be installed to collect runoff water from the roof and store it for gardening purposes.

#### **9.5 Air emission**

##### **During construction**

During the construction phase, dust would be created due to earth-moving and heavy vehicles accessing the site. Exhaust fumes would also be emitted from construction vehicles and machinery.

Construction would be short-lived and air emission are not considered to be of significant impact. To mitigate dust during construction, shade cloth would be placed around site, and the dusty surfaces sprayed periodically with water.

##### **During operation**

During operation, surfaces would be hardened or grassed – allowing for minimal to no dust.

## 9.6 Energy

Electricity for the residential development would be sourced from the municipality.

A Service Level Agreement for electricity provision is required between the developer and the Mpofana Municipality / uMgungundlovu District. This should be a condition of the Environmental Authorisation.

Comment is sought from the relevant municipal office in this regard.

The following means to increase energy efficiency will be encouraged–

- Use of natural ventilation and lighting as far as possible;
- Provision of low energy lighting (power saving light bulbs);
- Thermostatic heater controlled devices;
- Geyser timers to reduce unnecessary heating.

## 9.7 Viewshed

### During construction

The property lies adjacent to the N3 and toll gates at Mooi River, approximately 80m away. A shade cloth screen around the site must be established during construction to prevent disturbance to motorists on the N3 and adjoining roads.

### During operation

The proposed residential development would be consistent with the surrounds/existing of residential homes in Bruntville, therefore the operation of the proposed housing should pose no disturbance once built.

The South African National Roads Agency (SANRAL) has been registered as an IAP on this project and has been invited to comment on the proposed development and raise any concerns they may have in this regard.

## 9.8 Noise

### During construction

Construction would generate noise consistent with building activities. This would be within managed limits and for a short duration.

Due to the residential nature of the site, there would be no construction activities on weekends and public holidays.

### During operation

During operation the generation of noise would be consistent with surrounding residential land use.

Noise impacts are not considered significant.

## 9.9 Freshwater

There are no watercourses on the proposed site; and the closest watercourse is 85m away from the site.

Appropriate buffers (100m is applied to FEPA systems) have been put in place.

The EMPr outlines control measures to ensure watercourses in proximity to the site are not impacted on during construction and operation.

The EMPr and subsequent ECO monitoring would check that no form of secondary pollution would arise from the disposal of refuse or sewage from the construction toilets.

## 9.10 Cultural / historical

The proposed site is on land that is vacant and derelict, in an urban and disturbed setting.

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

There will be no building or structure older than 60 years affected in any way.

Therefore a Heritage Impact Assessment has not been undertaken.

However, due to the fact that the proposed development would exceed 5 000 m<sup>2</sup> in extent, and may change the character of the site, it is necessary to submit the application to Amafa via the SAHRIS website.

Amafa KwaZulu-Natal Heritage Council have been invited to provide comment in this application and guide any permitting process which may be required.

### 9.11 Biodiversity

Using the Conservation Planning Software (C-Plan) tool in MINSET it is possible to determine the importance of biodiversity conservation of a specific location.

In the case of Bruntville site, the development footprint does not encroach on any biodiversity priority areas. The majority of the site is an unplanned unit and a small section is noted as transformed. See the figure below.

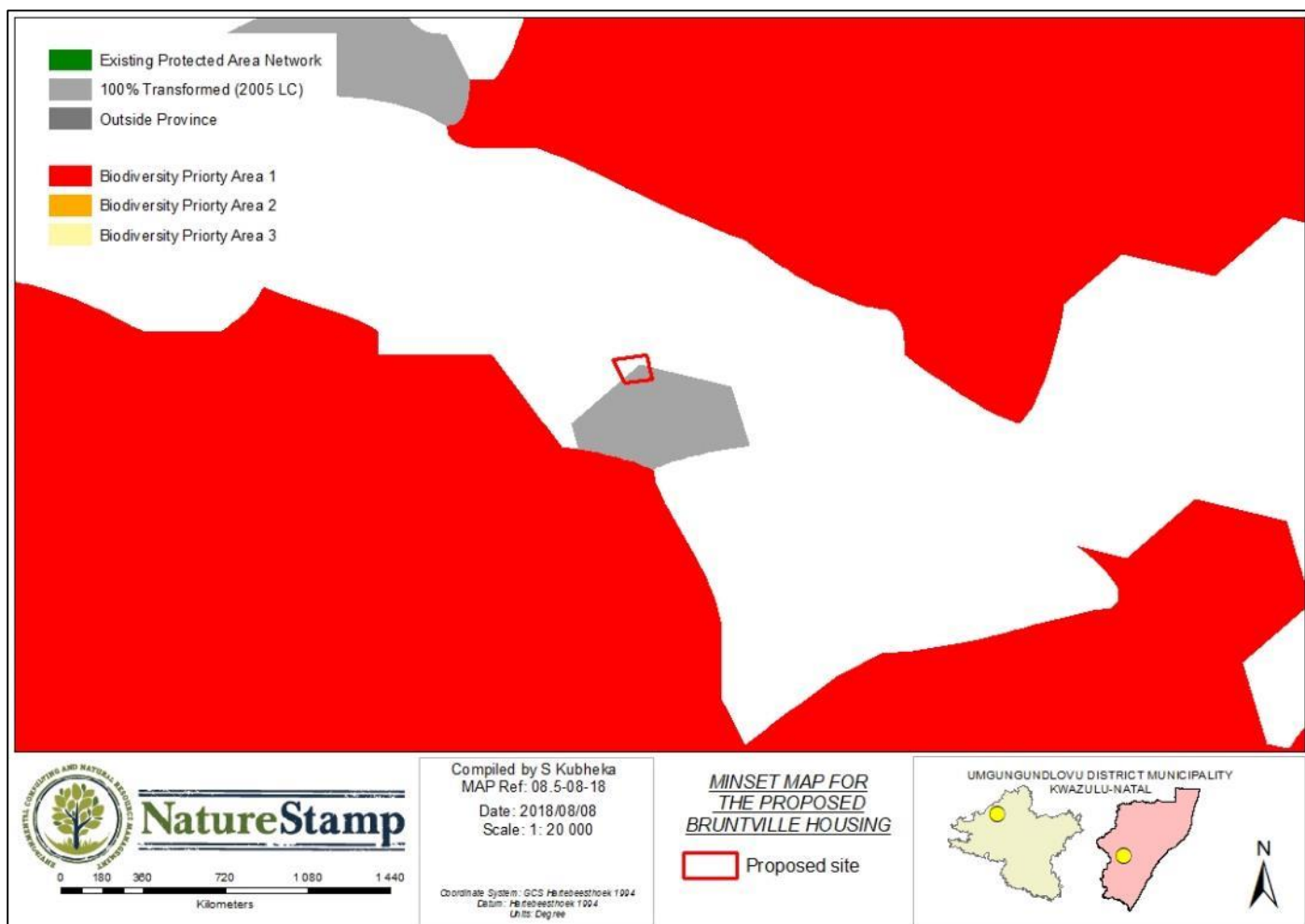


Figure 5 Minset Classification Map for the proposed Bruntville housing

The outcome of the MINSET planning tool is consistent with the watercourse and vegetation specialist studies conducted on the site, which reveal no features of biodiversity significance.

## 9.12 Spatial Planning

According to the UMgungundlovu District Municipality SDF (2018), the proposed Bruntville site is found on land designated for 'Infrastructure and Housing Development'.

See an extract from the SDF in the figure below.

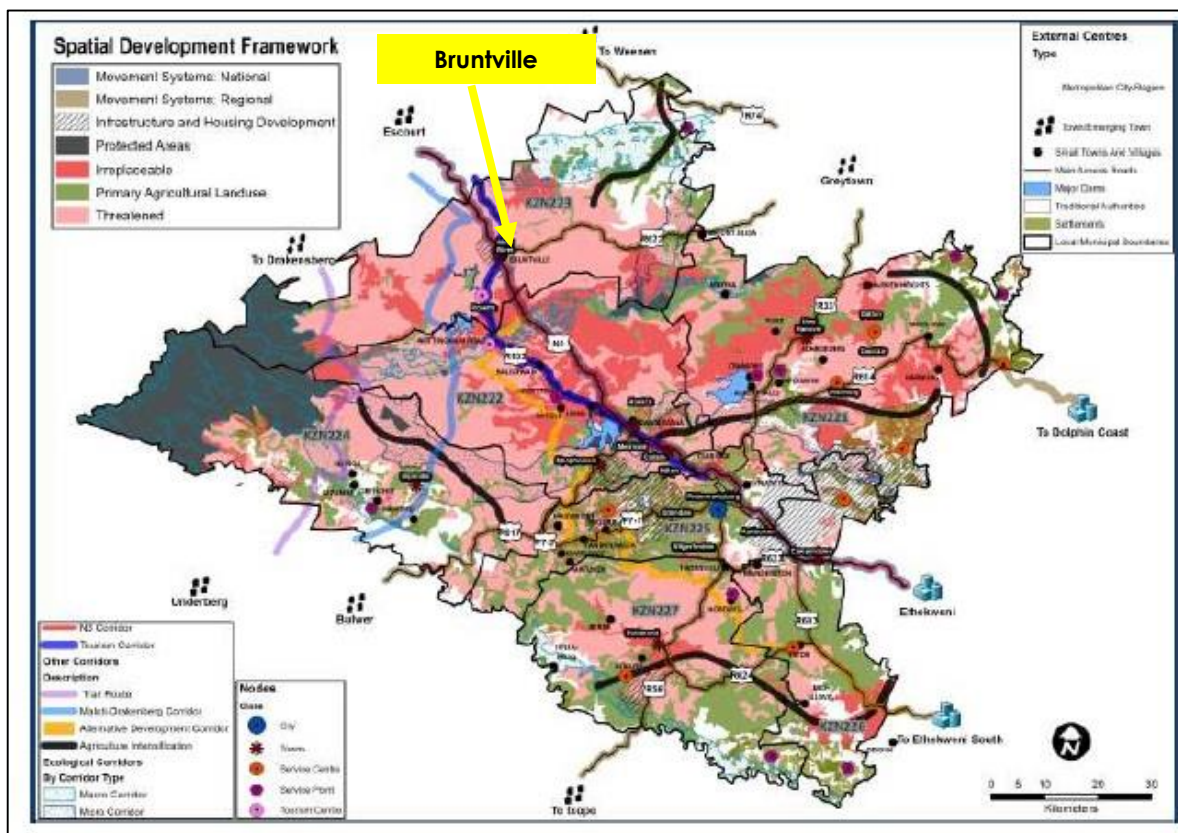


Figure 6 Extract from UMgungundlovu District Municipality (2018)

Thus the proposed housing development - which is residential landuse - is in line with the municipal spatial development planning for the area.

## 9.13 Surrounding landuse

The following landuses and/or prominent features that occur within a 500m radius of the proposed site, and how these landuses impact on / are impacted on by the proposed development are given in the table below.

Table 7 Landuses within 500m of the proposed development

Land use character			Description of impact
Natural area		<del>NO</del>	
Low density residential		<del>NO</del>	
Medium density residential	YES		The Bruntville area comprises of residential homes and associated garden.
High density residential		<del>NO</del>	
Informal residential		<del>NO</del>	
Retail commercial & warehousing	YES		The Engen petrol filling station is located within 350m (west) from the proposed site.
Light industrial		<del>NO</del>	
Medium industrial		<del>NO</del>	
Heavy industrial		<del>NO</del>	
Power station		<del>NO</del>	
Office/consulting room		<del>NO</del>	
Military or police base/station/compound		<del>NO</del>	



Spoil heap or slimes dam		<del>NO</del>	
Quarry, sand or borrow pit		<del>NO</del>	
Dam or reservoir		<del>NO</del>	
Hospital/medical centre		<del>NO</del>	
School/ crèche		<del>NO</del>	
Tertiary education facility		<del>NO</del>	
Church		<del>NO</del>	
Old age home		<del>NO</del>	
Sewage treatment plant		<del>NO</del>	
Train station or shunting yard		<del>NO</del>	
Railway line		<del>NO</del>	
Major road (4 lanes or more)	YES		The proposed site is located adjacent to a National Route (N3) and Mooi River toll gate.
Airport		<del>NO</del>	
Harbour		<del>NO</del>	
Sport facilities		<del>NO</del>	
Golf course		<del>NO</del>	
Polo fields		<del>NO</del>	
Filling station	YES		The Engen petrol filling station is located within 350m (west) from the proposed site.
Landfill or waste treatment site		<del>NO</del>	
Plantation		<del>NO</del>	
Agriculture		<del>NO</del>	
River, stream or wetland	YES		Wetlands more than 85m away from the proposed site.
Nature conservation area		<del>NO</del>	
Mountain, hill or ridge		<del>NO</del>	
Museum		<del>NO</del>	
Historical building		<del>NO</del>	
Protected Area		<del>NO</del>	
Graveyard		<del>NO</del>	
Archaeological site		<del>NO</del>	
Other land uses (describe)		<del>NO</del>	

## 10. IMPACT SUMMARY AND SCORING

### 10.1 Ranking of environmental issues and risks

All potential environmental issues and risks that were identified during the environmental impact assessment process can be found in sections 8 and 9 accordingly.

These risks are ranked according to primary and secondary, as follows-

#### Primary risks

The following potential impacts have been identified by the EAP as key environmental risks should the proposed piggery expansion be approved –

- Potential impact of residential development on vegetation on site;
- Potential impacts of residential development on wetlands in nearby; and
- Traffic impacts associated with development.

#### Secondary risks

The following potential impacts have been identified by the EAP as minor and associated environmental risks should the proposed piggery expansion be approved –

- Impacts of poor stormwater management (water contamination and soil erosion).

### 10.2 Significant scoring of impacts

An assessment of the significance of the primary risks has been undertaken, including –

- the nature, significance and consequences of the impact and risk

- the extent and duration of the impact and risk
- the probability of the impact and risk occurring
- the degree to which the impact and risk can be reversed
- the degree to which the impact and risk may cause irreplaceable loss of resources; and
- the degree to which the impact and risk can be mitigated.

During this process the primary impacts are evaluated prior to mitigation as well as post-mitigation to determine the necessary steps that need to be taken to reduce the overall effect of the development on the environment.

The significance scoring sheets, displaying the pre-mitigation and post-mitigation scores as well as their overall meaning, can be found in Annexure D1.

Prior to mitigation the total significance score for potentially negative impacts amounted to **8.2**, which falls within the 8-20 scoring category and translates to **“material / important to investigate”**. This means the impacts are of importance and are therefore considered to have a substantial impact. Mitigation is required to reduce the negative impacts and such impacts need to be evaluated carefully.

Post-mitigation the total significance score for potentially negative impacts was reduced to **5.4**, which falls within the 5-7 scoring category and translates to **“marginal / slight / minor”** significance. This means the impact is of little importance, but may require limited mitigation; or it may be rendered acceptable in light of proposed mitigation.

See the EMPr in Annexure G1 for further details on proposed mitigation measures in relation to the development in Bruntville.

### 10.3 Management of impacts

The following table provides the primary and secondary potential impacts and the mitigation measures put forward to avoid, reduce or manage the impacts accordingly.

See the EMPr for management of all environmental risks.

**Table 8 Potential impacts of the development and mitigation measures**

Detail of potential impact	Mitigation measure proposed
<b>Primary risks</b>	
<b>Potential impact of residential development on vegetation on site</b>	<p><b>During Construction</b></p> <ul style="list-style-type: none"> <li>• No plants of conservation concern identified onsite, construction will not affect vegetation.</li> <li>• It was concluded that the site was transformed.</li> </ul> <p><b>During Operation</b></p> <ul style="list-style-type: none"> <li>• Primary grassland areas surrounding the site must be kept intact wherever possible.</li> </ul>
<b>Potential impacts of residential development on wetlands in nearby</b>	<p><b>During Construction</b></p> <ul style="list-style-type: none"> <li>• All effluent and stormwater generated from the housing development must be managed and processed outside of designated buffer zones.</li> <li>• A generic 'no development' buffer of 100m must be applied to FEPA systems (the proposed site is more than 100 meters away from these identified systems apart from a small section that has been historically developed)</li> <li>• A 32m buffer must be applied to a series of modified and disturbed wetlands were identified within 500 meters of the proposed site (most of these systems are as a result of flow from the N3 and effluent from households).</li> </ul> <p><b>During Operation</b></p> <ul style="list-style-type: none"> <li>• Effluent managed via municipal waterborne sewage line.</li> <li>• During operation of the new housing development, the ECO must continue to conduct operational audits every 6 months for the first two years of operation, paying specific attention to potential impact on the watercourses in close proximity.</li> </ul>
	<p><b>During Construction</b></p> <ul style="list-style-type: none"> <li>• The proposed development access will be via 1st Main Avenue.</li> </ul>

<p><b>Traffic impacts associated with development</b></p>	<ul style="list-style-type: none"> <li>• The proposed access will cater for full directional movements and will need to be a minimum of 6 meters wide to accommodate two-way vehicle movements.</li> <li>• Good line of site is to be maintained.</li> <li>• Possible introduction of signs to indicate residential flats, turning vehicles and speed limits.</li> <li>• The access must be designed in accordance with Mpofana Local Municipality standards and specifications.</li> </ul> <p><b>During Operation</b></p> <ul style="list-style-type: none"> <li>• All gates must remain open during normal operating hours.</li> <li>• All driveway ramps are to have a maximum gradient of 15% with a minimum 30m vertical curve radius.</li> <li>• All parking facilities, accesses and driveways are to be designed and dimensioned in accordance with the schedule of guidelines for off-street parking.</li> </ul>
<p><b>Secondary risks</b></p>	
<p><b>Impacts of poor stormwater management (water contamination and soil erosion).</b></p>	<ul style="list-style-type: none"> <li>• All effluent and stormwater generated from the housing development must be managed and processed outside of designated buffer zones.</li> <li>• Correctly spaced curbing at the edge of the parking area would allow access at frequent intervals for runoff off the parking area into a vegetated bed.</li> <li>• Erosion control measures must be considered to support the parking bay retention bank from undercutting.</li> <li>• Natural rockeries must be installed at outflow points off the retaining wall to reduce runoff velocity and dissipate energy – thus reducing potential for erosion.</li> <li>• Indigenous vegetation must be encouraged in the parking area.</li> <li>• Erosion protection must be established through the means of planting indigenous vegetation, or securing natural rockeries to create formal 're-entry' points for all stormwater.</li> <li>• Appropriate erosion and protection barriers/structures must be considered for stockpile and movement areas.</li> <li>• Appropriate erosion and energy dissipation features (rockeries / densely vegetated area) must be created in concentrated flow / outflow area where soil wash is possible.</li> <li>• Vehicles must be continually monitored for oil and fuel leaks to prevent contamination of stormwater runoff.</li> <li>• Vehicles/machinery must be parked away from the watercourse and buffer zones when not in use.</li> <li>• The establishment of grass, plants and trees on site would cause the majority of runoff water to be collected by the vegetation and percolate into the soil.</li> </ul>

## 11. PUBLIC PARTICIPATION

All requirements in terms of Section 41 of the EIA Regulations (2014, amended 2017) have been undertaken.

Through the EIA process, NatureStamp makes very effort to ensure that information containing all relevant facts in respect of the application is made available to potential IAPs and participation by potential or registered IAPs is facilitated in such a manner that all potential or registered IAPs are provided with a reasonable opportunity to comment on the application, as guided by the regulations.

### 11.1 Notification of proposed application

#### Site notices

On the 26<sup>th</sup> September 2018, four (4) site notices were placed in clearly visible positions, as follows –

- The development site fence;
- The N3 freeway exit/off-ramp into Bruntville;
- The residential area adjacent to the site; and
- The Engen Garage in Mooi River.

See evidence of site notices in Annexure E5.

**Written notice by way of a Background Information Document (BID)** to occupiers of the site and, if the proponent or applicant is not the owner or person in control of the site on which the activity is to be undertaken, the owner or person in control of the site where the activity is or is to be undertaken and to any

alternative site where the activity is to be undertaken; owners, persons in control of, and occupiers of land adjacent to the site where the activity is or is to be undertaken and to any alternative site where the activity is to be undertaken; the municipal councillor of the ward in which the site and alternative site is situated and any organisation of ratepayers that represent the community in the area; the municipality which has jurisdiction in the area; any organ of state having jurisdiction in respect of any aspect of the activity; any other party as required by the competent authority:

A Background Information Document (BID) was distributed to all IAP's on 04<sup>th</sup> October 2018, to inform IAPs of the proposed development and encourage them to voice any concerns or issues they may have with the proposed development. BIDS were circulated by way of email and post.

See IAP Register and BID in Annexure E3 and E4 respectively.

**Placing an advertisement in local newspaper**

A newspaper advertisement was placed in The Witness on the 21<sup>st</sup> September 2018 to notify any additional members of the public that may be interested in the development.

Evidence of this can be seen in Annexure E6.

**Other efforts** to assist IAPs desirous of but unable to participate in the process due to illiteracy, disability, or disadvantage, included –

- The option of a public and/or stakeholder meeting to address any issues and concerns that have been raised by IAP's has been made available. To date there has not been major interest shown in the project and no public meeting has been held.
- There has been ongoing attempts to engage with the ward councillor, with limited response / interest.
- On the 26<sup>th</sup> September 2018, the EAP handed out information brochures in isiZulu to passers-by to the site (see Annexure E7).
- Site notices were provided in English and isiZulu.

**11.2 IAP comments**

Three comments have been received to date in response to the BID. The commenters and their relevant departments are listed below and are reflected in the full Comments and Response table available in Annexure E2:

- i. N. Sontangane - Department of Agriculture, Forestry and Fisheries (DAFF)
- ii. K. Moodley - DAFF
- iii. N. Dlamini – Ezemvelo KZN Wildlife.

The draft BAR is currently being circulated to all registered IAPs for 30 days, from the 24<sup>th</sup> January to 22<sup>nd</sup> February 2019 to invite further comments. Stakeholders are provided with their own hard copy or electronic (cd / Drop box) report, as requested. The public hardcopy of the report will be made available at the Mooi River Library (10 Cloughton Terrace).

IAPs have been notified of every step of the proceedings and their opportunity to comment.

Comments on the draft BAR will be individually addressed and considered, with any further follow-up and changes to the project plan considered. All comments will be incorporated into the final BAR.

**11.3 Summary of IAP issues**

A summary of the IAP issues raised, and attendance to such, is provided in the table below.

**Table 9 Summary of IAP issues raised and response**

Issue	Response / attendance within project
<b><u>Department of Agriculture, Forestry and Fisheries</u></b> <b><u>Commentator: N Sontangane</u></b> <b><u>Date: 05 October 2018</u></b>	Noted.

Acknowledgement of receipt of the BID.	
<p><b><u>Department of Agriculture, Forestry and Fisheries</u></b>  <b><u>Commentator: Karen Moodley</u></b>  <b><u>Date: 30 October 2018</u></b></p> <p>Potential impact on the vegetation on site, the Department therefore requested that the vegetation assessment that will be commissioned during the Draft Basic Assessment stage be forwarded to DAFF for further review and comment.</p>	<p>Vegetation Assessment was forwarded to DAFF.</p> <p>It was concluded that the site was transformed and not representative of the Mooi River Grassland. No plants of conservation concern were found on the site and it was highly unlikely that any would occur, this is consistent with other studies done on degraded Midlands grasslands, where red data species were also absent.</p>
<p><b><u>Ezemvelo KZN Wildlife</u></b>  <b><u>Commentator: Noluthando Dlamini</u></b>  <b><u>Date: 14 November 2018</u></b></p> <p>Ezemvelo would not be providing comment on the application, but trust that all significant biodiversity related concerns have been clearly identified and made known in this assessment together with appropriate measures (viz. avoid, mitigate and thereafter ameliorate) to safeguard the ecological integrity of the developable area. Potential impacts upon biodiversity will be evaluated by the Competent Authority who may, upon identification of a potential biodiversity concern, refer the biodiversity concern to this organisation for evaluation and advice regarding the specific concern, prior to making a decision.</p>	Noted.
<p><b><u>Department of Agriculture, Forestry and Fisheries</u></b>  <b><u>Commentator: Karen Moodley</u></b>  <b><u>Date: 24 November 2018</u></b></p> <p>Acknowledgement of receipt of the vegetation assessment.</p>	Noted.
<p><b><u>Department of Agriculture, Forestry and Fisheries</u></b>  <b><u>Commentator: Karen Moodley</u></b>  <b><u>Date: 11 December 2018</u></b></p> <p>DAFF has no objection towards the proposed project as there are no natural forests or protected trees that will be affected by the proposed project.</p>	Noted.

## 12. ASSUMPTIONS AND KNOWLEDGE GAPS

Assumptions, uncertainties and gaps in knowledge which relate to the assessment and mitigation measures proposed are as follows –

- The surveyor general contour data has a limited accuracy.
- National and provincial databases that were used are of limited accuracy.
- The watercourse desktop delineation provides an over-conservative estimate of wetland areas where these are clear. Wetlands that have been transformed may have been missed although a historical investigation was undertaken.
- Being early spring, some of the summer-flowering plants may not have been seen, including species of conservation concern; however, the botanical information was considered an adequate reflection of habitat condition.
- Given that a once-off study covered only the spring season, establishing whether plants of conservation concern occur on the site was incomplete. However, analysis of the condition of the vegetation was useful in determining whether any sensitive species or features were likely to occur.

- It was assumed that the entire site would be transformed by the proposed development.
- It is assumed that all design parameters and mitigation measures proposed in the EIA reports will be implemented by the Authorization Holder, should the development be authorized. The Significant Scoring of impacts is based on proposed mitigation measures being implemented.
- In the concluding statements, it is assumed that the Environmental Authorization would contain conditions proposed in the EIA report; and that all ongoing monitoring takes place. Compliance and enforcement post-authorization is critical.

## 13. CONCLUDING STATEMENTS

### 13.1 Environmental impact statement

It is important to assess an application holistically, addressing the social, economic and environmental factors influencing the project. This context for the proposed residential development in Bruntville is summarized below -

#### Social considerations

The need and desirability for the new housing development in Bruntville is measured against the contents of the IDP and SDF for the region and is found to align wholly within the ambit of these goals, objectives and spatial plans. The benefits of affordable, environmentally-sound and socially beneficial middle income housing include:

- New un-skilled employment opportunities would be created in the construction phase of the project for 50 workers as part of manual labour – earthwork and land preparation. All of which would be sourced from local previously disadvantaged individuals;
- New un-skilled employment opportunities would be created in the operational phase of the project for 5 workers in the form of manual labour;
- New skilled employment opportunities would be created in the operational phase of the project for 20 workers including architect, engineer, land surveyor, relevant specialists etc.;
- The design and construction of the housing development would create opportunities for skilled members within businesses of the private sector and therefore lead to skills development;
- Not less than minimal wage (likely to be more) for staff, improving the per capita earnings and benefiting the broader community;
- Improved housing availability for young professionals and other individuals working in and around Bruntville who cannot afford high income housing but do not qualify for government housing.

The proposed site is found along the N3 and adjacent to an existing residential area therefore, would be consistent with the current activity and residential use. Sense of Place would in no way be altered.

#### Economic considerations

There is a need for low-middle income housing in Mpofana, it must be provided in close proximity to areas of opportunity (Breaking New Ground: from Housing to Sustainable Human Settlement). Bruntville is located in close proximity to Mooi River where there are opportunities for jobs; and community members do not have to spend lot of money paying for transport (Mpofana Local Municipality IDP 2014/2015). Therefore, the proposed site would enhance the connectivity of economic improving activities within the Municipality.

Communities living in Bruntville have access to educational, health and recreational facilities (Mpofana Local Municipality IDP 2014/2015). The principle of self-sufficiency is promoted, it is essential that development be strategically located in a way that reduces the need to travel, especially by car and enables people as far as possible to meet their needs locally.

#### Environmental considerations

All potential environmental issues and risks that were identified during the environmental impact assessment process can be found in sections 8 and 9 accordingly.

These risks are ranked according to primary and secondary, as follows-

#### Primary risks -

- Potential impact of residential development on vegetation on site;



- Potential impacts of residential development on wetlands in nearby;
- Potential impact of residential development on existing service infrastructure; and
- Traffic impacts associated with development.

Secondary risks

- Impacts of poor stormwater management (water contamination and soil erosion).

The following table provides the primary and secondary potential risks and the mitigation measures put forward to avoid, reduce or manage the impacts accordingly.

See the EMPr for management of all environmental risks.

**Table 10 Summary of impacts and mitigation**

<b>Detail of potential impact</b>	<b>Mitigation measure proposed</b>
<b>Primary risks</b>	
<b>Potential impact of residential development on vegetation on site</b>	<p><b>During Construction</b></p> <ul style="list-style-type: none"> <li>• No plants of conservation concern identified onsite, construction will not affect vegetation.</li> <li>• It was concluded that the site was transformed.</li> </ul> <p><b>During Operation</b></p> <ul style="list-style-type: none"> <li>• Primary grassland areas surrounding the site must be kept intact wherever possible.</li> </ul>
<b>Potential impacts of residential development on wetlands in nearby</b>	<p><b>During Construction</b></p> <ul style="list-style-type: none"> <li>• All effluent and stormwater generated from the housing development must be managed and processed outside of designated buffer zones.</li> <li>• A generic 'no development' buffer of 100m must be applied to FEPA systems (the proposed site is more than 100 meters away from these identified systems apart from a small section that has been historically developed)</li> <li>• A 32m buffer must be applied to a series of modified and disturbed wetlands were identified within 500 meters of the proposed site (most of these systems are as a result of flow from the N3 and effluent from households).</li> </ul> <p><b>During Operation</b></p> <ul style="list-style-type: none"> <li>• Effluent managed via municipal waterborne sewage line.</li> <li>• During operation of the new housing development, the ECO must continue to conduct operational audits every 6 months for the first two years of operation, paying specific attention to potential impact on the watercourses in close proximity.</li> </ul>
<b>Traffic impacts associated with development</b>	<p><b>During Construction</b></p> <ul style="list-style-type: none"> <li>• The proposed development access will be via 1st Main Avenue.</li> <li>• The proposed access will cater for full directional movements and will need to be a minimum of 6 meters wide to accommodate two-way vehicle movements.</li> <li>• Good line of site is to be maintained.</li> <li>• Possible introduction of signs to indicate residential flats, turning vehicles and speed limits.</li> <li>• The access must be designed in accordance with Mpofana Local Municipality standards and specifications.</li> </ul> <p><b>During Operation</b></p> <ul style="list-style-type: none"> <li>• All gates must remain open during normal operating hours.</li> <li>• All driveway ramps are to have a maximum gradient of 15% with a minimum 30m vertical curve radius.</li> <li>• All parking facilities, accesses and driveways are to be designed and dimensioned in accordance with the schedule of guidelines for off-street parking.</li> </ul>
<b>Secondary risks</b>	
<b>Impacts of poor stormwater management (water contamination and soil erosion).</b>	<ul style="list-style-type: none"> <li>• All effluent and stormwater generated from the housing development must be managed and processed outside of designated buffer zones.</li> <li>• Correctly spaced curbing at the edge of the parking area would allow access at frequent intervals for runoff off the parking area into a vegetated bed.</li> <li>• Erosion control measures must be considered to support the parking bay retention bank from undercutting.</li> <li>• Natural rockeries must be installed at outflow points off the retaining wall to reduce runoff velocity and dissipate energy – thus reducing potential for erosion.</li> </ul>

	<ul style="list-style-type: none"> <li>• Indigenous vegetation must be encouraged in the parking area.</li> <li>• Erosion protection must be established through the means of planting indigenous vegetation, or securing natural rockeries to create formal 're-entry' points for all stormwater.</li> <li>• Appropriate erosion and protection barriers/structures must be considered for stockpile and movement areas.</li> <li>• Appropriate erosion and energy dissipation features (rockeries / densely vegetated area) must be created in concentrated flow / outflow area where soil wash is possible.</li> <li>• Vehicles must be continually monitored for oil and fuel leaks to prevent contamination of stormwater runoff.</li> <li>• Vehicles/machinery must be parked away from the watercourse and buffer zones when not in use.</li> <li>• The establishment of grass, plants and trees on site would cause the majority of runoff water to be collected by the vegetation and percolate into the soil.</li> </ul>
--	--

### 13.2 Balance of Impacts

The following tables reflects a summary of the positive and negative impacts and risks of the proposed activity.

**Table 11 Summary of positive and negative impacts**

	Positive impact	Negative impact
<b>Development of residential housing complex</b>	<ul style="list-style-type: none"> <li>• Creation of job opportunities for skilled personnel (e.g. architect, engineer, land surveyor, etc.).</li> <li>• Provision of temporary job opportunities during the Construction Phase (for engineers, labourers etc.).</li> <li>• Development of permanent jobs during the operational phase (gardeners, domestic workers)</li> <li>• Potential for skills development of the local community through employment opportunities.</li> <li>• Revenue for local businesses supplying the contractors (i.e. construction materials).</li> <li>• Potential revenue for neighbouring businesses through increased customers</li> <li>• Provision of housing – established need of the Ward 1.</li> </ul>	<ul style="list-style-type: none"> <li>• Potential for the site and surrounding areas to become polluted if construction activities are not properly managed (e.g. oil / fuel spills, litter from personnel on-site, etc.).</li> <li>• Stormwater runoff may be increased due to cleared areas, and therefore increase the erosion potential off the site.</li> <li>• Slow-moving construction vehicles on the roads may cause traffic congestion.</li> <li>• Potential for construction labour to trespass onto neighbouring properties and cause security issues.</li> </ul>
<b>No-go</b>	<ul style="list-style-type: none"> <li>• Potential pollution created by construction activities would not occur.</li> <li>• Dust and noise would not increase.</li> <li>• Stormwater run-off would remain unchanged.</li> <li>• Traffic on the surrounding roads would remain unchanged.</li> <li>• Neighbouring businesses would not be affected by construction activities or workers.</li> </ul>	<ul style="list-style-type: none"> <li>• No further employment opportunities would be created during construction nor operation.</li> <li>• Potential skills development would not take place.</li> <li>• No housing developed as needed for Ward 1.</li> <li>• Site would continue to be derelict and have the potential to degrade further.</li> </ul>

### 13.3 Proposed monitoring and auditing schedule

Upon commencement of construction of the new housing development, an Environmental Control Officer (ECO) should be appointed to conduct audits (based on the conditions of the Environmental Authorization and approved EMPr) of the **site monthly for the duration of the construction phase**. Audit reports should be compiled after every visit and submitted to the DEDTEA: Compliance, Enforcement and Monitoring Unit (CME).

During operation of the new housing development, the ECO should continue to conduct **operational audits every 6 months for the first two years of operation**. Audit reports should be compiled after every visit and submitted to the DEDTEA: CME.

## 13.4 Proposed conditions of the Environmental Authorization

Considering all information gathered in the EIA process – including the project details, the site, the need and desirability, relevant environmental legislation, engineering input and comments from IAPs - the EAP makes the following recommendations that should be included as conditions of Environmental Authorization:

### General

- A Service Level Agreement - including the provision of potable water, electricity; and the removal of general waste and effluent – must be entered into between the developer and the Mpofana Municipality / uMgungundlovu District. This must be submitted to the DEDTEA before the commencement of construction.
- The configuration for the proposed development must be in alignment with the proposed site layout plan seen in Annexure B2.
- All construction and operational activities should take place within the guidelines of the EMPr.
- The footprint of the development should not extend beyond the boundaries of the property. Once operational - a body corporate, or equivalent management body should be established to ensure that all legislation, bylaws and community resolutions are catered for in the establishment's rules and regulations.
- All relevant parties, including the proponent, all project managers, contractors and sub-contractors must be aware of their responsibility for compliance with the provisions for the Duty of care and remediation of environmental damage contained in Section 28 of NEMA.
- An Environmental Awareness Briefing must take place prior to construction to educate and inform construction workers of appropriate waste management and the impacts that litter and rubbish can have on the environment.
- The construction area must be clearly identified including access roads, stockpile or excavation areas, storage facilities and parking areas.
- All conditions of the EMPr should be adhered to.

### Mitigation of impacts on vegetation on site

- Primary grassland areas surrounding the site must be kept intact wherever possible.

### Mitigation of impacts on wetlands nearby, water resources and downstream users

- All effluent and stormwater generated from the housing development must be managed and processed outside of designated buffer zones.
- A generic 'no development' buffer of 100m must be applied to FEPA systems (the proposed site is more than 100 meters away from these identified systems apart from a small section that has been historically developed)
- A 32m buffer must be applied to a series of modified and disturbed wetlands were identified within 500 meters of the proposed site.
- Effluent managed via municipal waterborne sewage line.
- During operation of the new housing development, the ECO must continue to conduct operational audits every 6 months for the first two years of operation, paying specific attention to potential impact on the watercourses in close proximity.
- Vehicles or machinery must not be serviced or re-fuelled within 100m of the watercourse zones.
- No washing of construction equipment and vehicles must be allowed from the watercourses.

### Mitigation of impacts of traffic impacts associated with development

- The proposed development access will be via 1st Main Avenue.
- The proposed access will cater for full directional movements and will need to be a minimum of 6 meters wide to accommodate two-way vehicle movements.
- Good line of site is to be maintained.
- Possible introduction of signs to indicate residential flats, turning vehicles and speed limits.
- The access must be designed in accordance with Mpofana Local Municipality standards and specifications.
- All gates must remain open during normal operating hours.
- All driveway ramps are to have a maximum gradient of 15% with a minimum 30m vertical curve radius.
- All parking facilities, accesses and driveways are to be designed and dimensioned in accordance with the schedule of guidelines for off-street parking.

### **Mitigation of impacts of poor stormwater management (water contamination and soil erosion)**

- All effluent and stormwater generated from the housing development must be managed and processed outside of designated buffer zones.
- Correctly spaced curbing at the edge of the parking area would allow access at frequent intervals for runoff off the parking area into a vegetated bed.
- Erosion control measures must be considered to support the parking bay retention bank from undercutting.
- Natural rockeries must be installed at outflow points off the retaining wall to reduce runoff velocity and dissipate energy – thus reducing potential for erosion.
- Indigenous vegetation must be encouraged in the parking area.
- Erosion protection must be established through the means of planting indigenous vegetation, or securing natural rockeries to create formal 're-entry' points for all stormwater.
- Appropriate erosion and protection barriers/structures must be considered for stockpile and movement areas.
- Appropriate erosion and energy dissipation features (rockeries / densely vegetated area) must be created in concentrated flow / outflow area where soil wash is possible.
- Vehicles must be continually monitored for oil and fuel leaks to prevent contamination of stormwater runoff.
- Vehicles/machinery must be parked away from the watercourse and buffer zones when not in use.
- The establishment of grass, plants and trees on site would cause the majority of runoff water to be collected by the vegetation and percolate into the soil.

### **13.5 Reasoned opinion of EAP on Environmental Authorization**

If the development proceeds in the manner outlined in this report, with adequate compliance, enforcement and monitoring, it is the opinion of the EAP that the -

*For the proposed establishment of a residential development, on Portion 23 of 5, Farm lot H of Weston No. 13026 in Bruntville, Mooi River, Mpofana Local Municipality, uMgungundlovu District of KwaZulu-Natal*

- should be granted Environmental Authorization.