





NGCAWUSHENI - VUKUZITHATHE PHASE 3, RAY NKONYENI MUNICIPALITY

ENVIRONMENTAL SCREENING REPORT

REVISION 2

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Environmental Screening Report: NGCAWUSHENI - VUKUZITHATHE PHASE 3, RAY NKONYENI MUNICIPALITY

TABLE OF CONTENTS

1. Project description	4
1.1 Purpose of the screening report	4
1.2 Assumptions and limitations	5
2. NEED AND DESIRABILITY	5
3. DESCRIPTION OF THE ENVIRONMENT	6
3.1 Locality and Landuse	6
3.2 Climate	7
3.3 Topography	7
4. BIODIVERSITY AND CONSERVATION PLANNING	7
4.1 Background	7
4.2 Conservation planning	8
4.3 Vegetation type	9
4.4 Conservation important plants	10
4.5 Wetlands and drainage lines	11
5. CULTURAL AND ARCHAEOLOGICAL HERITAGE	13
6. SOCIO-ECONOMIC ENVIRONMENT	13
7. SENSE OF PLACE	14
8. ACCESS AND TRAFFIC	15
9. AIR QUALITY	15
10. EXISTING INFRASTRUCTURE AND SERVICES IN OR AROUND THE DEVELOPMENT AREA .	16
10.1 Electricity supply	16
10.2 Potable water	16
10.3 Wastewater disposal	16
10.4 Refuse removal	17
11. APPLICABLE ENVIRONMENTAL LEGISLATION	17
11.1 National Environmental Management Act (Act No. 107 of 1998 as amended)	18
11.2 Biodiversity	19
11.3 The National Heritage Resources Act (Act No 25 of 1999 As Amended)	20
11.4 The National Water Act (NWA), 1998 (Act 36 of 1998)	20
11.5 Other applicable legislations include the following:	20

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Environmental Screening Report: NGCAWUSHENI - VUKUZITHATHE PHASE 3, RAY NKONYENI MUNICIPALITY

12. CONCLUSION AND RECOMMENDATIONS	21
12.1 Environmental issues	21
12.2 Environmental Impact Assessment process	23
REFERENCES	24
APPENDICES	25
Appendix 1 Locality Map	26
Appendix 2 DOT Road Network 2011.....	31
Appendix 3 DAFF Degraded Land Classification 2012.....	32
Appendix 4 Ezemvelo KZN Wildlife MINSET Map 2010	33
Appendix 5 Threatened ecosystems	34
Appendix 6 2011 Shaw & Escott Vegetation Map	35
Appendix 7 2011 NFEPA Wetland Areas and 2006 CDSM Watercourses.....	36

INTRODUCTION

1. Project description

Afzelia Environmental Consultants (Pty) Ltd has been appointed by Umpheme Development (Pty) Ltd to undertake an environmental screening for the proposed Vukuzithathe Phase 3 (Ngcawusheni) Rural housing project: Ward 30. The project is an initiative by Ray Nkonyeni Municipality in partnership with the KZN Department of Human Settlements.

The proposed project involves the construction of 1000 housing units as an *in situ* upgrade i.e. new houses will be placed within the boundaries of existing homesteads.

The aim of a project such as this, is to address the housing demand which is still very high in this area, with 75% of residents living in semi-permanent dwellings (mud houses) or unsafe brick houses that need to be replaced by providing standardised houses.

The project seeks to achieve the following objectives:

- A reduction of the housing backlog;
- Development of institutional capacity to perform all functions related to housing within the Municipality in line with accreditation requirements;
- Promote the involvement of the private sector in dealing with the backlog to respond to “Breaking New Grounds”; and
- Promotion of intergovernmental co-ordination in housing delivery.

1.1 Purpose of the screening report

Environmental Screening is the process by which key environmental issues associated with a proposed development are anticipated at the earliest opportunity, and are considered as an integral part of the formulation of a site development plan. Potential significant environmental impacts are described, and corresponding mitigation options can then be accommodated within initial development designs.

This is achieved by:

- identifying any environmental and social fatal flaws¹ or red flag issues²;

¹ A “fatal flaw” is an environmental or social negative impact that is not possible to mitigate and significant enough to prevent the scheme from being able to be implemented.

² A “red flag issue” is a negative impact that, although significant, could be mitigated, but warrants special attention in the consideration of scheme alternatives.

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Environmental Screening Report: [NGCAWUSHENI - VUKUZITHATHE PHASE 3, RAY NKONYENI MUNICIPALITY](#)

- evaluating the site in terms of the proposed development;
- providing recommendations on management of environmental and social issues identified;
- providing guidance on legislative requirements; and
- identifying the environmental process/authorisations that may be required.

1.2 Assumptions and limitations

The following assumptions and limitations apply to this assessment:

- Due to the lack of information available the Environmental Assessment Practitioners (EAPs) have used best judgement and experience in similar housing developments to make the assumptions documented in this report;
- Modelled biodiversity databases have limitations in terms of accuracy;
- Geographic Information Systems (GIS) data does not depict the actual situation on the ground due to the accelerated development;
- **No detailed layout was supplied; so this report considers only the coarse desktop information available** and;
- As per the above point, units selected for upgrade may fall within wetland and riverine buffers or within areas that have not been disturbed or which may have a significant amount of indigenous vegetation thereon; consequently the *in situ* upgrade may need to be subjected to additional environmental investigation in the form of an “in-depth” environmental impact assessment.

2. NEED AND DESIRABILITY

The Ray Nkonyeni Municipality estimates that it requires 9000 houses. These are allocated in three areas namely:

- KwaNyuswa Traditional Authority: 3000
- Mthimude Traditional Authority: 3000
- Vukuzithathe Traditional Authority: 3000

Should the proposed project be pursued to implementation it is anticipated to contribute significantly towards skills development of a few locals through their participation in the construction phase. The construction phase of the project will also present the opportunity for short term employment.

Other motivating factors include:

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- Improvement of the safety of households by providing them safe housing;
- Improvement of the living standards of beneficiaries;
- Improvement to the aesthetics of the area; and
- The proposed project could be the draw card for infrastructural development in the area e.g. sewerage system, improved potable water supply, electricity and road upgrades.

3. DESCRIPTION OF THE ENVIRONMENT

3.1 Locality and Landuse

The study area covers an area of approximately 2900 Ha; traditional community areas such as Mdlazi, Ngcawusheni, Entaba and Gamthilini are located within the project boundaries. It is accessible from the N2 in the north. (See **Appendix 1** for the locality map).

The approximate centre of the study area can be found at the following GPS coordinates 30° 50' 47.64" S 30° 6' 26.17" E.

Izingolweni town is approximately 8.5km north of this location.

The area is rural in character and the settlements are (at broad level) spatially split and would appear to be non-functional in terms of service provision. Settlements are characterised by a linear and to some extent nucleated settlement pattern where most houses are built along the existing road networks that runs along the ridges within the site the slopes (See **Appendix 2** for road map).

Dwellings are made of a variety of materials, many of which do not meet the required standard of decent housing. Through the examination of Google Earth imagery it is apparent that some families are practising subsistence farming. The site borders on the Mtamvuna River which is the geographical border with the Eastern Cape and the primary drainage feature into which all other rivers within the project area flow.

Within the project area there is also more formalised infrastructure such as schools, clinics etc

Large areas within the project boundary are considered as vulnerable ecosystems, with the remainder considered least threatened. The South Eastern section of the proposed development is designated as a **Critical Biodiversity Area (CBA)** as per UKZN EDTEA (See **Appendix 4 and 5** - threatened ecosystem and critical biodiversity maps).

All three vegetation types found within the project area occur in the **CBA**; these being:

1) Dry Coast Hinterland Grassland, 2) Eastern Valley Bushveld and 3) Pondoland-Ugu Sandstone Coastal – see section 5.3 of this report for further information in this regard.

Implication

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Environmental Screening Report: **NGCAWUSHENI - VUKUZITHATHE PHASE 3, RAY NKONYENI MUNICIPALITY**

Due to the lack of information available as to which households are to be upgraded and where the new /replacement houses will be placed, it is difficult to state what impacts there will be on the receiving environment. The presence of a CBA within the project boundary will require further investigation in the form of flora, faunal, wetland and aquatic ecology impact assessments.

3.2 Climate

The climate on a municipal scale is characterised by warm to hot summers and mild with occasional moderate frost winters. The mean annual rainfall ranges between 700m and 800m and the mean annual temperature is 19.4°C.

3.3 Topography

The topography found on the site is best described as mountainous, with steep incised valleys that usually have rivers running through them. . The study area has several mountainous ridges separated by drainage lines that flow into the Mtamvuna River. Other rivers within the study area include the Qinqa and Mvolozi rivers. As calculated through Google Earth the average height of the site above sea level is 320m asl.

Implication

Due to the predominantly mountainous terrain appropriate engineering design will be fundamental to the sustainable development of this area. It is recommended that additional baseline studies be conducted to determine the state of the receiving environment when the layout and households to be upgraded are decided. This would then facilitate the compilation and implementation of effective mitigation measures such as erosion control etc on the steeper slopes within the proposed project footprint.

4. BIODIVERSITY AND CONSERVATION PLANNING

4.1 Background

Biodiversity includes diversity at genetic, species, ecosystem and landscape levels. Biodiversity is an intrinsic feature of natural ecosystems, which supply us with an array of ecosystem services on which we depend. The links between ecosystem services and biodiversity are complex, but it is increasingly recognised that losses in biodiversity may lead to reduced ecosystem resilience (Millennium Ecosystem Assessment, 2004). The main causes of biodiversity loss in South Africa are land transformation and habitat loss, invasive species, climate change, the introduction of genetically modified organisms and unsustainable utilisation of biodiversity resources (such as unregulated plant and animal harvesting).

4.2 Conservation planning

In order to secure conservation targets in KwaZulu-Natal, Ezemvelo KZN Wildlife has developed a planning tool, known as the Minset database. The EKZNW Minset is a strategic plan to ensure that representative samples of biodiversity are conserved in the province. The Minset GIS database facilitates decision-making for land use and conservation planning, with the aim of meeting development and biodiversity conservation goals in KwaZulu-Natal. The Minset database identifies the minimum number of planning units contained within the province which are required to meet biodiversity conservation targets. The database spatially classifies planning units into the following categories:

1. **Existing Protected area network** – Planning units that comprise areas which are formally protected under the National Environmental Management: Protected Areas Act (No 57 of 2003) as amended.
2. **100 % Transformed** – Planning units that are 100% transformed in terms of natural asset according to the 2005 EKZNW land cover dataset.
3. **Outside Province** – Planning units which fall outside of the KZN provincial boundary.
4. **Biodiversity Priority Area 1** - Planning units which contain features that, if lost, provincial conservation targets cannot be met in any other planning unit within the Province.
5. **Biodiversity Priority Area 2** – Planning units which contain features that, if lost, provincial conservation targets can only be met in a very limited number of alternative planning units within the Province.
6. **Biodiversity Priority Area 3** - Planning units which contain features that, if lost, provincial conservation targets can only be met in a limited number of alternative planning units within the Province.

*Unshaded planning units are ‘available’ to meet conservation targets if any planning units classified as Biodiversity Priority Area 2 or 3 are lost / transformed.

The Minset database 100% Transformed layer (based on the 2005 Land Cover data) comprises areas that are considered not required for achieving conservation targets, although transformation may need to be verified.

Review of MINSET revealed that most of the site falls within an “Unshaded planning unit” meaning the areas area ‘available’ to meet conservation targets i.e. “unshaded planning unit” classification does not restrict the proposed development owing to the possible absence of conservation-important biodiversity resources, bearing in mind that this must still be ground-truthed.

However, of importance is, that approximately 1 fifth ($\frac{1}{5}$) of the project area falls within a Critical Biodiversity Area (CBA - See **Appendix 4** for MINSET and **Appendix 5** for land transformation map). **NO further development may take place within the Critical Biodiversity Areas.**

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Environmental Screening Report: **NGCAWUSHENI - VUKUZITHATHE PHASE 3, RAY NKONYENI MUNICIPALITY**

Implication

Within the 2900Ha project site there are a range of biophysical habitats. Any development on site would need to take into account the proximity of these biophysical habitats. Again due to the lack of information available it is difficult to assess the impact on the receiving environment which would occur from the construction of a 1000 houses. However, in order for the proposed development to address the need for national and provincial biodiversity conservation targets it is of paramount importance that conservation efforts be employed during the EIA phase. This can be achieved by further investigation into the composition of biodiversity that occurs within the study area and the potential impacts of the proposed development. The most significant concern, from a biological functioning perspective, would be the impacts on water resources: potential water pollution and further encroachment of alien plant species.

4.3 Vegetation type

The study area is modelled to comprise of three vegetation types namely 1) Dry Coast Hinterland Grassland, 2) Eastern Valley Bushveld and 3) Pondoland-Ugu Sandstone Coastal Sourveld (Shaw and Escott 2011). As per Mucina and Rutherford (2006) the conservation rankings for these vegetation types is as follows:

- 1) Dry Coast Hinterland Grassland (Ngongoni Veld), is classified as vulnerable with a conservation target of 25% with as little as 1% statutorily conserved. This vegetation type comprises primarily of undulating plains and hilly landscapes, mainly associated with drier coast hinterland valleys in the rain-shadow of the rain-bearing frontal weather systems from the east coast. Sour sparse wiry grassland dominated by unpalatable Ngongoni grass (*Aristida junciformis*); this monodominance is associated with low species diversity. Wooded areas are found in valleys at lower altitudes; Termitaria support bush clumps with Acacia species, *Cussonia spicata*, *Ehretia rigida*, *Grewia occidentalis* and *Coddia rudis*.
- 2) The other veld type is the Eastern Valley Bushveld, which is classified as least threatened although only 0.8% is statutorily conserved it's conservation target is 25%, however, 15% of it's extent has already been transformed. The Eastern Valley Bushveld vegetation unit is made up of semi deciduous savanna woodlands in a mosaic with thickets, often succulent, and dominated by species of Euphorbia and Aloe. Most of the river valleys run along a northwest-southeast axis which results in unequal distribution of rainfall on respective north-facing and south-facing slopes since the rain-bearing winds blow from the south. The steep north-facing slopes are sheltered from the rain adding to xerophilous conditions on these slopes.
- 3) Pondoland-Ugu Sandstone Coastal Sourveld is one of the top six vegetation units with the highest level of vulnerability with only 7% statutorily conserved. The

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Environmental Screening Report: [NGCAWUSHENI - VUKUZITHATHE PHASE 3, RAY NKONYENI MUNICIPALITY](#)

conservation target is 25% conservation; 29% has already been transformed for cultivation and plantations or by urban sprawl. Characteristic of this unit are coastal peneplains and partly undulating hills with flat table-lands and very steep slopes of river gorges. These sites support natural, species-rich grassland punctuated with scattered low shrubs or small trees (sometimes with bush clumps, especially in small gullies). Rocky outcrops and krantzes are common and dramatic sea-cliffs occur. Proteaceous trees (*Protea, Faurea*) can be locally common where conditions allow. Although less important here, the geoxylic suffrutex growth form is also represented in this sourveld.

Please review **Appendix 6** for a vegetation map.

Implication

The classification of the vegetation types found on site warrants concerted conservation efforts. Therefore a vegetation study is required to assess the current status of the all three vegetation types and how they will be impacted on by the proposed development. For the objectives of the vegetation study to be achieved the exact areas proposed to be development must be identified prior to the assessment, **excluding the CBA (as seen in Appendix 4) in which development is prohibited.**

4.4 Conservation important plants

Legislation exists at provincial and national levels which serve to protect and preserve important plant taxa, particularly those that are considered to be of conservation value. The purpose is to ensure the long-term survival of these species.

The following are conservation-important plants that potentially occur on site. Data was extracted from the South African National Biodiversity Institute (SANBI).

Table 1: Conservation-important plants within quaternary degree square 3030CC (posa.sanbi.org 2016)

Family	Species	Threat status
Asphodelaceae	<i>Kniphofia pauciflora</i>	CR
Asteraceae	<i>Helichrysum pannosum</i>	EN
Begoniaceae	<i>Begonia dregei</i>	EN
Celastraceae	<i>Maytenus abbottii</i>	EN
Celastraceae	<i>Pseudosalacia streyi</i>	EN
Lauraceae	<i>Dahlgrenodendron natalense</i>	EN
Myrtaceae	<i>Eugenia umtamvunensis</i>	EN

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Environmental Screening Report: NGCAWUSHENI - VUKUZITHATHE PHASE 3, RAY NKONYENI MUNICIPALITY

Family	Species	Threat status
Proteaceae	<i>Leucospermum innovans</i>	EN
Sapotaceae	<i>Manilkara nicholsonii</i>	EN
Amaryllidaceae	<i>Clivia gardenii</i>	VU
Apocynaceae	<i>Sisyranthus fanninia</i>	VU
Asphodelaceae	<i>Gasteria croucheri</i> subsp. <i>croucheri</i>	VU
Celastraceae	<i>Gymnosporia bachmannii</i> .	VU
Crassulaceae	<i>Crassula obovata</i>	VU
Ericaceae	<i>Erica abbottii</i>	VU
Fabaceae	<i>Eriosema latifolium</i>	VU
Fabaceae	<i>Eriosema umtamvunense</i>	VU
Iridaceae	<i>Watsonia inclinata</i>	VU
Lauraceae	<i>Cryptocarya myrtifolia</i>	VU
Proteaceae	<i>Leucadendron spissifolium</i> subsp. <i>oribinum</i>	VU
Rhamnaceae	<i>Phyllica natalensis</i>	VU
Rubiaceae	<i>Eriosemopsis subanisophylla</i>	VU
Stangeriaceae	<i>Stangeria eriopus</i>	VU
Zamiaceae	<i>Encephalartos altensteinii</i>	VU
Key to table		
CR	Critically endangered	
EN	Endangered	
VU	Vulnerable	

4.5 Wetlands and drainage lines

Wetlands and drainage lines are characterised by intrinsically high biodiversity and perform a number of important ecological functions and ecosystem services and are considered to be globally threatened ecosystems. Furthermore, wetlands are protected by nine (9) Acts and two (2) Ordinances in KwaZulu-Natal (not all of which are necessarily directly applicable to

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Environmental Screening Report: **NGCAWUSHENI - VUKUZITHATHE PHASE 3, RAY NKONYENI MUNICIPALITY**

the site in question), which suggests that both National and Provincial authorities recognise wetlands as a multiple-use resource and are committed to their conservation.

Interrogation of, SANBI and National Freshwater Ecosystem Priority Areas (NFEPA)'s GIS databases revealed the presence of several wetlands on site; further review, of the Surveyor General 2006 Drainage Line and Watercourse Database, indicated the presence of several drainage lines that drain in a generally southward direction to the Mtamvuna River (**Appendix 7**).

Owing to the fact that no information is currently on hand as to where exactly the houses will be built, any development within the regulated areas (500m from the delineated edge of a wetland and within the 1:100 year flood line or riparian area), with regard to watercourses, will require stringent measures to mitigate potential adverse effects from occurring on these water resources.

In addition, densification of infrastructure will definitely contribute significantly to an increase in surface runoff, therefore, a Storm water Management Plan must be designed by a competent hydrologist and civil engineers with input from aquatic and wetland ecologists, after areas of development have been identified and confirmed.

Conclusion

Any water resources on the site must be protected from further degradation and pollution. All potential sources such as sewage waste disposal must be managed appropriately to prevent contamination of the water resources in the study area and beyond. As a water resource protection measure any construction of VIP latrines within at least 50m is prohibited. The placement of these must be determined by a geo-hydrological assessment or at the very least a wetland scan to ensure that there are no hillslope seeps that could be affected by these latrines.

Runoff on site must be controlled to ensure that soil erosion does not take place. Storm water velocity dissipation measures as well as ensuring "no-development" buffers around drainage lines and wetlands such as "hillslope seeps" are required to ensure environmental sustainability of the watercourses.

It will be necessary that both aquatic and wetland delineation and functionality assessments are undertaken prior to any proposed development taking place in order to ensure the suitability of buffer sizes and stipulate other mitigation measures.

5. CULTURAL AND ARCHAEOLOGICAL HERITAGE

Disturbance to cultural heritage resources and important cultural landscapes, as well as sites that have been designated as being of cultural significance by Amafa aKwaZulu-Natali (Amafa) and South African Heritage Resources Agency (SAHRA), must by law³ be avoided.

Conclusion

Large areas of the development area have been disturbed through anthropogenic impacts, and it may be possible that these areas will not require an Heritage Impact Assessment (HIA).

However, based on observations in the field, there is a possibility that undisturbed areas in the vicinity of some homesteads might need to be developed due to spatial constraints.

Depending on the extent of the areas to be disturbed, and the number of units to be established outside of the existing homestead footprints, an HIA might be required.

Please note that should any heritage resources, as defined in the relevant legislation, be discovered during any construction activities, the Act requires that the contractor cease all work immediately and notify Amafa aKwaZulu-Natali.

Construction may not recommence until approval has been obtained from Amafa aKwaZulu-Natali.

6. SOCIO-ECONOMIC ENVIRONMENT

The proposed in-situ housing development would benefit the local community in the following ways:

- Provision of formal houses to beneficiaries;
- Generation of temporary employment opportunities for unskilled, semi-skilled and skilled community members during the construction phase;
- Provision of opportunities for skills development for local people during the construction phases of the proposed development;
- Improve the people's quality of life.

³ The National Heritage Resources Act (Act 25 of 1999) and the Kwa-Zulu Natal Heritage act (Act 4 of 2008) refer

- Removal of Alien Invasive Vegetation that has severe impacts on people's health e.g. *Parthenium hysterophorus*, *Solanum mauritianum*, *Ricinus communis* and *Chromolaena odorata*

The proposed development has the potential to promote, to a limited extent, local economic development and social up-liftment for surrounding communities.

7. SENSE OF PLACE

The sense of place may be affected either because of real or perceived impacts from new development, and changes in the character of the area due to increased development, increased settlement densities, higher noise levels and traffic, and the change to visual character of the surrounds.

Issues relating to sense of place and aesthetics are highly emotive in nature and need to be examined taking into account a variety of aspects.

The overriding factor to consider when looking at sense of place is that this is a subjective topic, and sense of place differs between different demographics in the population. Ambient noise levels, vibration and illumination, reductions in aesthetic quality, smells, scenic views, etc. all play a part in people's perceptions of the environment.

The present "sense of place" can be assigned the following descriptors: rural and agricultural.

Conclusion

The proposed development will slightly alter the appearance of the area towards a more urban setting. This is most likely to be perceived as a positive change in the sense of urban advancement rather than loss of rural / countryside appearance.

The socio-economic benefit of such a development to the local community is likely to outweigh any change in sense of place, provided sense of place impacts are carefully managed through appropriate design of the houses.

Further investigations on sense of place are therefore considered not necessary as the proposed project is an *in situ* upgrade.

8. ACCESS AND TRAFFIC

The study area is accessible via the National Route 2 Highway which dissects the town of Izingolweni, and two gravel direct roads that traverse the area. Most existing units are accessible via gravel and dirt access tracks, however, many isolated units are only accessible via dirt foot-pathways.

Whilst some of the access roads and tracks are in a fairly good state, several roads were noted to be in a severe state of disrepair. These will need to be appropriately upgraded to enable construction vehicles to utilise them.

It is the understanding of the EAPs that the proposed *in-situ* housing development would not include any road upgrade or maintenance activities.

If any roads need to be established or upgraded to gain accesses to homesteads for the construction of the housing units, it is highly likely that an environmental impact assessment will be triggered.

It is unlikely that implementation of the project will impact on traffic both during and post construction.

9. AIR QUALITY

The implementation of the proposed development will have no impact on the air quality apart from the anticipated air emissions typical of a normal urban setting. Localised air quality impacts are unlikely to be any different than they are at present.

10. EXISTING INFRASTRUCTURE AND SERVICES IN OR AROUND THE DEVELOPMENT AREA

10.1 Electricity supply

A large portion of the study area has access to electricity, while other parts e.g. Mdlazi and surrounds do not have electricity. The communities here rely on candles, paraffin, coal, firewood etc.

It is unlikely that the existing electricity infrastructure will be affected by the construction of new houses in areas that have exiting electricity supply. However, the project may necessitate the connection of new buildings to the existing electricity grid. This will increase the electricity backlog and place further strain on the national grid.

Densification of housing could possibly make it feasibly to motivate the extension of electricity network to those communities who at present do not enjoy this service.

10.2 Potable water

It is anticipated that water for use during construction will have to be abstracted from natural water sources e.g. river, borehole or dam. If so, impacts related to abstraction of water from natural water sources will need to be thoroughly investigated during the EIA phase. If the abstraction volume from surface water resources is anticipated to exceed 50m³ per property on any given day, a Water Use Licence will have to be applied for from the department of Water and Sanitation (DWS). A Water Use Licence is also required if 10m³ or more of water is to be taken from groundwater resources “per property” on any given day. Please note that the current legislation governing water uses is under review, therefore the abovementioned thresholds are subject to change. Confirmation of the above will be needed prior to construction commencing.

10.3 Wastewater disposal

No bulk sanitation treatment schemes are available in the proposed project area.

According to the 2015/16 Ray Nkonyeni Municipality IDP, pit latrines remain the dominant form of sanitation The table below (Table 2) indicates the combined percentages of the types of sanitation within the municipality.

Table 2: Access to sanitation by type

Sanitation Type	Percentage
Flush toilets	5.6
Pit toilets	86.5
Chemical toilets	1.7

Afzelia Environmental Consultants (Pty) Ltd

Environmental Screening Report: **NGCAWUSHENI - VUKUZITHATHE PHASE 3, RAY NKONYENI MUNICIPALITY**

Sanitation Type	Percentage
Bucket systems	0.1
None	6.0

As a standard protocol, Ventilated Improved Pit (VIP) latrines must be provided to beneficiaries and they must be located such that water and soil pollution will not impact on any water resource.

10.4 Refuse removal

Refuse collection in Ray Nkonyeni Municipality is limited to the Central Business District of (Ezingolweni). Currently the Municipality does not charge customers for the provision of this service due to the absence of waste management bylaws. Twelve (12) collection stations currently exist in the inner CBD and waste collection is done at least twice a week. The Municipality does not have a licenced dumping site and registered waste is disposed approximately 50km from Ezingolweni, in the Ray Nkonyeni Local Municipality. It is evident that most communities (especially the more rural/outlying ones) dispose waste *in situ*. This usually translates to the burning of waste which could have implications on the quality of the air.

The following impacts can result from mismanagement of refuse:

- Plastics, metal, wood, stone and concrete from construction activities have the potential to contaminate the environment;
- Failure to provide enough skips and bins strategically on the construction site would lead to increase littering by workers. If the contractor fails to ensure refuse is collected on a regular basis, the build-up of waste could attract vermin to the site, cause the spread of disease and have serious visual impacts on residents; and
- Absence of secure waste storage facilities (bins with lids) poses a health and safety risk to residents.

This is an aspect that can be managed during the construction phase through the effective implementation of an EMPr.

11. APPLICABLE ENVIRONMENTAL LEGISLATION

The proposed project was considered in accordance with the following legislation:

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Environmental Screening Report: **NGCAWUSHENI - VUKUZITHATHE PHASE 3, RAY NKONYENI MUNICIPALITY**

11.1 National Environmental Management Act (Act No. 107 of 1998 as amended)

NEMA, 1998 principles are applicable to this proposed project. The NEMA seeks to “provide for cooperative governance by establishing principles for decision-making on matters affecting the environment, institutions that will promote cooperative governance and procedures for **coordinating environmental functions exercised by organs of state; and to provide for matters connected therewith**”.

In terms of the Principles of the NEMA, this Act serves as the general framework within which environmental management and implementation plans must be formulated. The Act also provides broad guidelines to which any Organ of State must exercise any function when taking any decision in terms of this Act or any statutory provision concerning the protection of the environment;

In addition and, *inter alia*,

- Development must be socially, environmentally and economically sustainable.
- Sustainable development requires the consideration of all relevant factors including the following:
 - that the disturbance of ecosystems and loss of biological diversity are avoided, or, where they cannot be altogether avoided, are minimised and remedied;
 - that a risk-averse and cautious approach is applied, which takes into account the limits of current knowledge about the consequences of decisions and actions
- Environmental management must be integrated, acknowledging that all elements of the environment are linked and interrelated, and it must take into account the effects of decisions on all aspects of the environment and all people in the environment by pursuing the selection of the best practicable environmental option.
- Decisions must take into account the interests, needs and values of all interested and affected parties, and this includes recognising all forms of knowledge, including traditional and ordinary knowledge.
- The environment is held in public trust for the people, the beneficial use of environmental resources must serve the public interest and the environment must be protected as the people's common heritage.
- The costs of remedying pollution, environmental degradation and consequent adverse health effects and of preventing, controlling or minimising further pollution, environmental damage or adverse health effects must be paid for by those responsible for harming the environment.
- Sensitive, vulnerable, highly dynamic or stressed ecosystems, such as coastal shores, estuaries, wetlands, and similar systems require specific attention in management and planning procedures, especially where they are subject to significant human resource usage and development pressure.

The NEMA Environmental Impact Regulations promulgated in 2014 under Government Notices 982, 983 (Listing notice 1), 984 (Listing notice 2), 985 (Listing notice 3) provide for the

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Environmental Screening Report: **NGCAWUSHENI - VUKUZITHATHE PHASE 3, RAY NKONYENI MUNICIPALITY**

application of this Act in terms of identifying activities which require an environmental assessment and the manner in which the impact of those activities is assessed.

Please note that activities identified within Listing Notices 1 and 3 are subject to a Basic Assessment Process whilst activities identified within Listing Notice 2 are subject to a Scoping and Full Environmental Impact Assessment (EIA). Further, should a Listing Notice 2 activity be triggered then a Scoping and Full EIA will be needed for all other activities- irrespective of their listing in other notices.

The specific aspects that would trigger the need for an environmental authorisation and a water use license would need to be discussed with the relevant competent authorities once this screening report has been assessed by them.

11.2 Biodiversity

In terms of biodiversity, South Africa has signed and ratified many international treaties, protocols and agreements, including the following:

- Lusaka Agreement on Co-operative Enforcement Operations Directed at Illegal Trade in Wild Fauna and Flora (1974);
- Convention on International Trade in Endangered Species (CITES) (1975);
- Convention on Wetlands of International Importance, especially as Waterfowl Habitat (Ramsar) (1975);
- Convention on Conservation of Migratory Species of Wild Animals (Bonn Convention) (1991);
- Convention on Biological Diversity (CBD) (1995); and
- Cartagena Protocol on Biosafety, (2003); etc.

Biodiversity conservation is protected and implemented *inter alia* by the following national policy and legislation:

- South Africa's Constitution (Act 108 of 1996), including the Bill of Rights (Chapter 2, Section 24);
- Conservation of Agricultural Resources Act, 1983 (Act 43 of 1983);
- Marine Living Resources Act, 1998 (Act 18 Of 1998);
- National Water Act, 1998 (Act 36 of 1998);
- National Forests Act, 1998 (Act 84 of 1998);
- National Environmental Management: Protected Areas Act, 2003 (Act 57 of 2003);
- National Environmental Management: Biodiversity Act, 2004 (Act 10 of 2004) and

The two important Acts that pertain to the utilisation of flora resources are National Forests Act, (Act 84 of 1998) and the KwaZulu-Natal Nature Conservation Management Act, (Act 5 of 1999, Schedule 5). In addition, plants in KwaZulu-Natal are protected by Chapter 11 of the Nature Conservation Ordinance (No. 15 of 1974).

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Environmental Screening Report: **NGCAWUSHENI - VUKUZITHATHE PHASE 3, RAY NKONYENI MUNICIPALITY**

11.3 The National Heritage Resources Act (Act No 25 of 1999 As Amended)

This legislation aims to promote good management of the National Estate, and to enable and encourage communities to nature and conserve their legacy so that it may be bequeathed to future generations. South Africa's heritage is unique and precious and it cannot be renewed. It helps to define South Africa's cultural identity and therefore lies at the heart of South Africa's spiritual well-being and has the power to build South Africa's nation. It has the potential to affirm South Africa's diverse cultures, and in so doing shape South Africa's national character.

The National Heritage Resources Act (Act No. 25 of 1999) identifies various parameters in Section 38, which must include notification of the responsible heritage resources authority, and furnish it with details regarding the location, nature and extent of a proposed development.

The South African Heritage Resource Authority (SAHRA) then assesses whether an EIA is required and specifies information to be included in the report, including assessment of significance of such resources and evaluation of the impacts.

AMAFA KZN, as the Provincial Authority, must be contacted as part of the public participation process to assess the Heritage Impact.

11.4 The National Water Act (NWA), 1998 (Act 36 of 1998)

The National Water Act (NWA), 1998 (Act 36 of 1998) is the primary statute providing the legal basis for water management in South Africa and must ensure ecological integrity, economic growth and social equity when managing and using water. Section 21 of the NWA specifies a number of water uses which potentially could apply to the Vukuzithathe housing development and for which authorisation would be required.

11.5 Other applicable legislations include the following:

- Integrated Environmental Management (IEM);
- KwaZulu-Natal Heritage Act (Act No. 10 of 1997);
- Conservation of Agricultural Resources Act (Act No. 43 of 1983);
- Subdivision of Agricultural Land Act (Act No. 70 of 1970);
- Municipal Systems Act (Act No. 32 of 2000); and
- KwaZulu-Natal Planning and Development Act of 2008 (Act No. 6 of 2008).

12. CONCLUSION AND RECOMMENDATIONS

12.1 Environmental issues

The proposed project was assessed in terms of its social, economic and biophysical environmental attributes (at desk top level). Of the numerous issues identified, the following critical issues were identified:

- Is the development sustainable in terms of service provision?
The current spatial distribution of settlements presents a challenge in terms of service provision - hence the lack of services. The proposed project therefore seeks to address some of these challenges through promoting cluster settlements (densification).

However there is not enough data to make an informed decision. According to the project description given to Afzelia Environmental Consultants (Pty) Ltd, by Umpheme Development (Pty) Ltd, no roads will be upgraded and no more power or water is to be provided.

Upgrading houses and potentially increasing their capacity may allow more people to live within the proposed buildings, this is likely to lead to increased waste generation which would increase the relevant disposal risks into the natural environment. Additionally as this is an *in situ* development access to and demand for water and electricity may increase if more people take up residency within the area.

- Impacts on water resources
Due to the lack of information provided it is not possible to state what effect the project will have on water resources. It is recommended that as part of the EIA process both wetland and aquatic ecology assessments are conducted to delineate and determine the functional status of these systems.
- Impacts on agricultural land
Due to the steep slopes on certain sections of the landscape and the lack of information regarding which units are to be upgraded, it is not possible to determine if there is sufficient space for development. Expanding the foot print of the housing platform falls outside of the "*in situ*" parameters. Expanding housing footprints/platforms would require a cut to fill exercise to establish extended platforms; if this has to occur on steep slopes, many additional vertical meters of slope will be created, resulting in a significantly increased footprint both directly and indirectly.
- Impact on cultural heritage resources
This aspect would need to be confirmed by a heritage assessment practitioner.

Afzelia Environmental Consultants (Pty) Ltd

Environmental Screening Report: **NGCAWUSHENI - VUKUZITHATHE PHASE 3, RAY NKONYENI MUNICIPALITY**

- **Ecological impacts**
Large portions of the site have been transformed, however certain areas fall within critical biodiversity areas (CBA) towards the south-east portion of the proposed development (see appendix 5). Development within a CBA is not permitted. In addition, it is possible that clearing of uncleared or undisturbed land to extend platforms, create access road/track etc could occur. This would trigger an activity that requires environmental authorisation from the Competent Authorities
- **Construction impacts on the social environment**
Impacts will be predominantly positive, provided construction activities are adequately managed and the community is engaged in the identification of beneficiaries and recruitment of labourers. To prevent animosity the Traditional Leaders must be made part of the steering committee as they are in a better position to interact with their own people. During the EIA stage the local community must be engaged in the public participation process.
- **Sense of place**
Sense of place for the area is likely to be impacted in a positive way. Furthermore the proposed development is unlikely to alter the spatial planning of the area as the development will be predominantly *in situ* upgrade.

The EAPs believe the proposed project does not have enough information to progress at this stage. Additional information in the form of layout plans, showing sites that are to be upgraded and by how many units, is required.

The greatest environmental concerns relate to the potential impact on natural water resources, and the impact created by building on such steep slopes. Careful consideration needs to be given to the storm water management planning and design. Construction method statements that acknowledge wetlands and other watercourses will be required to ensure negative impacts on the receiving environment are avoided or mitigated to acceptable levels.

It still needs to be established via an impact assessment process if an effective EMP, appropriate environmental designs and engineering solutions can mitigate possible/probable negative impacts to acceptable levels.

Alien vegetation can rapidly take root during construction activities, measures need to be considered to combat the introduction and spread of alien invasive species. Construction activities can also accelerate the loss of topsoil if measures to correctly strip and stockpile topsoil are not taken.

12.2 Environmental Impact Assessment process

The EIA process in terms of the NEMA would need to be undertaken by a suitably qualified and independent Environmental Assessment Practitioner. No development is permitted on the site until the relevant environmental and planning approvals have been obtained or until strategic information is made available that would allow a decision to be made by the Provincial Competent Authorities in terms of the Memorandum of Understanding between all relevant parties.

It is also highly likely that this project will require water use licences to commence work within 500m radius from the boundary of any wetland areas.

The present lack of strategic and logistical information regarding this project, necessitates that further studies are required to ensure that the proposed project will have a net positive impact on a local scale.

Afzelia Environmental Consultants remain at your disposal should you require any clarification regarding the content above.

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Afzelia Environmental Consultants

.....
Adrienne Edgson
Environmental Assessment Practitioner
IAIAsa 1649

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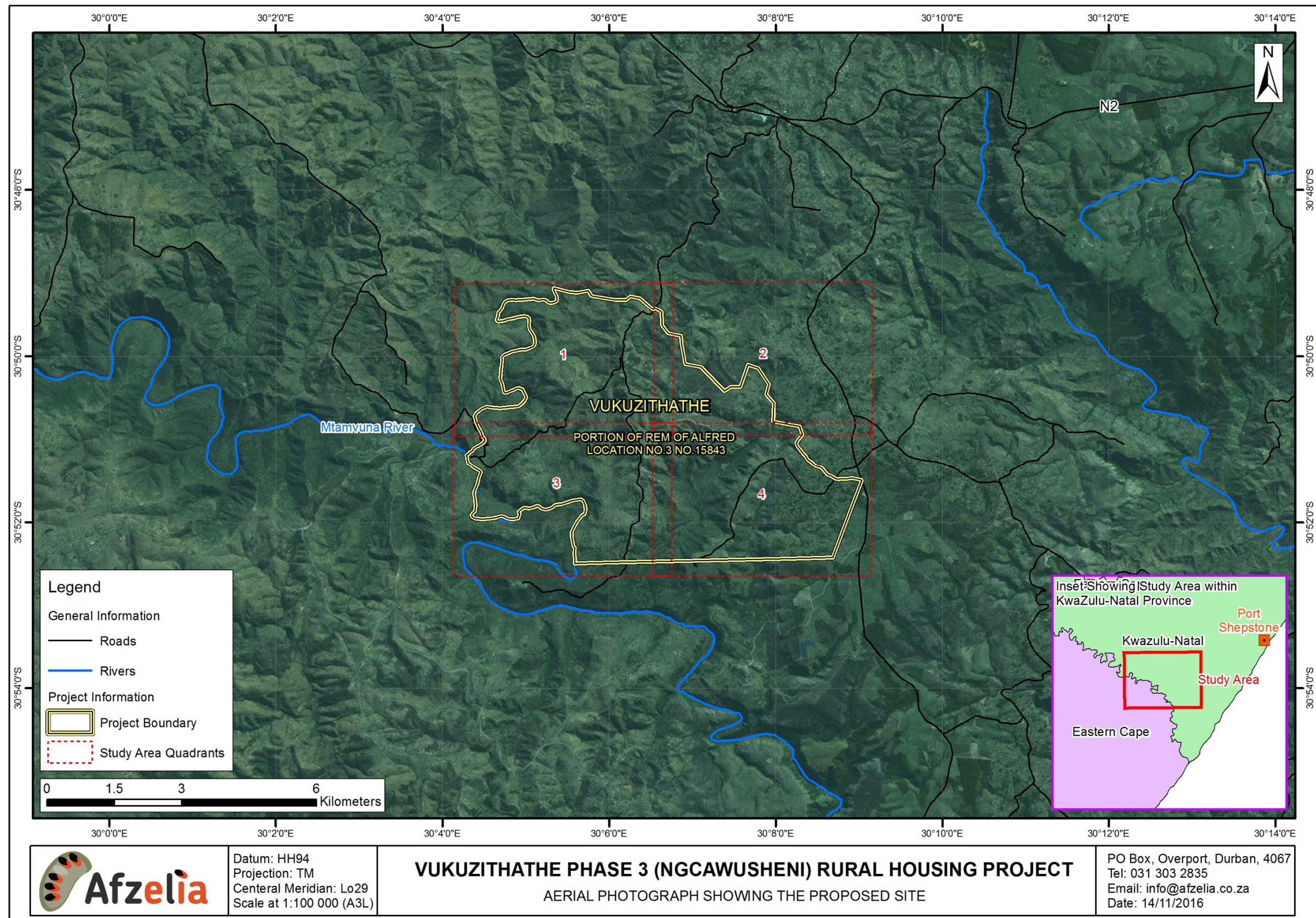
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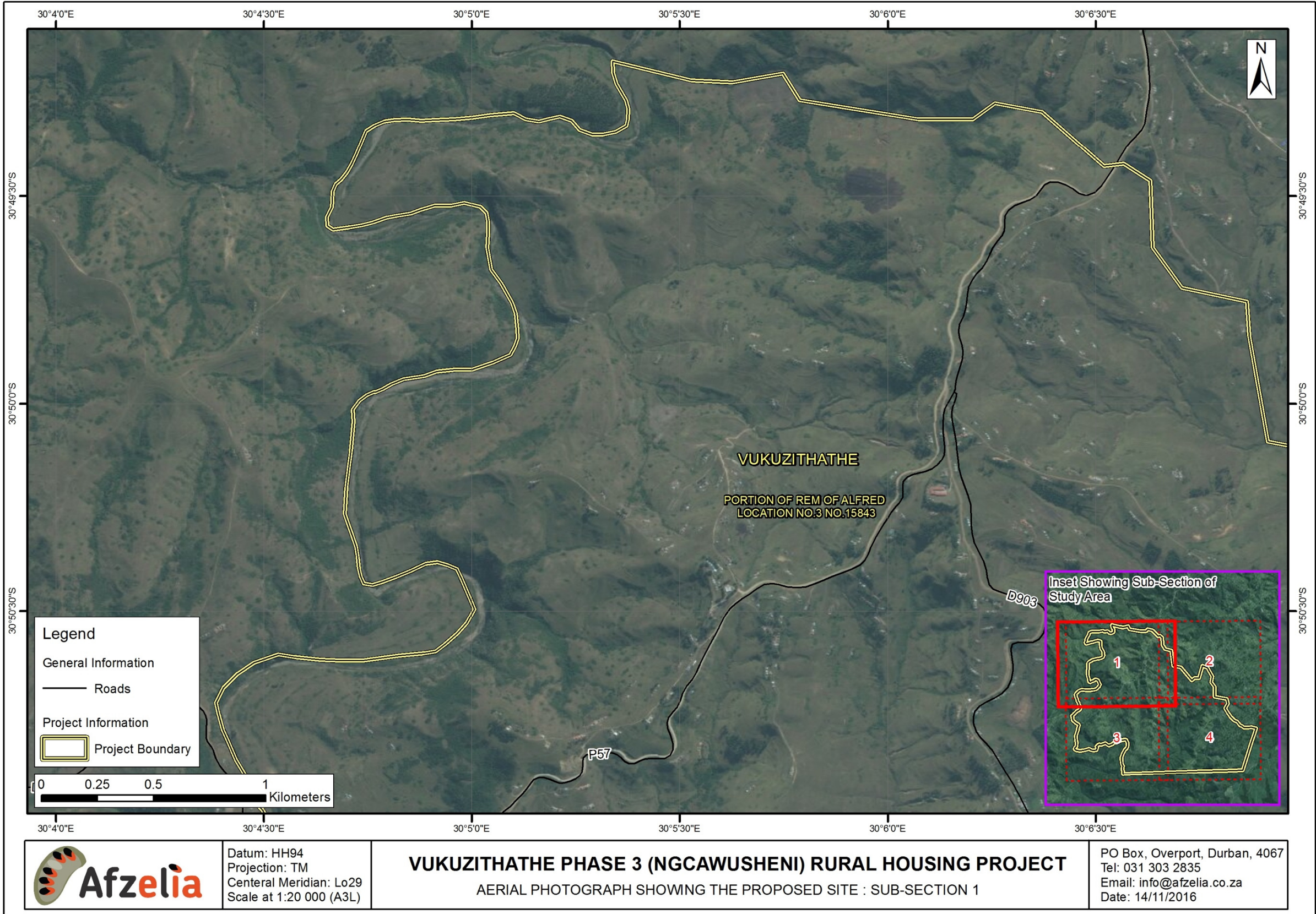
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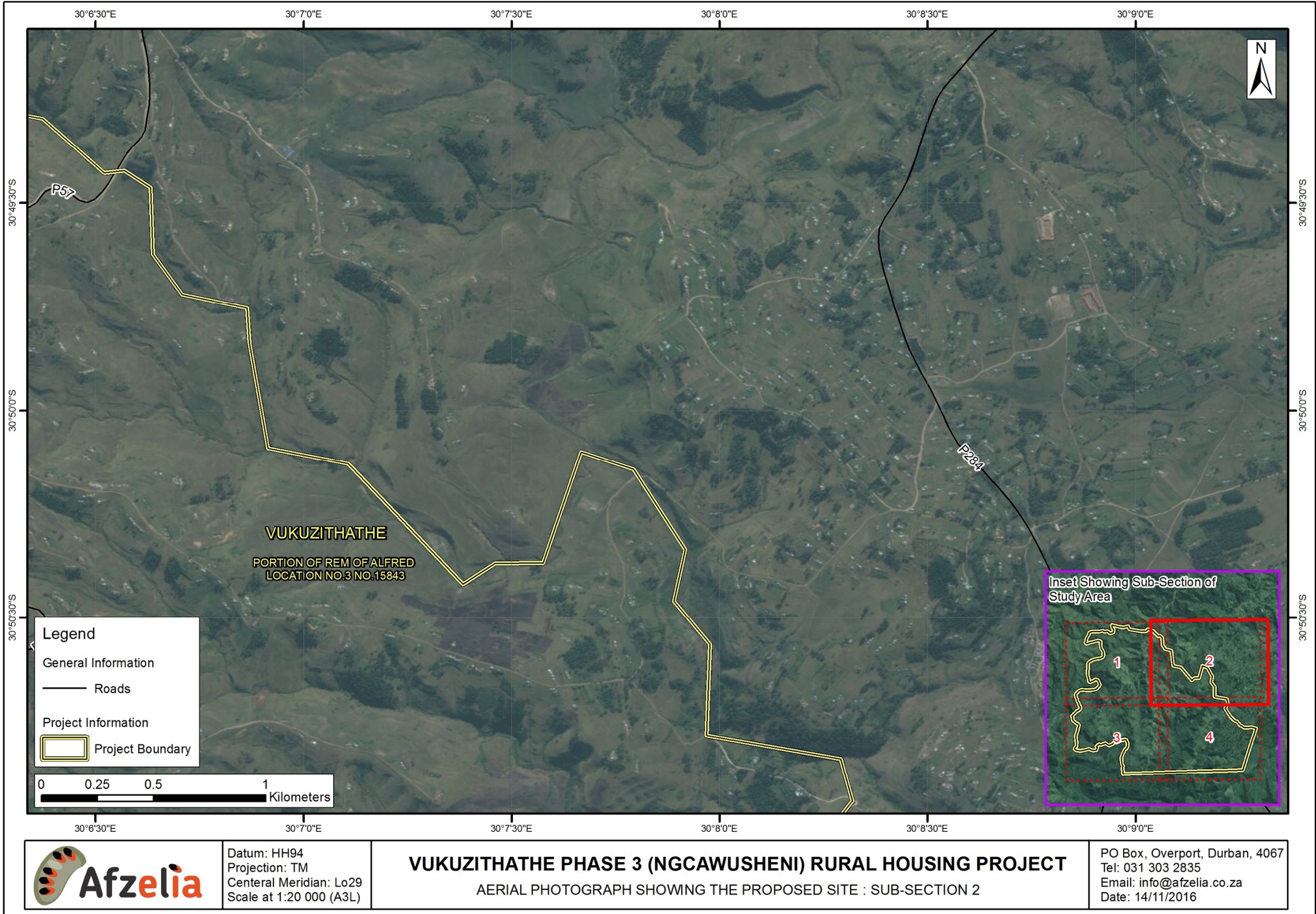
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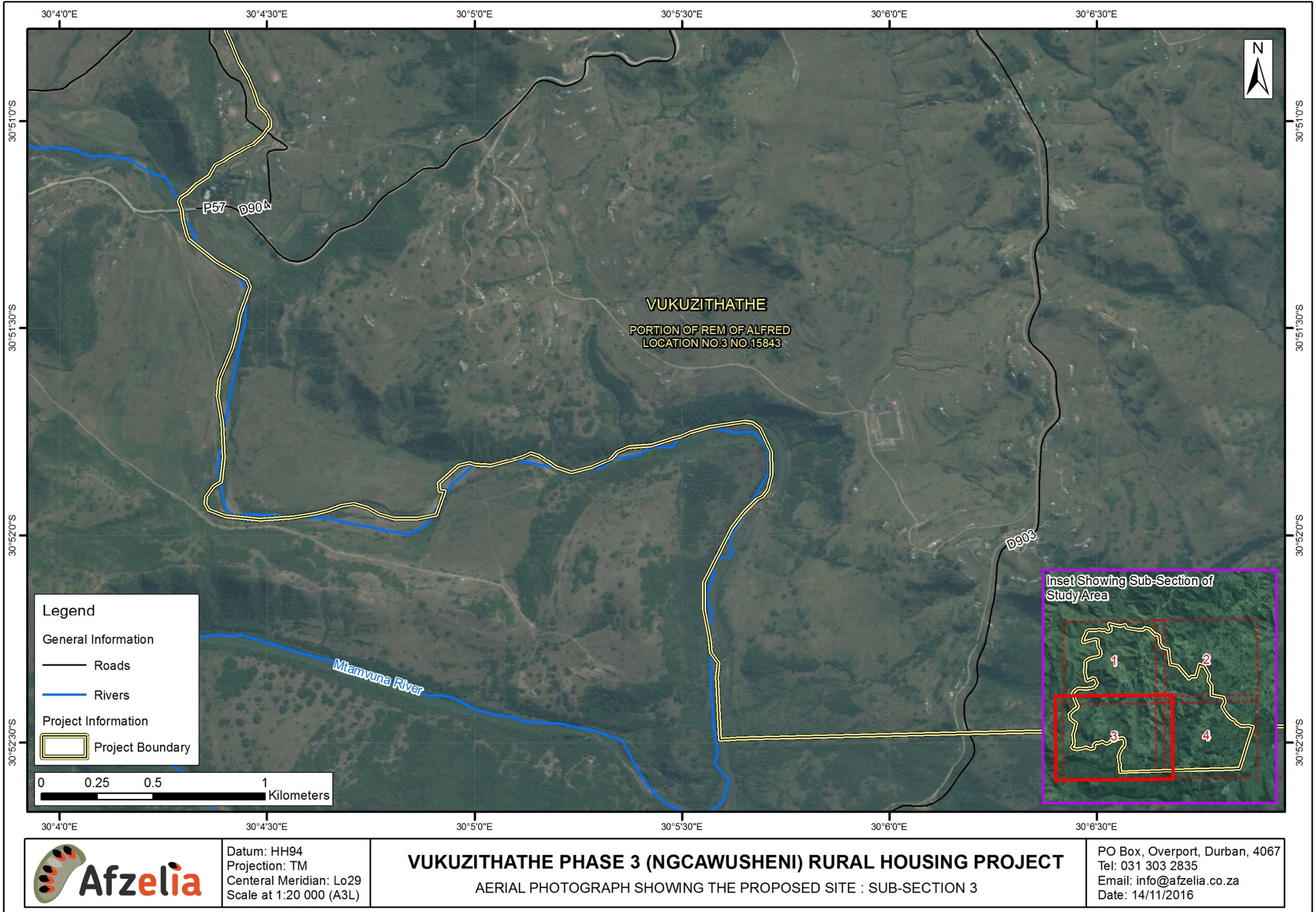
APPENDICES

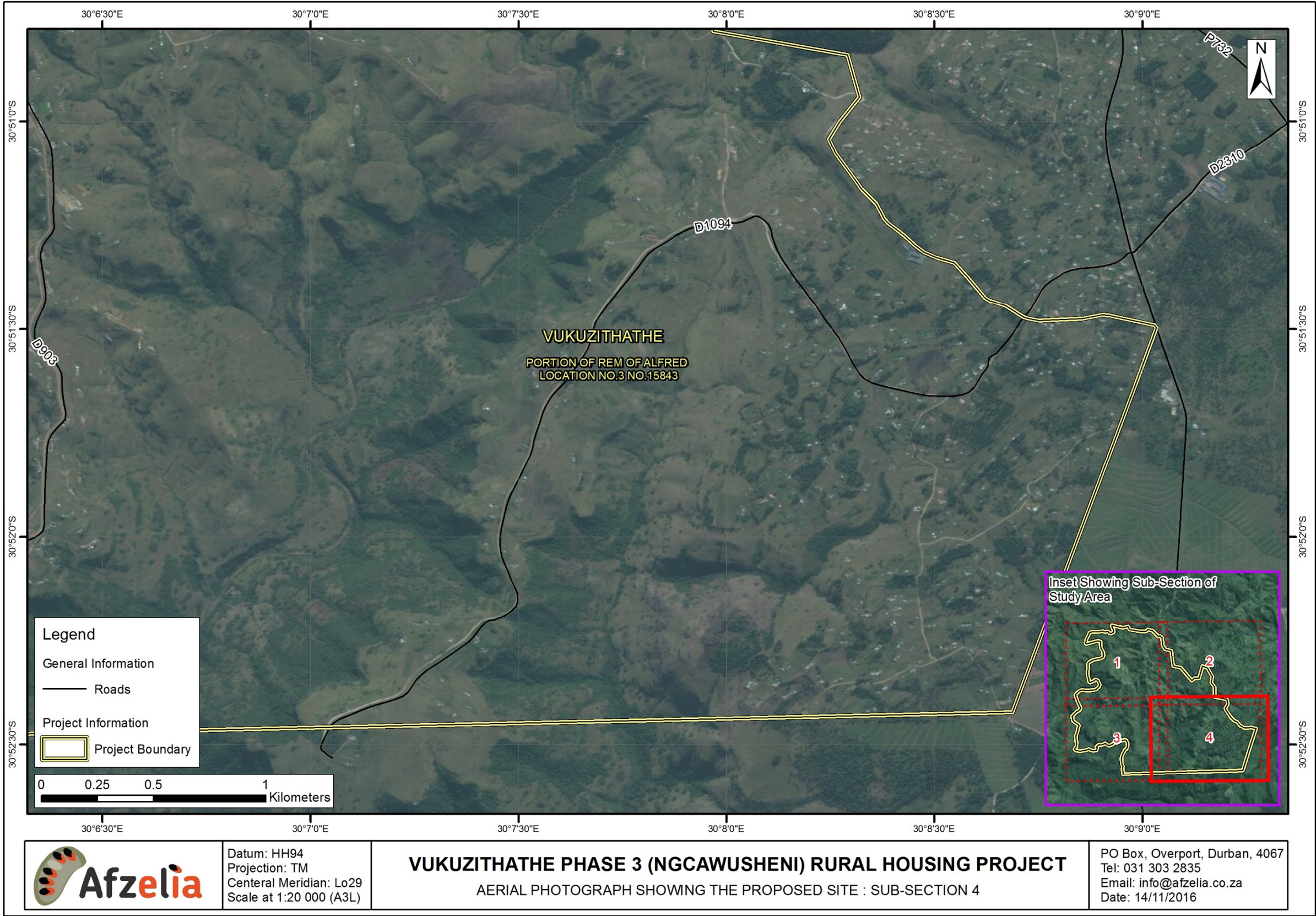
Appendix 1 Locality Map

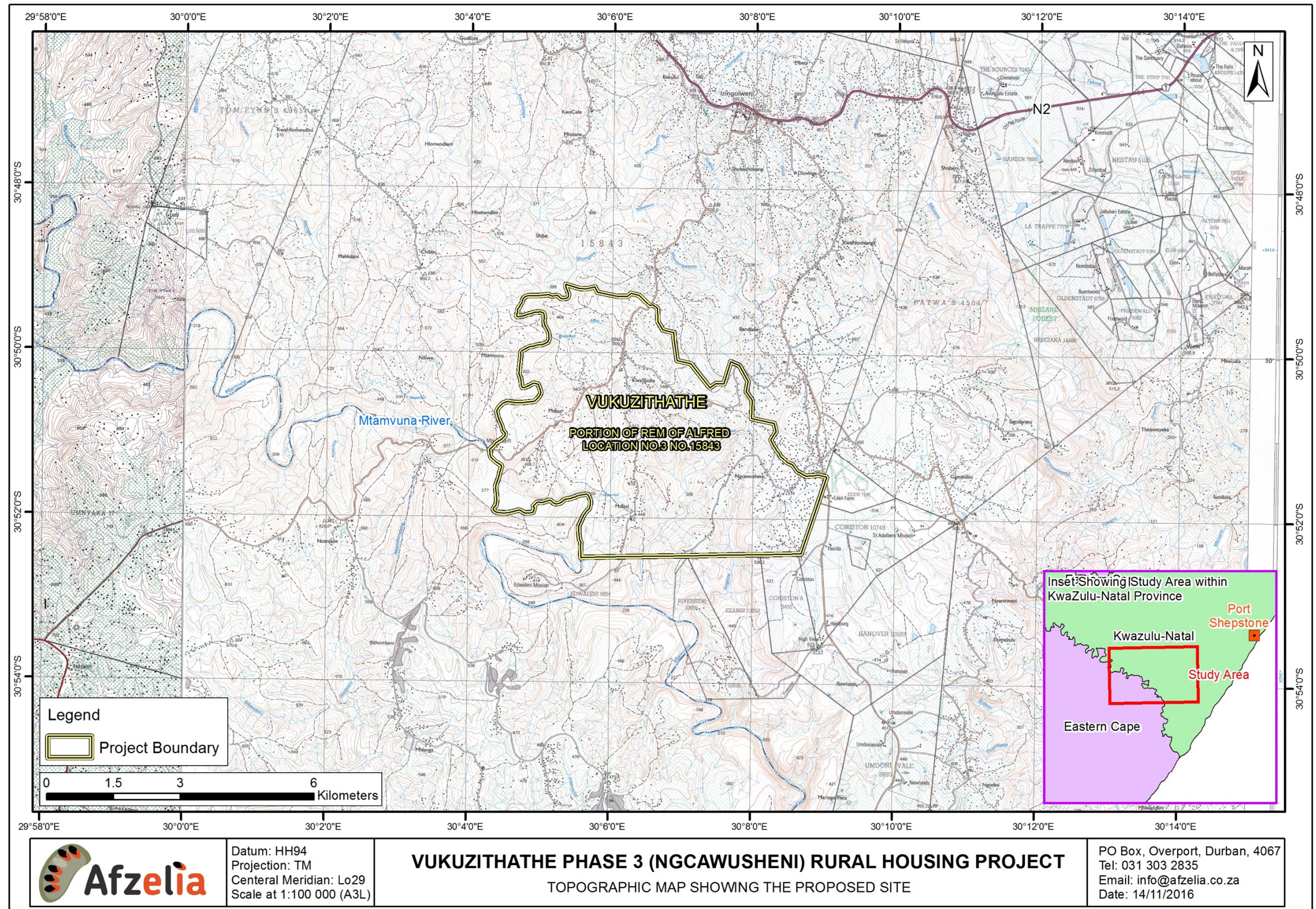


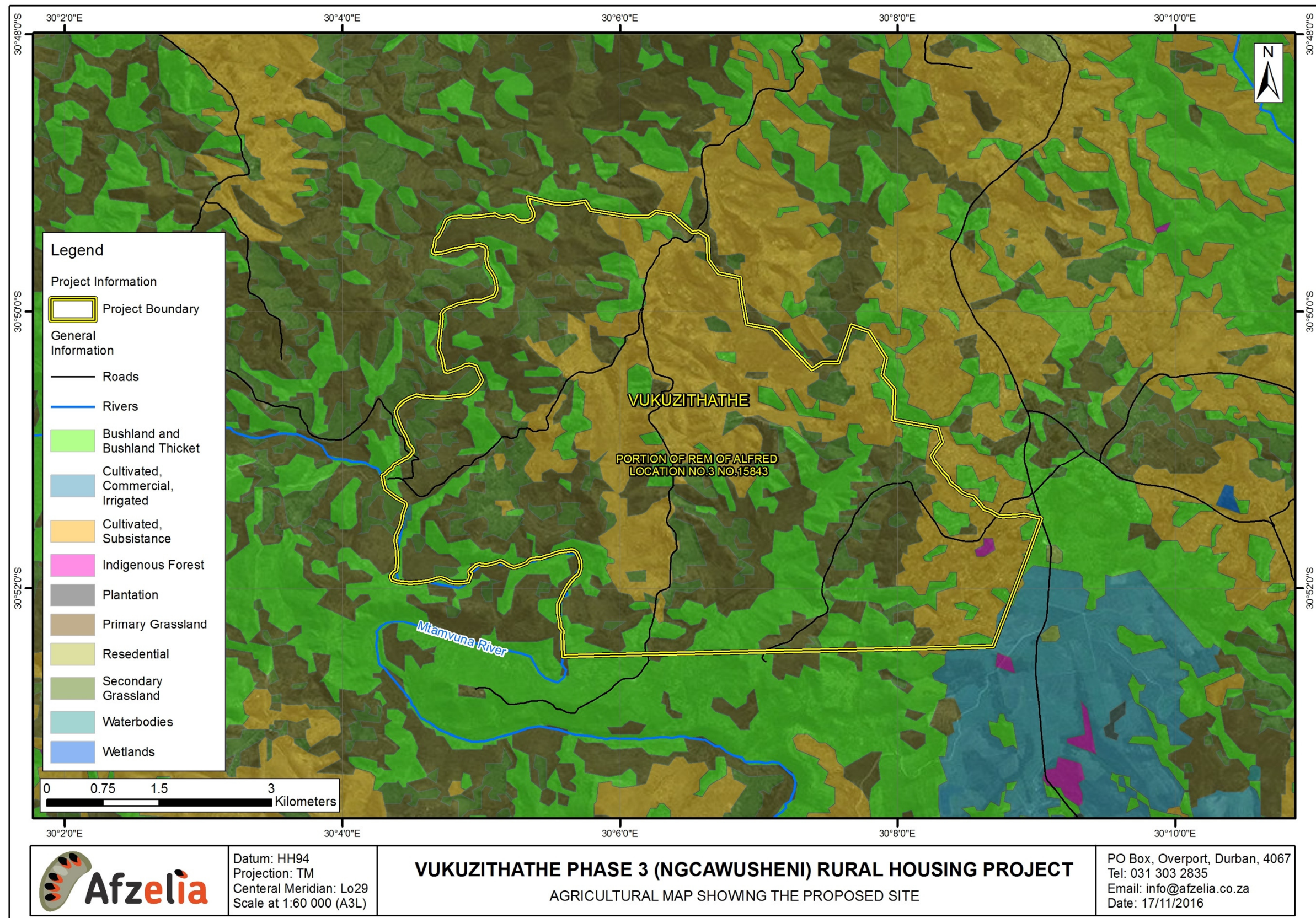


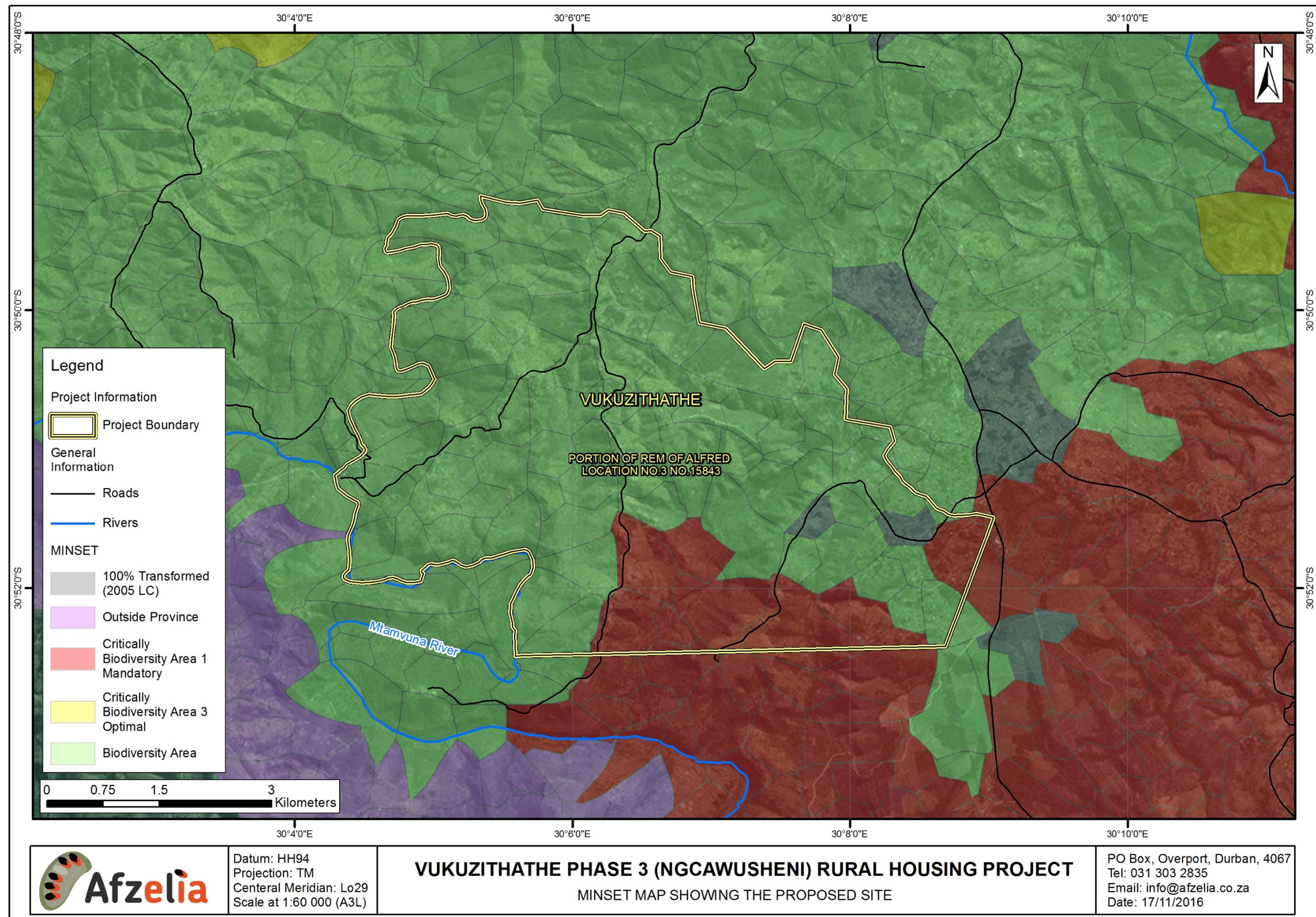




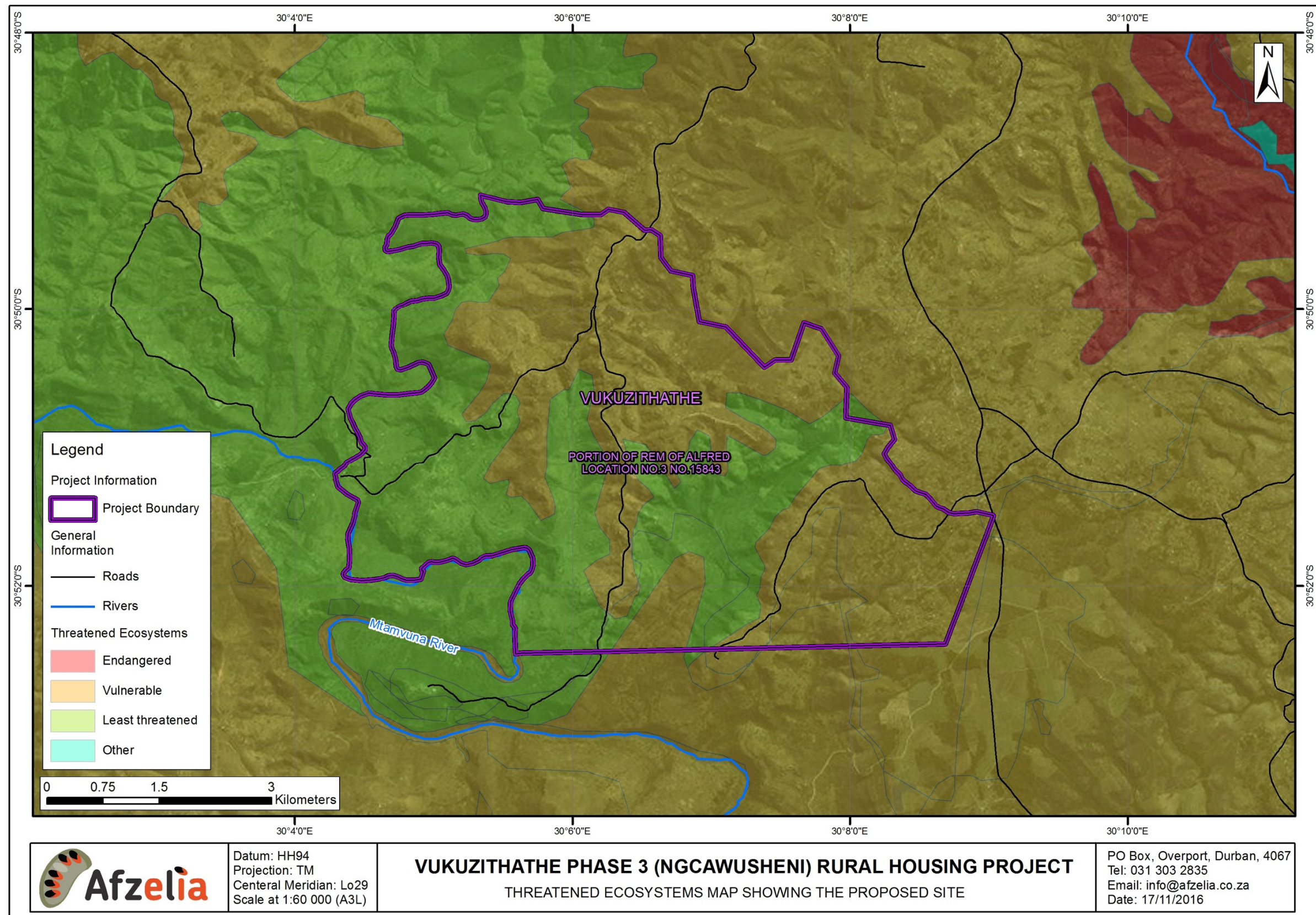


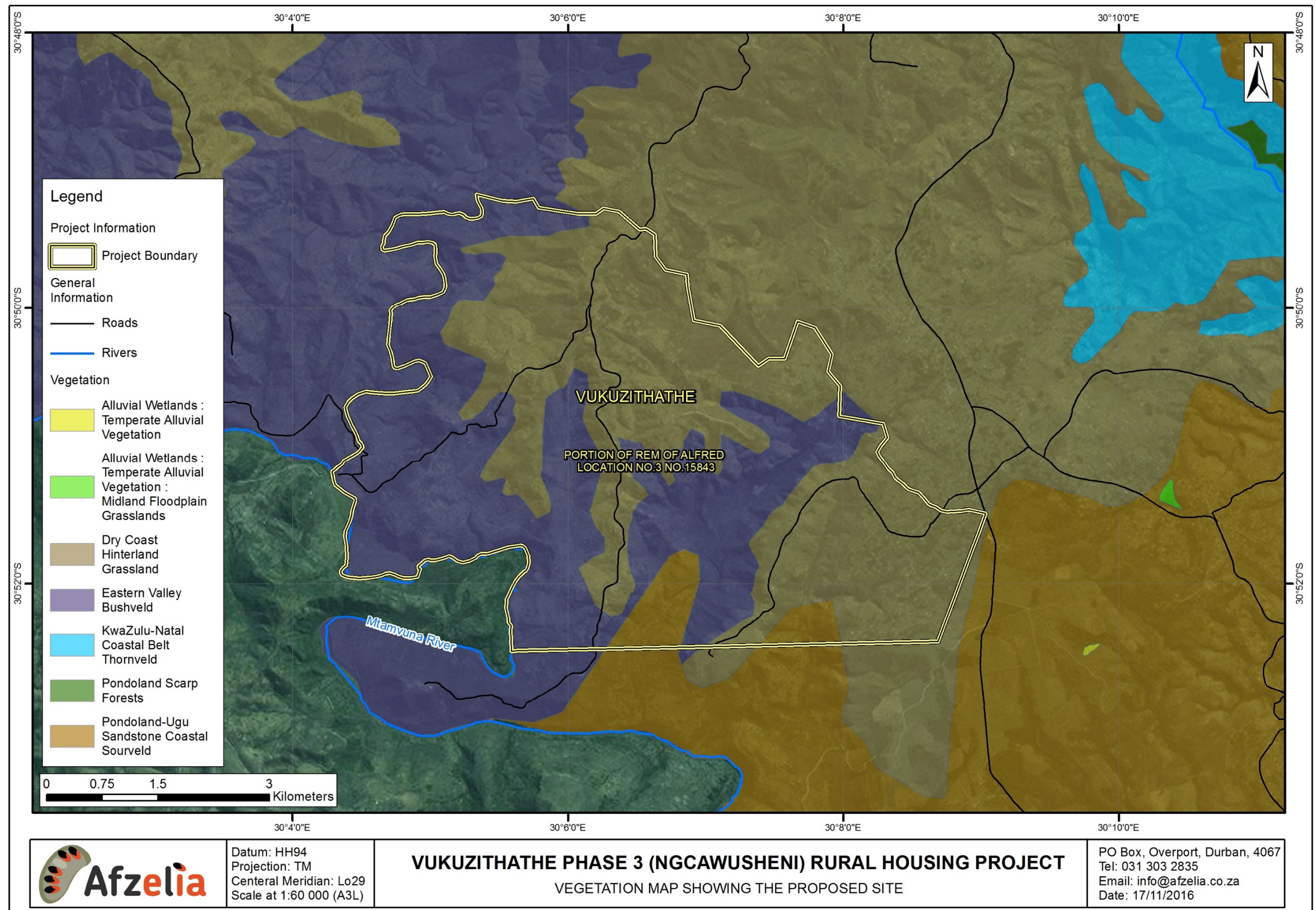






Appendix 5 Threatened ecosystems





Datum: HH94
 Projection: TM
 Central Meridian: Lo29
 Scale at 1:60 000 (A3L)

VUKUZITHATHE PHASE 3 (NGCAWUSHENI) RURAL HOUSING PROJECT
 VEGETATION MAP SHOWING THE PROPOSED SITE

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