1. BASIC ASSESSMENT PROCESS

The assessment of impacts must adhere to the minimum requirements in the EIA Regulations, 2014, and should take applicable official guidelines into account. The issues raised by interested and affected parties should also be addressed in the assessment of impacts.

2. OBJECTIVE OF THE BASIC ASSESSMENT PROCESS

According to Regulation No. R 326 of 7 April 2017, the objective of the EIA process is to, through a process of consultation:

a. Identify the policies and legislation relevant to the study and how the study complies with the policies and legislation.
b. Identify the alternatives considered, including the activity, location and technology alternatives.
c. Motivate the need and desirability of the proposed activity including the need and desirability of the activity in the context of the preferred location.
d. Identify the location of the development footprint within the preferred site based on an impact assessment and risk ranking process which includes cumulative impacts and a ranking process of all the identified alternatives focussing on the geographical, physical, biological, social, economic and cultural aspects of the environment.
e. Determine the:
    a. Nature, significance, consequence, extent, duration and probability of the impacts occurring to inform preferred alternatives; and
    b. Degree to which these impacts
        i. Can be reversed;
        ii. May cause irreplaceable loss of resources, and
        iii. Can be avoided, managed or mitigated.
f. Identify the most ideal location for the activity within the preferred site based on the lowest level of environmental sensitivity identified during the assessment.
g. Identify site sensitivities and possible impacts that the activity and technology alternatives will impose on the sites and location identified through the life of the activity to:
    i. Identify and motivate a preferred site, activity and technology alternative;
    ii. Identify suitable measures to avoid, manage or mitigate identified impacts; and
    iii. Identify residual risks that need to be managed and monitored.

3. DETAILS OF EAP AND APPLICANT

3.1 ENVIRONMENTAL ASSESSMENT PRACTITIONER

The application will be handled on the behalf of the applicant by:

TEKPLAN Environmental
Regmari office park, Unit no. 3, 104 Peter Mokaba street, Potchefstroom 2520

Tel: (083) 459 7120 or 0152914177
Email: tecoplan@mweb.co.za AND theokotze@hotmail.com

Contact person: Mr. THEO KOTZE (Masters degree, Environmental Management, NWest University 2003. See Appendix A - EAP Details and Expertise.

This Report was compiled by:

_____

Mr. THEO KOTZE
Registered EAP
EAPASA Ref: 2020/1349

3.2 APPLICANT

In this instance the applicant is:

Vodacom (Pty) Ltd

082 Vodacom Blvrd
Voda Valley
Midrand
1682

Cell: 082 561 8581
Email: hildalene.vanderwesthuizen@vodacom.co.za

Contact person: Ms. Hildalene van der Westhuizen

4. PROJECT LOCATION

The proposed development site is located in the MOQHAKA LOCAL MUNICIPALITY, Fezile Dabi district, Free State province.

Site coordinates: S26°57'45.39" E27°13'28.42".

See enclosed locality maps (Appendix B).

The Surveyor-general 21 digit site reference number for the property that is part of the application is as follows:

- **F 0 3 8 0 0 0 0 0 0 0 0 0 5 1 5 0 0 0 0 0**

5. SCOPE OF THE PROPOSED ACTIVITY

5.1 LISTED ACTIVITIES TRIGGERED IN TERMS OF NEMA

The proposed development project is listed in the environmental regulations, as published in Government Notice No. 40772 of 2017.

The proposed development project is classified under the following section of this schedule:

Number and date of the relevant notice:	Activity No (s) and Activity Description (in terms of the relevant notice)	Describe each listed activity as per project description
GN.R. 324, 7 April 2017	3.(b)(i)(gg) Listing notice 3 Activity 3: The development of masts or towers of any material or type used for telecommunication broadcasting or radio transmission purposes where the mast or tower— (a) is to be placed on a site not previously used for this purpose; and (b) will exceed 15 metres in height— b. Free State i. Outside urban areas: (aa) A protected area identified in terms of NEMPAA, excluding conservancies; (bb) National Protected Area Expansion Strategy Focus areas; (cc) Sensitive areas as identified in an environmental management framework as contemplated in chapter 5 of the Act and as adopted by the competent authority; (dd) Sites or areas identified in terms of an international convention; (ee) Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans; (ff) Core areas in biosphere reserves; or (gg) Areas within 10 kilometres from national parks or world heritage sites or 5 kilometres from any other protected area identified in terms of NEMPAA or from the core areas of a biosphere reserve.	This project will consist of an individual mast. The mast site will consist of the following components: * A site measuring approximately 12m x 12m in extent. * A lattice mast measuring approximately 55 meters in height. * A container housing electronic equipment surrounded by a steel palisade fence. The proposed site is located on FARM EERSTEGELUK 515-VREDEFORT-RD, MOQHAKA LOCAL MUNICIPALITY.

5.2 OTHER LEGISLATION

Title of legislation, policy or guideline:	Administering authority:	Date:
National Water Act (NWA), Act 36 of 1998	Department of Water and Sanitation	1998
National Forests Act, No 84 of 1998	Department Forestry, Fisheries and the Environment	1998
Section 2 of the National Heritage Resources Act, 1999, (Act No. 25 of 1999)	SAHRA	1999
National Veld and Forest Fires Act, 1998 (Act 101 of 1998)	Department Forestry, Fisheries and the Environment	1998
Conservation of Agricultural Resources Act (Act 43 of 1983)	Department of Agriculture	1983

5.3 PROJECT DESCRIPTION

Vodacom intends to construct a 55m lattice mast with antennae mounted onto the mast, and container housing associated equipment. The size of the base station (fenced area) in which the mast and associated equipment will be placed will measure 12m x 12m (144m^2). See Appendix C – Facility Illustration.

The site will be operated on the following technologies namely 2G, 3G and 4G. Frequency bands used for the technologies will be as follows: 900Mhz, 1800Mhz and 2100Mhz. The proposed frequency use on the site / equipment might be changed in future according the Vodacom Network best operating interest and this is also dependent on frequency allocations for operational use from ICASA. The antenna to be used is the Huawei AAU5951 (See Appendix P - Antenna Description).

The mast will be painted red and white (Day markings) with navigation lights (Night Markings) on top of the mast as per Civil Aviation Authority Approval (see Appendix N).

6. NEED AND DESIRABILITY

VODACOM has identified the need for better cell phone coverage and capacity in the area of Vredefort Dome, as there are certain areas where cell phone coverage is intermittent. The erection of a new mast will ensure that additional coverage is attained in this area and will improve the current capacity (more people will be able to use their cell phones).

Concomitantly, an overhead line would mean that a new row of poles would have to be planted and bush would have to be cleared underneath such a line. Clearly the aesthetic and biological impacts resulting from this course of action are excessive when compared to the project as proposed by Vodacom. The cell phone network reduces the number of poles significantly, and circumvents the theft of copper wires. The surface area that will be covered on the ground is approximately 144m². The impact will be very small on the environment.

The community in the area will benefit, as they will have better cell phone reception.

The proposed mast will enhance the Vodacom coverage in the area. The cell phone coverage will remain problematic in the area should this activity not take place. Should the mast not be built on the proposed site, an alternative site must be planned.

Vodacom need to upgrade their network in the area. These network problems will be resolved after the mast has been erected.

7. MOTIVATION FOR THE PREFERRED DEVELOPMENT FOOTPRINT WITHIN THE PREFERRED SITE

The main reasons for the location of the project in the selected area is as follows:

- The proposed site is big enough to accommodate the proposed Vodacom mast. The proposed size of the site is 12m x 12m = 144m².
- Access and electricity are available at the proposed site.
- No rare or endangered fauna or flora species were identified during the Ecological Assessment.
- The proposed development will not result in inordinately high visual impacts – see enclosed Visual Impact Assessment.
- The proposed development will not result in inordinately high impacts on heritage components – see enclosed Heritage Impact Assessment.
- The site for the base station is currently vacant and is not being used by the landowner (farmer).
- The site is located within the fenced yard of a farmstead (farm house).
- No road construction will be necessary to the proposed site.
- Unnecessary stressing/impacting of the environment can be mitigated through the implementation of the recommendations contained in the BAR. The impact on the environment will therefore not be significant. Other alternative sites are thus not feasible as the impact on the environment will be more significant than that of the proposed site.

The proposed site is thus suitable for a development of this kind.

8. CONSIDERATION OF ALTERNATIVES

8.1 DETAILS OF ALTERNATIVES CONSIDERED

Activity Alternatives

Activity alternatives that were investigated include the type of mast to be constructed i.e. lattice mast versus a monopole mast. The preferred alternative is that of a lattice mast.

The advantage of this type of structure, is that one can look through the structure.

Another advantage of a lattice type structure, is that it allows for many types of radio systems to be used i.e. also point-to-point microwave systems providing transmission to other masts in the area. If a mast is built with co-using/sharing in mind, less masts needs to be built as many of the sectional pole (mono-pole) type masts are not suitable for co-using and are unsuitable for many point-to-point systems as only one height is available for these systems at the crow's nest. On a lattice mast, point to point systems can be mounted on any platform with sufficient line of sight and for Omni directional purposes (coverage), the top 10 - 15m of the mast can be utilized. In general, maintenance is more simplified on a lattice mast, as there is more space to work on the mast with its different platforms.

Location Alternatives

The area where the activity is proposed is experiencing challenges with their cellular network, therefore the applicant saw an opportunity to provide assistance by the provision of a cellular structure that is to accompany more than one service provider.

The search for a suitable site starts with the identification of the need for improved cellular coverage in an area. The Radio Planners indicate the optimal position as the best position in the area.

A team investigates all possible positions and the land owner was approached in order to lease a portion of his land for the structure and a lease agreement was reached.

Three alternative positions for the proposed VODACOM mast were assessed – these are located at the following coordinates;

- Alternative 1 - S26 57 45,39 E27 13 28,42 (preferred alternative)
- Alternative 2 - S26 57 36,59 E27 13 12,81
- Alternative 3 - S26 57 35,94 E27 12 49,44

The proposed position (preferred alternative as above) is the position where the mast will be most sufficient to provide cell phone coverage in the area. The proposed 144m² site does not have any impact on any large trees. It will not be necessary to remove any trees for the proposed development.

Eskom power supply is very close from the proposed site. There is also already an access road to the proposed site. It will not be necessary to construct any new access road to the site.

Concerns relating to the social impacts of a development such as this one could range around aspects such as dissatisfaction with the proposed infrastructure based on value judgements, e.g. perceptions that the “sense of place” could be disturbed.

It is recommended that possible negative impacts be mitigated through the implementation of the proposals contained in this report.

The writer came to the conclusion that, done in the right way the advantages of the proposed development, will outweigh the social disadvantages, which might result from the installation and existence of this infrastructure.

Technology Alternatives

The proposed mast will be a 55m lattice mast. Vodacom will implement elements of good visual design.

The proposed mast, in itself, represents an alternative to the conventional telephone lines. Cell phone networks reduce the number of poles significantly and circumvent the theft of copper wires.

NO-GO Alternative

This implies that the site be left as is and that no development or alteration be done.

The Department of Environmental Affairs stresses the consideration of the “no development/no-action” option in cases where a proposed development is envisaged to have significant negative environmental impacts, or where such impacts cannot be mitigated against effectively or satisfactorily. The IEM procedure suggests that the “no action” option should be considered as an alternative. This option is normally considered during a full EIA where significant negative environmental impacts are expected or if the proposed site is considered to be ecologically sensitive or unique.

Due to the extremely limited extent of the proposed mast site (144m^2), the impact upon fauna and flora will be minimal. No rare or endangered fauna or flora species were identified during the Ecological Assessment.

The proposed development will not result in inordinately high visual impacts – see enclosed Visual Impact Assessment.

The proposed development will not result in inordinately high impacts on heritage components – see enclosed Heritage Impact Assessment.

The cell phone coverage and capacity will remain problematic in the area should this activity not take place. Should the mast not be built on the proposed site, then an alternative site must be planned.

9. PUBLIC PARTICIPATION

9.1 INTRODUCTION

The public participation process as pertaining to this application for authorization, consisted of the following:

9.1.1 SITE NOTICE

A site notice was placed on site in order to inform passers-by of the proposed development and the associated Basic Assessment process (see Appendix D – Site Notice).

9.1.2 NEWSPAPER

An advertisement giving notice of the Basic Assessment process appeared in a local newspaper (Parys Gazette on 24 Feb 2022) - see Appendix E – Newspaper Advertisement.

9.2 CONSULTATION WITH OTHER PARTIES

The following authorities and/or other parties, were informed in writing of the proposed development:

- Dr Fezile Dabi District Municipality
- Moqhaka Local Municipality
- Vredefort dome - North west land owners
- Deat national - Director: Chief directorate - Environmental protection and infrastructure programmes
- Free State Dept Arts, Culture & Sport
- Department of Agriculture (Directorate: Agricultural land resource management)
- Sahra
- Koepel farmers association
- Vredefort dome – Free state land owners
- Vredefort dome WHS MA
- Save the Vaal environment
- Management committee: Vredefort Dome Bewarea
- Vredefortdome.org
- Vredefort Dome Tourism

All adjacent property owners were informed in writing of the proposed development – see enclosed list.

No negative comments were received during the initial public participation.

One land owner (Mr Ines Nel) indicated that they support the project due to the bad “signal” (network coverage) in the area

See Appendix F – First communication sent to Interested and Affected Parties (inviting them to register as I&Aps).

9.3 SUMMARY OF ISSUES RAISED BY INTERESTED AND AFFECTED PARTIES

A copy of the Draft Basic Assessment Report will be submitted to the following stakeholders to comment on (see Appendix H):

- Moqhaka Local Municipality
- Department of Agriculture (Directorate: Agricultural land resource management)
- Sahra
- Koepel farmers association
- Vredefort dome – Free state land owners
- Vredefort dome – North west land owners

10. ENVIRONMENTAL ATTRIBUTES ASSOCIATED WITH THE FOOTPRINT ALTERNATIVES

10.1 CURRENT LAND USE

The application property measures approximately 140 hectares and the current land use for the property is agriculture.

10.2 FAUNA

No fauna was observed on site during the site visit.

10.3 FLORA

The veld type is classified by Mucina and Rutherford (2005) as Gold Reef Mountain Bushveld (SVcb 9). The conservation importance of the veld types according to Mucina and Rutherford (2005) is summarized in Table 1.

Table 1: Conservation Importance of the veld type

Vegetation	Biogeographical Importance Endemic taxon	Conservation
Gold Reef Mountain Bushveld (SVcb 9).	Aloe peglerae Frithea pulchra	Least Threatened and Target 24% and 15% transformed. Target 24% Only 1% statutorily conserved.

The site sensitivity of the site is low as the area falls within agricultural Land use and outside CBA1 (Aquatic) and CBA (Terrestrial). The site falls in ESA 2(Terrestrial). The site occurs within land use zone of agriculture where natural veld was transformed for dryland cultivation. No protected trees or plants occur on the site.

See Appendix K – Photos.

10.4 ECOLOGICAL FEATURES

An Ecological Assessment of the proposed site was conducted (see Appendix O – Ecological Assessment) and the findings are summarized as follows.

Summary:
This site occurs on disturb farm land where most of the natural vegetation have been removed in the past. The site is in the yard of a farmhouse.

The site was evaluated on the basis of the natural vegetation present, and aquatic systems, its rarity and sensitivity. The site, as part of agricultural development, has limited sensitive ecosystems with no rare plants or protected trees present.

The site sensitivity of the site is low as the area falls within agricultural Land use and outside CBA1 (Aquatic) and CBA (Terrestrial). The site falls in ESA 2(Terrestrial). The site occurs within land use zone of agriculture where natural veld was transformed for dryland cultivation. No protected trees or plants occur on the site.

This site was also evaluated according to the conservation importance, occurrence of alien plants and sensitive habitats that include drainage systems.

Detailed assessment and analysis of the area was carried out to evaluate the sensitivity and rarity so that a more objective and scientific evaluation can be obtained. Every effort was made during the assessment to identify areas recognized as sensitive or rare. Sensitive areas of obvious sensitivity need long-term mitigation measures.

The impact on the site for the proposed development is low as no natural habitat is left and the site is surrounded by a farm house.

Conclusion:

The impact on the site for the proposed development is low as no natural habitat is left and the site is surrounded by a farms house and old lands and grazing camps. The Vaal River is 1.4 km west of the site. No Protected, rare and endangered species was noticed on the site. A few *A. karoo* trees and *Z. mucronata* trees occur near the site. The construction site of only 12 x 12 m will not disturb the trees. No alien trees and shrubs occur on the site.

Recommendations:

The following is recommended:

- Bare ground surrounding the site be rehabilitated after construction.
- Planting of some indigenous trees as part of mitigation is an option.

The planned development, which is part of the broad communication development, is supported provided necessary mitigation measures are adhered to.

10.5 CLIMATE

The study area has summer rainfall with very dry winters.

The warmest month is January, with an average high-temperature of 28.8°C (83.8°F) and an average low-temperature of 16.8°C (62.2°F).

In the Vredefort area the average relative humidity is 58%.

In January, in Vredefort, rain falls for an average of 10.8 days. Throughout January, 36mm (1.42") of precipitation is accumulated. Throughout the year, there are 76.4 rainfall days, and 266mm (10.47") of precipitation is accumulated.

In January, the average length of the day is 13.6h. The average sunshine in January is 11.5h.

10.6 TOPOGRAPHY

The project site is located on the northern slope of a ridge line running more-or-less north-south through the study area. This ridge line form part of the eastern section of the larger Vredefort Dome Crater topography. It also forms part of the ridge-valley system associated with the Vaal River.

10.7 SURFACE WATER

No drainage lines are near the site and the Vaal River is approximately 1.25 km west of the site.

10.8 GEOLOGY AND SOILS

The geology is described by Mucina and Rutherford (2004) as predominately quartzites with land types mainly Ib and Fb towards the steeper slopes and crests of the mountains with Glenrosa and Mispah soils. Alluvial soils on the plains adjacent to the river include Hutton and Clovelly and Avalon soils with high agricultural value.

10.9 CULTURAL/HISTORICAL ATTRIBUTES

An Archaeologist was appointed to conduct a Heritage Impact Assessment on the proposed development site. See Appendix L – Heritage Impact Assessment Report.

The aim of the study is to survey the proposed development footprint to identify cultural heritage sites, document, and assess their importance within local, provincial and national context. It serves to assess the impact of the proposed project on non-renewable heritage resources, and to submit appropriate recommendations with regard to the responsible cultural resources management measures that might be required to assist the developer in managing the discovered heritage resources in a responsible manner. It is also conducted to protect, preserve and develop such resources within the framework provided by the National Heritage Resources Act of 1999 (Act No 25 of 1999).

During the survey, no heritage sites were identified in the impact area. General site conditions and features on sites were recorded by means of photographs, GPS locations and site descriptions. Possible impacts were identified and mitigation measures are proposed in the report.

The study area was found to be devoid of any heritage sites with significance and severely altered from the natural landscape. It is recommended that obscured, subterranean sites be managed, if they are encountered.

The historic topographical maps shows both graves and historic structures on some of the older maps, however this could not be verified on the ground. It is therefore expected that they have been destroyed sometime in the past.

The impact of the project on heritage resources is considered to be low and it is recommended that the proposed project can commence on the condition that the following recommendations are implemented as part of the EMPr and based on approval from SAHRA:

- Implementation of a chance finds procedure (as outlined in Section 10 of the Report).

Paleontology:

The SAHRIS Palaeo Sensitivity Map places the site within the "Blue" designation (Low Significance). No Palaeontological Studies are required, however a protocol for finds must be included in the unlikely event that any paleontological resources are uncovered. This is included at the end of the Heritage Impact report.

10.10 SOCIO-ECONOMIC CHARACTER

According to the *Vredefort Dome World Heritage Site Environmental Management Framework – October 2013* the following is a snapshot of the prevailing socio-economic circumstances in the Vredefort Dome area:

Population
The VDWHS area is sparsely populated. The ward that falls in the North West Province section of the VDWHS has a much bigger population size than any of the wards in the Free State section. In all wards in the VDWHS, the majority of the population (more than 50%) are in the 18 to 50 years age group from.

Levels of education
There are a high number of people with Grade 0 – 11 education in the VDWHS. Overall, the number of people with tertiary qualifications is lower (8%) than the national average of 12%, with certificates or diplomas being the most frequent tertiary qualification (4%). Both the number of people with no schooling at all (7%) and the number of people with higher postgraduate qualifications (1), such as honours, master and doctorate degrees are lower than the national averages.

Employment levels

The VDWHS in general is an economically marginal area with limited economic activities and employment opportunities. Although there are high levels of unemployment in the VDWHS, the levels of unemployment are lower than in the adjacent cities and towns. A large segment (36%) of the available workforce in the VDWHS is employed to some extent, above the national average of 25%. 52% of the employed individuals work in the formal sector, while 31% and 17% work in the informal sector and private households, respectively. The segment of the workforce employed in the informal sector is rather high, which will affect the overall economic development of the area. Unemployment levels seem to concur with low education levels. Consequently, the part of the population with the lowest education rates also seems to have the highest unemployment rates, lowest levels of income and the least access to resources

Cell phone coverage

According to the *Vredefort Dome World Heritage Site Environmental Management Framework – October 2013* **cell phones** are regarded as the primary means of communication in the VDWHS.

Most of the buffer zone of the VDWHS has cell phone coverage, but a large portion of the core area, including the central valley where most tourism activities are located, has no or very limited coverage. The topography of the area presents a physical constraint for the effective coverage of the area, while the sparse population and small economic base might make the expansion of infrastructure in the area a low priority for cell phone companies.

10.11 AESTHETIC AND/OR VISUAL ENVIRONMENT

A Visual Impact Study i.r.o. of the proposed VODACOM mast was conducted (See Appendix M).

The main (relevant) conclusions of the mentioned study are -

- *The receiving environment has a strong rural – agricultural sense of place.*
- *The study area is located on the western portion of the remainder of the rim of the Vredefort Dome.*
- *Tourism and agriculture are the main land uses / activities within the study area.*
- *The Zone of Visual Influence is relatively small and contained for a project of such a scale (height).*
- *High sensitivity visual receptors include farmsteads and tourist attractions.*
- *The Liebertas farmstead is the only high sensitivity visual receptor within the large visual exposure zone.*
- *There are two tourist facilities, Liebertas Oord (approximately 1,3km to the northwest) and Sunnyside River Lodge (approximately 1,3km to the southwest) as well as the farmstead on the farm Mispa (approximately 4km to the north of the mast) within the intermediate visual exposure zone.*
- *The proposed Vodacom Base Station project exhibits a high contrast with elements that form the character of the receiving environment.*
- *The anticipated impact will however be contained to an area of approximately 20% due to the undulating valleys as well as the ridges associated with the Vredefort Dome impact site.*

Description of the environment (as it relates to Visual / Aesthetic impacts)

The residential component comprises mostly of farmsteads and workers housing. The nearest formal settlement is the town of Vredefort, located approximately 14km to the east. There are various local gravel roads within the study area. The S80 runs approximately 600m west of the proposed mast location in a north-south direction. The roads are mostly used to serve the local community in commuting and transport of agricultural produce and livestock. The land use within the study area is mainly agriculture and farming. Crop production includes peanuts, sorghum, sunflowers and maize while livestock farming includes cattle and sheep farming.

The study area also forms part of the larger Vredefort Dome tourist attraction and hosts lodges and camp sites in support of the related tourist activities. Tourist activities in the greater Vredefort crater area hiking, trail running, mountain biking, river rafting, 4x4ing, spa facilities, sky diving, hot air ballooning and many more.

The moderately undulating topography and clearance of natural vegetation to make way for crop production result in a relatively low visual absorption capacity for the study area. The bushveld type vegetation act as visual screens when located within the foreground of key observation points. The ridges, on the other hand, provide a backdrop to absorb higher structures to the degree that the colour contrast allows. The rural night-time character is mostly characterised by lights associated by the farmsteads and worker housing as well as the various tourist accommodation facilities. These are however few and have little impact on the night-skies. The skies are mostly unpolluted by either airborne particles or light pollution. Dust from agricultural activities would be the biggest source of air pollution.

The overall sense of place is that of tranquillity induced by agricultural activities, open, undulating valleys as well as the presence of the Vaal River.

Conclusion

The proposed Vodacom Base Station project exhibits a high contrast with elements that form the character of the receiving environment.

However, the *Zone of Visual Influence* is relatively small and contained for a project of such a scale (height).

High sensitivity visual receptors include farmsteads and tourist attractions.

The Liebertas farmstead is the only high sensitivity visual receptor within the *large visual exposure* zone.

There are two tourist facilities, Liebertas Oord (approximately 1,3km to the northwest) and Sunnyside River Lodge (approximately 1,3km to the southwest) as well as the farmstead on the farm Mispa (approximately 4km to the north of the mast) within the *intermediate visual exposure* zone.

11. IMPACTS THAT MAY RESULT FROM THE PLANNING AND CONSTRUCTION PHASE

11.1 METHODOLOGY UTILISED IN THE RATING OF SIGNIFICANCE OF IMPACTS

11.1.1. Introduction

The impact assessment aims at identifying potential environmental impacts (both positive and negative impacts) and evaluating these impacts in terms of its significance. This assessment is provided in the form of a systematic analysis framework to evaluate the nature, intensity and significance of the various impacts are considered both without and with mitigation and management measures.

Certain actions will take place during the planning & construction and operational phases of the proposed development, which relate to the environment. These actions have potential to impact on adjacent land uses and the natural environment.

In view of this a preliminary list of potential environmental impacts (issues) were identified – these issues can be summarized as follows:

a) Potential for the proposed development to impact on the biological environment (i.e. fauna & flora) - especially red data species, biological communities, bio-diversity, etc.,
b) Potential for the proposed development to impact on the current utilisation of the application property,
c) Availability of engineering infrastructure to support the sustainability of the proposed development (electricity and roads),
d) Potential for the proposed development to impact upon current adjacent land uses (i.e. **during construction** e.g. nuisances, erosion, pollution, etc.),
e) Potential for the proposed development to impact upon current adjacent land uses (i.e. **after establishment** e.g. social conflicts, pollution, visual quality of the landscape, waste generation, etc.),
f) Potential for the proposed development to impact on heritage resources,
g) Potential for the proposed development to impact on the physical environment (air e.g. dust, water e.g. increased storm water, land e.g. soil compaction),
h) Potential for the proposed development to impact on "quality of life" and character of the surrounding area,
i) Potential for the proposed development to impact on natural resources,
j) Social dimensions of the proposed development (e.g. crime, security management, etc.).

Detailed studies on potentially significant impacts will be investigated within the Basic Assessment study of the project for each aspect.

11.1.2. Impact Assessment Criteria

The assessment of the potential impacts of the envisaged development is undertaken in accordance with the broad criteria required by the integrated environmental management procedure and includes the following:

a. Nature of Impact

A brief description of the type of impact the proposed development will have on the affected environment.

b. Intensity

This criteria evaluates intensity of the impact and are rated as follows:

i. Minor

The activity will only have a minor impact on the affected environment in such a way that the natural processes or functions are not affected.

ii. Low

The activity will have a low impact on the affected environment.

iii. Medium

The activity will have a medium impact on the affected environment, but function and process continue, albeit in a modified way.

iv. High

The activity will have a high impact on the affected environment which may be disturbed to the extent where it temporarily or permanently ceases.

v. Very high

The activity will have a very high impact on the affected environment which may be disturbed to the extent where it temporarily or permanently ceases.

c. Determination of significance:

Significance is determined through a synthesis of the various impact characteristics and represents the combined effect of the extent, duration, intensity and probability of the impacts.

i. No significance

The impact is not substantial and does not require any mitigatory action.

ii. Low

The impact is of little importance, but may require limited mitigation.

iii. Medium

The impact is of importance and therefore considered to have a negative impact. Mitigation is required to reduce the negative impacts to acceptable levels.

iv. High

The impact is of great importance. Failure to mitigate, with the objective of reducing the impact to acceptable levels, could render the entire development option or entire project proposal unacceptable. Mitigation and management is essential.

Description and comparison of the potential impacts (as appropriate), significance rating of impacts, proposed mitigation and significance rating of impacts after mitigation that are likely to occur as a result of the construction phase for the various alternatives of the proposed development. This includes an assessment of the significance of all impacts.

11.2 DESCRIPTION AND COMPARISON OF THE POTENTIAL IMPACTS

11.2.1 Planning and Design Phase

Potential impacts:	Significance rating of impacts (positive or negative):	Proposed mitigation:	Significance rating of impacts after mitigation:
Floral Disturbances	Medium - Low	• Before any vegetation is removed, a suitably qualified person (i.e. on Environmental Control Officer request of a vegetation specialist) shall inspect the study area for any plant/ grass/tree species that could be transplanted to other similar/suitable areas. • All invader or exotic plant species must be removed from the site and disposed of at a landfill site. • Only indigenous floral species may be used during landscaping and rehabilitation. • The size of the base station will measure approximately 12m x 12m (144m^2) in extent. Very limited natural vegetation will need to be disturbed.	Low
Faunal Disturbances	Medium - Low	• Snaring and hunting of fauna by construction workers on or adjacent to the site are strictly prohibited and the Local Municipality shall prosecute offenders. It should also be a condition of employment that any employees/ workers caught poaching will be dismissed. • Workers must be trained on how to deal with fauna species as intentional killing will not be tolerated.	Low

		• Where possible, work should be restricted to one area at a time, as this will give the smaller birds, mammals and reptiles a chance to weather the disturbance in an undisturbed zone close to their natural territories.	
Visual Impact	Medium	• A Visual Site Sensitivity Verification of the Visual Impact of the proposed mast was conducted (See Appendix M). • The proposed Vodacom Base Station project exhibits a high contrast with elements that form the character of the receiving environment. However, the *Zone of Visual Influence* is relatively small and contained for a project of such a scale (height). *High sensitivity visual receptors* include farmsteads and tourist attractions. • The contractor shall ensure that the visual impact of the construction activities is minimised.	Low-Medium
Network Upgrade	High – Medium (Positive)	• Vodacom need to upgrade their network in the area. These network problems will be resolved after the mast has been erected. • The residents in the area will benefit by this development as the cellular network in the area will be upgraded. • Vodacom reception will improve in the Vredefort Dome area.	High – Medium (Positive)

11.2.2 Construction Phase

During the construction phase (i.e. during the installation of the engineering services, there will be severe impacts on the bio-physical environment). Special care should be given to protected trees.

Ideally flora such as medicinal plants and firewood should be removed by local traditional healers / residents prior to construction if possible. Large trees should be retained where possible. Unnecessary removing of vegetation from areas which will not be utilised, should be avoided at all costs.

Contractors should remove all waste generated by themselves during the construction period and it should be disposed of at a suitable solid waste disposal site – "illegal dumping into the surrounding bush" should not take place.

Concerns are likely to range around the impacts caused by:

- destruction of habitat/biodiversity,
- noise and air pollution, and
- the security of adjacent properties (e.g. children).

Potential impacts:	**Significance rating of impacts (positive or negative):**	**Proposed mitigation:**	**Significance rating of impacts after mitigation:**
Floral Disturbances	Medium - Low	• Before any vegetation is removed, a suitably qualified person (i.e. on Environmental Control Officer request of a vegetation specialist) shall inspect the study area for any plant/ grass/tree species that could be transplanted to other similar/suitable areas. • All invader or exotic plant species must be removed from the site and disposed of at a landfill site.	Low

		• Only indigenous floral species may be used during landscaping and rehabilitation. • The size of the base station will measure approximately 12m x 12m (144m^2) in extent. Limited natural vegetation will need to be disturbed.	
Faunal Disturbances	Medium - Low	• Snaring and hunting of fauna by construction workers on or adjacent to the site are strictly prohibited and the Local Municipality shall prosecute offenders. It should also be a condition of employment that any employees/ workers caught poaching will be dismissed. • Workers must be trained on how to deal with fauna species as intentional killing will not be tolerated. • Where possible, work should be restricted to one area at a time, as this will give the smaller birds, mammals and reptiles a chance to weather the disturbance in an undisturbed zone close to their natural territories.	Low
Visual Impact	Medium	• The proposed mast is located next to an existing farm house and outbuildings. This will assist to lessen the visual impact. Vodacom will implement elements of good visual design. • A Visual Site Sensitivity Verification of the Visual Impact of the proposed mast was conducted (See Appendix M). • The proposed Vodacom Base Station project exhibits a high contrast with	Low-Medium

		elements that form the character of the receiving environment. However, the *Zone of Visual Influence* is relatively small and contained for a project of such a scale (height). *High sensitivity visual receptors* include farmsteads and tourist attractions. • The contractor shall comply with the visual requirements of the Civil Aviation Authority Approval (Day & Night Marking) (see Appendix N) • The contractor shall ensure that the visual impact of the construction activities is minimised.	
Pollution	Low	• The liberation of dust into the surrounding environment shall be effectively controlled by water spraying. • Machinery or equipment used on the site must not constitute a pollution hazard in respect of air pollution via excessive exhaust fumes. This shall be inspected regularly by the contractor and rectified immediately. • No open fires will be allowed to be made on site.	Low
Safety on Site	Low	• The implementation of an Occupational Health and Safety management system should be required of all contractors. Safety measures and work procedures/instructions should be communicated to all construction workers. First aid facilities shall be on hand at all times. Medical screening of employees shall take place.	Low

		• The contractor shall implement adequate and mandatory safety precautions relating to all aspects of the operation. Warning and advisory signage should also be implemented (also with regards to vehicular movement along public roads).	

An environmental impact analysis must always include some statement, definition and delineation of specific environmental 'problems'. Some judgements necessarily have to be made during the steps of predicting, analysing, and judging, environmental impacts therefore this impact assessment has taken into account the following parameters during evaluation of the potential impacts that might result from the proposed development:

- the geographical area/extent of the impact (e.g. local, immediate, regional or national),
- status & intensity (positive (beneficial) or negative (detrimental)),
- significance (an impact of low significance will have only a limited effect on the environment, whereas an impact of high significance will have a major impact on the environment.),
- the probability of an impact (for example "definite', "highly probable", "probable" or "improbable"), and
- the duration of an impact.

In order to undertake the identification of the key issues (significant potential impacts) that might result from the proposed development the writer will rely on the following:

- inputs from Interested & Affected Parties (I&AP's), and
- inputs from specialists.

In this document the writer will allude to alternatives. The purpose of this is to ensure that the developer considers other approaches to the project (that could assist in preventing significant environmental damage). If unforeseen difficulties arise, for example during the operation of the project, re-examination of these alternatives may help to provide rapid and cost-effective solutions.

Each impact was assessed according to the project stages, viz;

- site preparation/construction, and
- operation.

An impact of "low significance" will have only a limited effect on the environment, whereas an impact of "high significance" will have a major impact on the environment.

A "positive impact" is one which enhances the existing environment, whereas a "negative impact", is one which degrades the environment. Where impacts are of high or low significance, the degree of probability has been evaluated and includes the terms "definite", "probable", "possible" or "improbable".

The assessment of the effects of an impact hereunder assumes that mitigation measures have been implemented. If this is not done a range of negative impacts will have a greater effect and positive impacts would not be enhanced.

The duration of an impact is assumed to be short term (less than one year); medium term (one to three years) and long term (beyond three years). Sensitive or vulnerable environments or features as well as secondary and cumulative impacts were also taken into account during evaluation of impacts.

12. ENVIRONMENTAL IMPACT STATEMENT

12.1 SUMMARYOF KEY FINDINGS OF THE EIA

It can be concluded that there will be environmental impacts as a result of the proposed Vodacom mast.

However, all the impacts can be mitigated to an acceptable extent. Most of the impacts can be avoided and potential impacted areas will be demarcated as no-go or limited areas, therefore limiting the possible negative environmental impacts.

12.2 SUMMARYOF POSITIVE AND NEGATIVE IMPACTS AND RISKS OF THE PROPOSED ACTIVITY AND IDENTIFIED ALTERNATIVES

12.2.1 Positive Impacts

Socio economic upliftment in the area. The development will improve Vodacom reception in the area.

12.2.2 Negative Impacts

The development can have negative impacts on the environment during the construction phase. The negative impacts of the development can however be mitigated effectively by application of the mitigation measures in this report and in the EMPr.

- The proposed site is big enough to accommodate the proposed Vodacom mast. The proposed size of the site is 12m x 12m = 144m².
- Access and electricity are available at the proposed site. No road construction will be necessary to the proposed site.
- No rare or endangered fauna or flora species were identified during the Ecological Assessment.
- The proposed development will not result in inordinately high visual impacts – see enclosed Visual Impact Assessment.
- The proposed development will not result in inordinately high impacts on heritage components – see enclosed Heritage Impact Assessment.
- The site for the base station is currently vacant and is not being used by the landowner (farmer).
- The site is located within the fenced yard of a farmstead (farm house).

Unnecessary stressing/impacting of the environment can be mitigated through the implementation of the recommendations contained in the BAR. The impact on the environment will therefore not be significant. Other alternative sites are thus not feasible as the impact on the environment will be more significant than that of the proposed site.

13. FINAL PROPOSED ALTERNATIVES RESPONDING TO THE IMPACT MANAGEMENT MEASURES FROM SPECIALIST REPORTS, PROPOSED IMPACT MANAGEMENT OBJECTIVES AND IMPACT MANAGEMENT OUTCOMES FOR INCLUSION IN THE EMPR

Three alternative positions for the proposed VODACOM mast were assessed – these are located at the following coordinates;

- Alternative 1 - S26 57 45,39 E27 13 28,42 (preferred alternative)
- Alternative 2 - S26 57 36,59 E27 13 12,81
- Alternative 3 - S26 57 35,94 E27 12 49,44

The proposed position (preferred alternative as above) is the position where the mast will be most sufficient to provide cell phone coverage in the area.

The proposed 144m² site does not have any impact on any large trees. It will not be necessary to remove any trees for the proposed development.

The land demarcated where development is proposed to take place is suitable for this development in terms of:

- Not being ecologically sensitive and already regarded as disturbed land by previous development.
- The proposed development will not result in inordinately high visual impacts – see enclosed Visual Impact Assessment.
- Impacts of the development which is mitigatable and can be well managed.

The preferred mast type will be the lattice mast as it will blend in with the surrounded area. The visual impact of such a structure will be less.

14. ENVIRONMENTAL MANAGEMENT PROGRAMME

14.1 DETAILS OF PERSON WHO PREPARED THE ENVIRONMENTAL MANAGEMENT PROGRAMME

This Environmental Management Programme (EMPr) was compiled by:

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EAPASA Ref: 2020/1349

14.2 INTRODUCTION

In terms of the National Environmental Management Act of 1998 (Act No. 107 of 1998) activities related to the construction of cellular base stations and associated infrastructure may have an impact on the environment and it is imperative that precautions be taken to ensure that environmental damage is minimised. The purpose of the Environmental Management Programme (EMPr) is to give effect to precautionary measures, which are to be put in place for controlling the activities that take place on site during the construction & operational phases of a project and to serve as a working document concentrating specifically on certain activities with the purpose of reducing the danger of adverse impacts or effects on the environment.

The EMPr specifies procedures and practices, which should be implemented during construction activities, and monitored by an Environmental Control Officer (ECO) appointed by Vodacom.

The objectives of the EMPr are to:

- → Ensure that all pertinent environmental issues and the concerns of DEDECT are addressed;
- → Determine environmental conditions and sensitivities of the site and areas outside that may be impacted on by the project;
- → Ensure acceptability of design and construction practices with respect to identified impacts and prescribed mitigation measures;
- → Provide strategies for obtaining and/or complying with all environmental approvals, permits and agreements, and to provide a monitoring program;
- → Integrate environmental strategies with all design and construction work; and
- → Provide input and strategies for environmental quality control and risk management during all phases of the project.

The EMPr presented here incorporates these components through the environmental design criteria and specifications for cellular base stations and associated infrastructure. To ensure the effective implementation of these criteria and specifications, Vodacom must be committed to undertaking a program of environmental monitoring during the construction phase. An ECO must provide this service to the applicant. The ECO should ensure compliance with the requirements of the EMPr.

14.3 ENVIRONMENTAL DESIGN AND SPECIFICATIONS

The project involves the establishment of a telecommunication base station that may include the following activities for which environmental design criteria and specifications have been developed:

- → A 55m telecommunication mast;
- → Equipment housing;
- → Receiving and transmission equipment of any size or design;
- → Electronic cabling connections;
- → Electrical connection;
- → Security fencing and walling;
- → Any equipment or activity necessary for the establishment of the base station;
- → Access road.

14.4 DEFINITIONS

In this document, unless the context requires otherwise -

- → **Pre-construction**
  Involves all facets for the preparation of the site for construction.

- → **Construction**
  For the purpose of this document construction is defined as the erection of cellular structures and the installation of electronic equipment.

- → **Post-construction / Operational**
  This phase includes the take-over of the site by the service provider and the period during which the structure is operational.

- → **Decommissioning Phase**
  This phase includes dismantling of the cellular structure and the removal of equipment.

14.5 THE CONTRACT

The EMPr shall form part of the legal contract between Vodacom, the contractor and the subcontractors. Vodacom shall build the EMPr into all contracts and commit the contractors to make the EMPr part of any works subcontracted. Failing to adhere to the EMPr requirements shall lead to severe penalties to be levied against the contractor and/or subcontractors.

A commitment from Vodacom and its contractors and subcontractors are required on the following issues:

- → Always behave professionally on and off site;
- → Ensure quality of work done, technical and environmental;
- → Resolve problems and claims arising from construction and/or maintenance damage immediately to ensure a smooth flow of operations;
- → To use this EMPr for the benefit of all involved;
- → To preserve the natural environment by limiting destructive actions on site;

An agreement is to be signed by the contractors and/or subcontractors that:

- → He knows and understands the contents of the EMPr;
- → He is able and shall comply with all legislation pertaining to the nature of the work to be done and all things incidental thereto.

Vodacom will institute contractual measurements to ascertain that its contractors and/or subcontractors and representatives adhere to the environmental obligations agreed upon.

14.6 ENVIRONMENTAL CONSTRUCTION SUPERVISION

An Environmental Control Officer (ECO) must be appointed to ensure that construction activities associated with the establishment of a base station will comply with environmental specifications and regulatory requirements, thus minimizing adverse biophysical and social impacts and resulting liabilities.

During construction, the ECO's key responsibility will be to ensure that the environmental management measures, controls, and specifications are properly implemented as per the terms and conditions issued by DEDECT. Responsibilities will include:

- → Delivering environmental education and awareness to construction staff prior to and during on-site works;
- → Providing technical assistance on environmental matters to construction staff;
- → Inspecting all activities during construction to ensure compliance with terms and conditions of approvals; and
- → Documenting construction activities by notes and photographs.

14.7 ENVIRONMENTAL SPECIFICATIONS AND CONDITIONS

To assist in complying with the applicable national and municipal laws, regulations, permits, licenses and approvals, the following Environmental Specifications and Conditions have been drafted. These specifications are not exhaustive and are meant to clarify various regulatory requirements. In the event of a discrepancy between these guidelines and legislation and/or regulations, the latter shall apply or if regulations or laws are amended, the amended regulations may apply.

14.7.1 General Obligations during the Pre-Construction and Construction Phase

14.7.1.1 IMPACT: Infrastructure quality			
Activity	**Mitigation Measures**	**Responsible**	**Time Frame**
Specification of the design and materials to be utilised	The specification of the design and materials to be utilised in the construction of the cellular base station and associated infrastructure must comply with the minimum specification requirements as prescribed by Vodacom.	Vodacom and contractor responsible for construction	During planning/pre-construction phase

14.7.1.2 IMPACT: Infrastructure requirements specified in the Environmental Authorization and other Approvals			
Activity	**Mitigation Measures**	**Responsible**	**Time Frame**
Requirements and recommendations specified in the Environmental Authorization and other Approvals	The site must be positioned and designed in accordance with the specific conditions as set out in the Environmental Authorization and other relevant approvals. The contractor shall observe all requirements and recommendations specified in the Environmental Authorization and other Approvals (i.e. Civil Aviation Authority Approval with specific reference to the type, height and colour of the mast and equipment. The mast will be painted red and white (Day markings) with navigation lights (Night Markings) on top of the mast as per Civil Aviation Authority Approval (see Appendix N).	Vodacom and contractor responsible for construction	During planning/pre-construction phase

14.7.1.3 IMPACT: Dust, Noise and Water Pollution			
Activity	**Mitigation Measures**	**Responsible**	**Time Frame**
Earthworks and vegetation clearance	Affected parties on or in the vicinity of the site, including in particular surrounding landowners and any official responsible for existing installations on the site, shall be advised in advance of unavoidable disturbances. Activities that generate unavoidable disturbances through the creation of noise or dust must be limited to normal working hours in order to avoid complaints by the surrounding landowners. The contractor shall address any complaints. The contractor shall identify any water resource in the proximity of the site and shall ensure that drainage from construction areas is such that the clarity and quality of water is in no way affected by construction activities.	Contractor responsible for construction	During planning/pre-construction phase & construction phase

14.7.1.4 IMPACT: Protection of Flora and Fauna			
Activity	**Mitigation Measures**	**Responsible**	**Time Frame**
Disturbance of fauna and flora by construction activities	Trampling and disturbance associated with construction activities should be limited to within five metres of the footprint of the site. Ensure minimal disturbance to the natural flora and fauna of the area. The following is recommendations as indicated in the Ecological Report must be implemented: • Bare ground surrounding the site be rehabilitated after construction. • Planting of some indigenous trees as part of mitigation is an option.	Contractor responsible for construction	Construction phase

14.7.1.5 IMPACT: Litter			
Activity	**Mitigation Measures**	**Responsible**	**Time Frame**
Littering by construction workers and construction debris	The contractor shall not permit work teams to litter tins, paper, glass etc. and construction debris. On completion of the project all litter and construction debris shall be removed from the site immediately. Under no circumstances shall litter and debris be buried or hidden on or near the site after project completion.	Contractor responsible for construction	Construction phase

7.1.6 IMPACT: Blasting			
Activity	**Mitigation Measures**	**Responsible**	**Time Frame**
Blasting	The Contractor shall notify residents should blasting be required and shall adhere to the requirements of the Explosives Act, 1956. Notices shall be placed on site in order to inform the adjacent owners of blasting activities and the contractor shall give all potentially affected parties notice of his intent to execute any blasting work. Blasting will be done at appropriate times of the day to ensure that noise disturbance and vibrations are kept to a minimum, and blasting will be undertaken using appropriate techniques. The contractor will be bound to ensure that blasting operations do not cause damage to property. The contractor shall also be obliged to ensure that the dangers of fly rock to people and properties are eliminated. The contractor shall keep a photographic record of the condition of the affected buildings or structures and shall acquire the signature of the surrounding owners/occupants agreeing to the condition of the structures.	Contractor responsible for construction/sub-contractor responsible for blasting	Construction phase

14.7.1.7 IMPACT: Excavations			
Activity	**Mitigation Measures**	**Responsible**	**Time Frame**
Earthworks	Unless otherwise specified by the Vodacom Environmental Representative, topsoil shall be stockpiled separately from the base course material. Fill slopes are to be allowed to slump to their naturally occurring slope and cut embankments are to be cut back to a 1:3 slope. All slopes are to be covered by a minimum of 200mm depth of topsoil during the rehabilitation phase of the project.	Contractor responsible for construction	Construction & Rehabilitation phase

14.7.1.8 IMPACT: Surfacing material			
Activity	**Mitigation Measures**	**Responsible**	**Time Frame**
Surfacing	Surfacing material selected shall be compatible with the surrounding environment.	Contractor responsible for construction	Construction & Rehabilitation phase

14.7.1.9 IMPACT: Historical Sites and Objects			
Activity	**Mitigation Measures**	**Responsible**	**Time Frame**
Earthworks and vegetation clearance – uncovering of any heritage objects	If a seemingly historical object, gravestone, geological feature or other distinguishable area of disturbance is observed on the site, the said object or area shall not be removed or tampered with and the Chance Find Procedures as indicated in the Heritage Impact Assessment Report (Appendix L) should be followed: The possibility of the occurrence of subsurface finds cannot be excluded. Therefore, if during construction any possible finds such as stone tool scatters, artefacts or bone and fossil remains are made, the operations must be stopped, and a qualified archaeologist must be contacted for an assessment of the find. A short summary of chance find procedures is discussed below. This procedure applies to the developer's permanent employees, its subsidiaries, contractors and subcontractors, and service providers. The aim of this procedure is to establish monitoring and reporting procedures to ensure compliance with this policy and its associated procedures. Construction crews must be properly inducted to ensure they are fully aware of the procedures regarding chance finds as discussed below. • If during the pre-construction phase, construction, operations or closure phases of this project, any person employed by the developer, one of its subsidiaries, contractors and	Vodacom and contractor responsible for construction	During pre-construction phase & construction phase

	subcontractors, or service provider, finds any artefact of cultural significance or heritage site, this person must cease work at the site of the find and report this find to their immediate supervisor, and through their supervisor to the senior on-site manager. • It is the responsibility of the senior on-site Manager to make an initial assessment of the extent of the find and confirm the extent of the work stoppage in that area. • The senior on-site Manager will inform the ECO of the chance find and its immediate impact on operations. The ECO will then contact a professional archaeologist for an assessment of the finds who will notify the SAHRA Chance Find Protocol for Palaeontological finds: 1. The following procedure is only required if fossils are seen on the surface and when drilling/excavations commence. 2. When excavations begin the rocks and must be given a cursory inspection by the environmental officer or designated person. Any fossiliferous material (trace fossils, plants, insects, bone, coal) should be put aside in a suitably protected place. This way the project activities will not be interrupted. 3. Photographs of similar fossils must be provided to the developer to assist in recognizing the fossil plants, vertebrates, invertebrates or trace fossils in the shales and mudstones (for example see Figure 5, 6 of the Palaeontological Report). This information will be built into the EMPr's training and awareness plan and procedures. 4. Photographs of the putative fossils can be sent to the palaeontologist for a preliminary assessment. 5. If there is any possible fossil material found by the developer/environmental officer then the qualified palaeontologist sub-contracted for this project, should visit the site to inspect the selected material and check the dumps		

	where feasible. 6. Fossil plants or vertebrates that are considered to be of good quality or scientific interest by the palaeontologist must be removed, catalogued and housed in a suitable institution where they can be made available for further study. Before the fossils are removed from the site a SAHRA permit must be obtained. Annual reports must be submitted to SAHRA as required by the relevant permits. 7. If no good fossil material is recovered then no site inspections by the palaeontologist will be necessary. A final report by the palaeontologist must be sent to SAHRA once the project has been completed and only if there are fossils. 8. If no fossils are found and the excavations have finished then no further monitoring is required.		

14.7.1.10 IMPACT: Site Access Road			
Activity	**Mitigation Measures**	**Responsible**	**Time Frame**
Construction vehicles making use of the access road to the construction site	Vehicles are to make use of the existing access road to the site as far as possible. Access to the site used by the contractor shall be maintained during construction to avoid dust. The area affected by the access road, turning circles and parking of vehicles around the site shall be minimised. Vehicles shall adhere to the designated roads and areas and not be allowed to depart from it. The contractor shall implement the rehabilitation of the area affected by the construction vehicles.	Contractor responsible for construction	Construction phase

14.7.1.11 IMPACT: Stormwater Management			
Activity	**Mitigation Measures**	**Responsible**	**Time Frame**
Stormwater Management	Before the commencement of construction, the ECO shall indicate which stormwater measures should be applied during the construction of the cellular base station and associated infrastructure. During construction and particularly during the rainy season, berm walls shall be installed around the stockpiled areas on the site to prevent stormwater depositing this material onto adjacent properties or roads. The contractor and subcontractors shall adhere to the recommendations of the ECO and the design specifications.	ECO and contractor responsible for construction	During planning/pre-construction phase & construction phase

14.7.1.12 IMPACT: Servicing of Vehicles and Equipment on Site			
Activity	**Mitigation Measures**	**Responsible**	**Time Frame**
Servicing of Vehicles and Equipment on Site	No servicing of vehicles is to be permitted on site. Servicing of equipment may take place on site but only when unavoidable, such as generators. In this case, all steps must be taken to ensure that no oil is spilt and that all waste, such as filters, is removed from the site and disposed in an environmentally legal manner.	Contractor responsible for construction	Construction phase

14.7.1.13 IMPACT: Noise from generator / equipment			
Activity	**Mitigation Measures**	**Responsible**	**Time Frame**
Temporary Power Supply / equipment	Should a generator be deployed such generator shall comply with the maximum noise levels as stipulated in the Noise Control Regulations published under the Environment Conservation Act, 1989 (Act No 73 of 1989). Vodacom will ensure that all equipment (i.e. air conditioners) on site are kept in proper working order and that equipment does cause unnecessary noise.	Contractor responsible for construction	Construction phase

14.7.1.14 IMPACT: Fires			
Activity	**Mitigation Measures**	**Responsible**	**Time Frame**
Fires	No open fires shall be allowed in the veld under any circumstances. The contractor shall ensure that adequate firefighting equipment, fit for purpose and reasonable in the circumstances, is available on site at all times. All personnel on the site shall be trained in the use of such equipment.	Contractor responsible for construction	Construction phase

14.7.1.15 IMPACT: Cooking and Washing Facilities			
Activity	**Mitigation Measures**	**Responsible**	**Time Frame**
Cooking and Washing Facilities	Ensure that safe and adequate provisions are made for the contractor's personnel to cook and wash without creating risks of fire and water pollution. If methane gas is used, care should be taken to ensure that no leakage or risk of explosion exists.	Contractor responsible for construction	Construction phase

14.7.2 Construction Camp

The contractor shall pay specific attention to the following aspects:

14.7.2.1 IMPACT: Staff Facilities			
Activity	**Mitigation Measures**	**Responsible**	**Time Frame**
Construction camp	Define the area of the construction camp and place it so as to have minimal impact on the environment.	ECO and contractor responsible for construction	During planning/pre-construction phase & construction phase

14.7.2.2 IMPACT: Workers Accommodation			
Activity	**Mitigation Measures**	**Responsible**	**Time Frame**
Workers Accommodation	Make suitable arrangements for accommodating the workers in a designated area that has been approved by the landowner and ECO.	Contractor responsible for construction	During planning/pre-construction phase & construction phase

14.7.2.3 IMPACT: Ablution Facilities			
Activity	**Mitigation Measures**	**Responsible**	**Time Frame**
Ablution Facilities	Should existing toilet facilities not be available on or near the construction site, such facilities shall be supplied and maintained for the use of the contractor's staff. Regular inspections shall be carried out to ensure toilets are kept in a hygienic state. Toilet paper shall be supplied to all toilets. Staff shall be advised to the fact that they should use these toilets at all times.	Contractor responsible for construction	Construction phase

14.7.2.4 IMPACT: Security and Privacy of surrounding properties			
Activity	**Mitigation Measures**	**Responsible**	**Time Frame**
Activities of construction workers	During the construction period the inconvenience to the surrounding property owners should be kept to an absolute minimum. The management of workers during construction is essential to avoid intrusion of people's privacy and properties. Define the area of the construction camp in such a manner as to limit the movement of site personnel.	Contractor responsible for construction	Construction phase

14.7.2.5 IMPACT: Water Supply			
Activity	**Mitigation Measures**	**Responsible**	**Time Frame**
Water Supply	Agree upon the source of water supply with the ECO and the landowner.	Contractor responsible for construction	During planning/pre-construction phase & construction phase

14.7.2.6 IMPACT: Solid Waste Disposal			
Activity	**Mitigation Measures**	**Responsible**	**Time Frame**
Solid Waste Disposal	Agree upon the method of waste disposal with the ECO. Particular attention shall be given to the disposal of solvents and other products used in the painting as well as any plastic components used in electrical wiring. The collection point for waste material shall be an enclosed structure to eliminate the risk of wind scatter. All waste must be disposed to a previously identified, registered or permitted waste disposal site.	Contractor responsible for construction	During planning/pre-construction phase & construction phase

14.7.3 Cellular Installation Site

The contractor shall pay specific attention to the following aspects:

14.7.3.1 IMPACT: Site Clearance and Leveling			
Activity	**Mitigation Measures**	**Responsible**	**Time Frame**
Site Clearance and Leveling	Clear the area of the site paying specific attention to the specifications of the EMPr. Level the area of the site and remove any surplus material from the site. Topsoil should be stockpiled to be used in the rehabilitation process.	Contractor responsible for construction	Construction phase & Rehabilitation phase

14.7.3.2 IMPACT: Foundation Preparation			
Activity	**Mitigation Measures**	**Responsible**	**Time Frame**
Foundation Preparation	Material emanating from the excavation of foundations should be stockpiled for later use in the rehabilitation of the site. When casting concrete foundations, care must be taken to avoid spilling concrete on the site. Any material spilled must be collected and disposed of with the other waste from the site. Ensure that no erosion of the foundation takes place, especially if gravel is used beyond the perimeter of the fence for the levelling of the foundation. All fill originating from the site shall be levelled and incorporated into the surroundings and rehabilitated in such a way that it blends in with the surrounding natural environment. All excess construction material shall be removed from the site by the contractor and disposed to a previously identified waste disposal site as approved by the ECO.	Contractor responsible for construction	Construction & Rehabilitation phase

14.7.3.3 IMPACT: Herbicides and Insecticides			
Activity	**Mitigation Measures**	**Responsible**	**Time Frame**
Use of herbicides and insecticides to protect the installations	Should it be necessary to make use of herbicides and insecticides to protect the installations, the application of such chemicals shall be restricted to the base station site. The application of the herbicides and insecticides shall be done in accordance with the stipulations of The Fertilizers, Farm Feeds, Agricultural Remedies and Stock Remedies Act No 36 of 1947. The contractor applying any herbicides and insecticides shall be in possession of a Pest Control Operator (PCO) license. The application of the chemicals shall not exceed the prescribed dosage for the specific product used. In all instances the application of the herbicides and insecticides should be of such nature that it will not cause any environmental harm.	Contractor responsible for construction	Construction phase

14.7.3.4 IMPACT: Fencing and Security of the Sites			
Activity	**Mitigation Measures**	**Responsible**	**Time Frame**
Fencing and Security of the Sites	When required in terms of the Specific Conditions of the Environmental Authorization a security fence shall be erected around the site. Lighting of the site shall be done in such a way that it will not be an inconvenience to surrounding landowners.	Contractor responsible for construction	Construction phase

14.7.3.5 IMPACT: Sourcing Materials from the Site			
Activity	**Mitigation Measures**	**Responsible**	**Time Frame**
Sourcing Materials from the Site	The contractor shall store sand, stone and cement in a demarcated area and care shall be taken not to allow any materials to spill beyond the site. Concrete mixing shall take place in a defined area and on top of boarding or sheeting so as to protect the ground. These boards and/or sheeting shall be removed from the site once the mixing is complete. Any spillage or overrun of material, which may occur, must be cleaned and removed from the site by the contractor.	Contractor responsible for construction	Construction phase

14.7.3.6 IMPACT: Chemical, Fuel, and Oil Handling			
Activity	**Mitigation Measures**	**Responsible**	**Time Frame**
Chemical, Fuel, and Oil Handling	All Contractors shall ensure that an emergency cleanup program is in place in event of an accidental spill or leak of fuel, oil or chemicals. Spillage of oil from crankcase oil draining or other such activities shall be prevented. If an accident occurs and fuels, oils or chemicals are spilled or dumped on the ground, the affected soil shall be removed, placed in drums and disposed of in compliance with national legislation. Disposal and storage of materials such as water, rags, and pads, containing oils, filters, chemicals, liquid fuels, lubricating oils, or other potentially hazardous materials shall be in a manner satisfactory to the ECO. Hazardous chemicals, fuels, and other noxious or toxic substances shall be stored in covered containers in fenced areas for security reasons.	Contractor responsible for construction	Construction phase

14.7.3.7 IMPACT: Structure Assembly Area			
Activity	**Mitigation Measures**	**Responsible**	**Time Frame**
Structure Assembly	An area shall be defined by the contractor to allow for the assembly of the mast. This must take into account the need for off-loading or the component parts and positioning of the crane on solid ground for the final erection of the mast. This shall be planned to require the minimal removal of vegetation or risk of damage to the surrounding structures.	Contractor responsible for construction	Construction phase

14.7.3.8 IMPACT: Priming and Painting			
Activity	**Mitigation Measures**	**Responsible**	**Time Frame**
Priming and Painting	Care must be taken by the contractor to avoid the spillage of painting and solvent material on site. Adequate containers for cleaning of equipment and for the storage of waste products must be provided and all waste products resulting from the painting operation must be entirely removed from the site by the contractor.	Contractor responsible for construction	Construction phase

14.7.3.9 IMPACT: Waste from Electrical Connections			
Activity	**Mitigation Measures**	**Responsible**	**Time Frame**
Work on Electrical Connections	All waste products resulting from electrical connections must be removed from the site by the contractor.	Contractor responsible for construction	Construction phase

14.7.3.10 IMPACT: Visual Impacts of construction activities			
Activity	**Mitigation Measures**	**Responsible**	**Time Frame**
Visual Impacts of construction activities	The contractor shall ensure that the visual impact of the construction activities is minimised. The mast will however be painted red and white as per Civil Aviation Authority Approval (see Appendix N).	Contractor responsible for construction	Construction phase

14.7.3.11 IMPACT: Rehabilitation			
Activity	**Mitigation Measures**	**Responsible**	**Time Frame**
Rehabilitation	When the civil and construction work is complete, the site shall be cleaned and rehabilitated by the contractor. All waste materials, infrastructure, equipment, plant and other items used during the construction shall be removed from the site. No burial of any foreign material on the site shall be allowed. Areas devoid of vegetation or where spoils have been compacted shall be covered with topsoil and if necessary, be seeded, in order to allow for the vegetation to re-establish.	Contractor responsible for construction	Construction & Rehabilitation phase

14.7.4 Post-Construction and Operational Phases

This phase will determine the ultimate success of the implementation of the management proposals of the EMPr. A post construction environmental audit is to be conducted by the ECO in order to ensure that all conditions of the EMPr have been adhered to.

14.7.4.1 IMPACT: Servicing and Maintenance			
Activity	**Mitigation Measures**	**Responsible**	**Time Frame**
Servicing and Maintenance	Herbicides and Insecticides should be applied according to the specifications of this EMPr and within the prescribed dosage. Where repainting has been undertaken, all waste materials shall be removed from the site. Existing access roads to the site shall be used. Where such roads have been damaged by erosion, repairs shall be undertaken to avoid further damage of the road and the surrounding environment.	Contractor responsible for maintenance of the site	Post-Construction and Operational Phases

14.7.4.2 IMPACT: Electromagnetic Field Exposure			
Activity	**Mitigation Measures**	**Responsible**	**Time Frame**
Electromagnetic Field Exposure from base station equipment	The Electromagnetic Field Exposure levels from the base station must comply with the guidelines as provided by the ICNIRP (International Commission on Non-Ionizing Radiation Protection) and also endorsed by the Directorate: Radiation Control at the South African Department of Health. An Electromagnetic Field Predictive Assessment was conducted (see Appendix Q). The results obtained show that the expected EMF exposure is at least 345 times below the ICNIRP general public guidelines. In other words, the EMF exposure from the proposed installation will be compliant in terms of the ICNIRP guidelines, as subscribed to by the South African Department of Health.	Vodacom (technical department)	Post-Construction and Operational Phases

14.7.5 Decommissioning Phase

14.7.5.1 IMPACT: Decommissioning of the site			
Activity	**Mitigation Measures**	**Responsible**	**Time Frame**
Decommissioning of the cellular base station	Should a cellular base station be decommissioned this process shall comply with the stipulations of the Occupational Health and Safety Act (Act 85 of 1993). The decommissioned structures shall be removed from the site. When a new structure is to be erected on the same site, the contractor shall comply with all the conditions as set out in the EMPr. When the site is no longer required, the area of the base station shall be rehabilitated to conform to the immediate surrounding environment.	Vodacom and contractor responsible for decommissioning of the base station	Decommissioning Phase

14.8 AMENDMENTS TO THE EMPr

Any issues that may arise during the construction or operational phase which are not covered in this EMPr shall be addressed as addendums to the EMPr and submitted for approval prior to implementation.

15. CONCLUSION

In conclusion it can be stated that several negative and positive impacts/effects can potentially arise from the proposed development. These can however be mitigated through the implementation of a number of mitigation measures (as contained in the *Environmental Management Programme)* – see Section 14 of this document. The mentioned EMPr provides guidelines to contractors on alternative ways of conducting construction activities and to lessen the overall impact of construction.

The proposed development possesses the potential to have a negative impact on the natural environment (if appropriate mitigatory measures not be implemented). The proposed development will have a visual impact, this can however be avoided through adherence to the proposed mitigatory measures as contained in this report.

It is of vital importance that the proponent takes note of the recommendations contained in this document in order that it can be included into the contracts of the parties that will be responsible for construction.

The Free State Department of Economic, Small Business Development, Tourism & Environmental Affairs (DESTEA) is respectfully requested to approve this Basic Assessment Report, which forms part of the application that has been lodged in terms of Regulation 326 of the EIA Regulations published in Government Notice No. 40772 of 2017 and Section 24(5) read with section 44 of the National Environmental Management Act, 1998 (Act No. 107 of 1998) – the said application specifically pertains to the activities that are to be undertaken as described in Section 3, in this document.

16. UNDERTAKING UNDER OATH OR AFFIRMATION BY THE EAP

I, THEO KOTZE, appointed EAP for the proposed application for Environmental Authorization for the Vodacom mast on **Farm Eerstegeluk 515, Moqhaka Local municipality**, hereby confirm:

- Correctness of the information provided in this report.
- All comments and inputs and responses from stakeholders and I&APs are included here.
- All inputs and recommendations from the specialist reports where relevant, are included.

Signed

14-May-2022
Date