DRAFT ENVIRONMENTAL BASIC ASSESSMENT REPORT (APPENDICES)

PROPOSED ESTABLISHMENT OF A NEW MILITARY HEALTH CARE CENTRE ON PORTIONS OF THE REMAINDER AND PORTION 429 TOWN AND TOWNLANDS OF POTCHEFSTROOM 435 IQ

TLOKWE LOCAL MUNICIPALITY

NORTH WEST PROVINCE

SUBMITTED BY:

ENVIROVISION CONSULTING CC
ENVIRONMENTAL SPECIALISTS

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MEMBER Cappie Linde M.ENV.DEV (UKN) • CK2003/050777/23

Submitted to:

1. Ms M Rabothata (Environmental Officer: Integrated Environmental Authorisations)
   National Department of Environmental Affairs

2. Registered Interested and Affected Parties

Departmental reference:

14/12/16/3/3/1/1196

Submitted on:

13 July 2014

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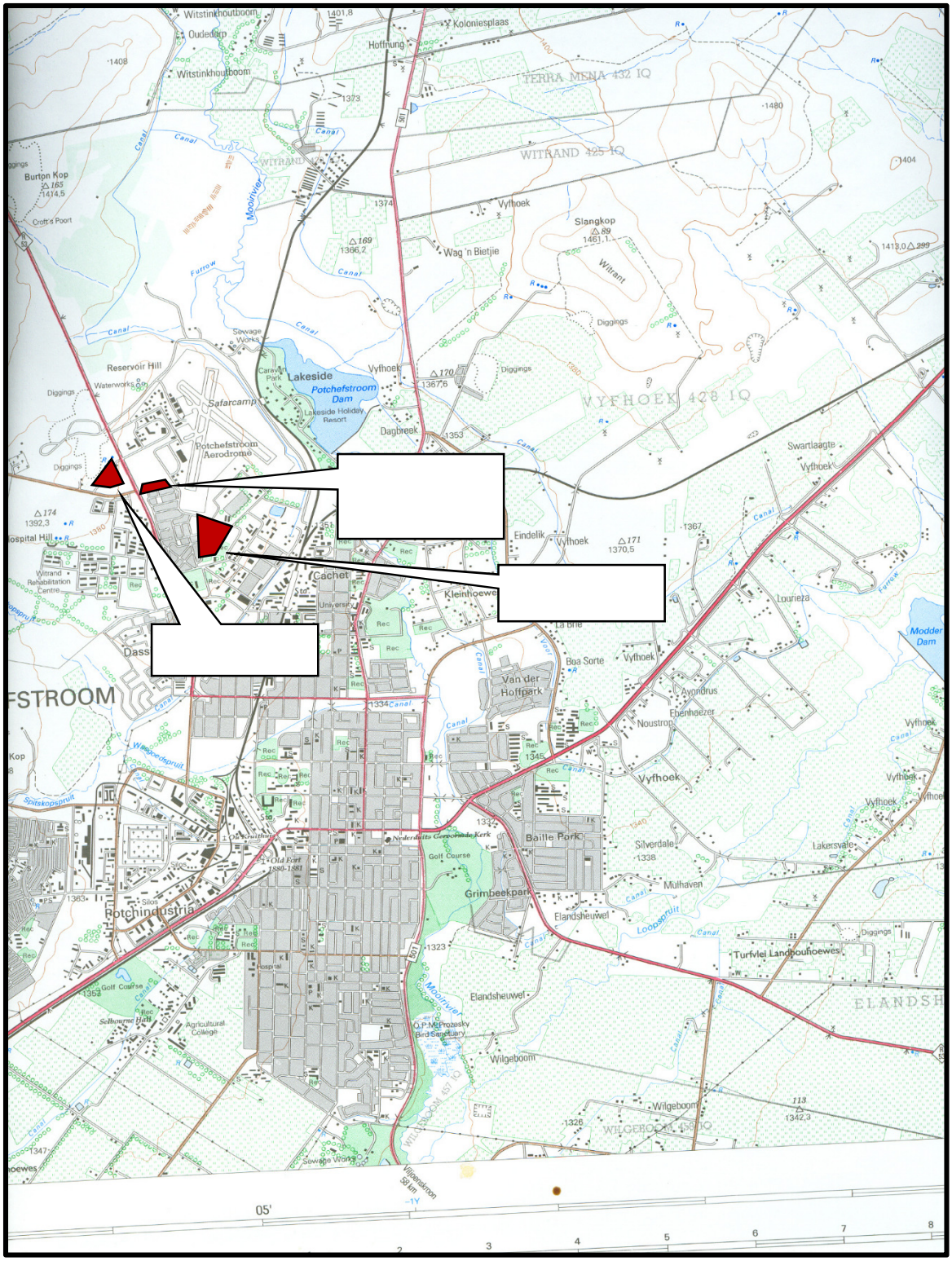
APPENDIX A: LOCALITY MAP


Witstinkhoutboom
Oudedorp
Hoffnung
Koloniesplaas
Witstinkhoutboom
TERRA MENA 432 IQ
WITRAND 425 IQ
Burton Kop
Croft's Poort
Mooirivier
Vyfhoek
Slangkop
Wag 'n Bietjie
Witrant
Diggings
Reservoir Hill
Waterworks
Safarcamp
Lakeside
Potchefstroom Dam
Lakeside Holiday Resort
Potchefstroom Aerodrome
Dagbreek
VYFHOEK 428 IQ
Swartlaagte
Findelik
Cachet
Kleinhoewe
Louriera
Modder Dam
Van der Hoffpark
Baa Sorte
Ayondrus
Ebenhaezer
Noustrop
Baille Park
Silverdale
Lakersvale
Mulhaven
Grimbeekpark
Elandsheuwel
Turfvlei Landbouhoewes
Potchindustria
Golf Course
Agricultural College
Selborne Hall
O.P.M. Prozesky Bird Sanctuary
Wilgeboom
WILGEROOM 457 IQ
Spitskopspruit
Loopspruit
Old Fort 1880-1881
Nederduits Gereformeerde Kerk
05'

APPENDIX B: PHOTOGRAPHS

VIEW FROM PREFERRED SITE ALTERNATIVE 1 TOWARDS THE NORTH

VIEW FROM PREFERRED SITE ALTERNATIVE 1 TOWARDS THE NORTH EAST

VIEW FROM PREFERRED SITE ALTERNATIVE 1 TOWARDS THE EAST

VIEW FROM PREFERRED SITE ALTERNATIVE 1 TOWARDS THE SOUTH EAST

VIEW FROM PREFERRED SITE ALTERNATIVE 1 TOWARDS THE SOUTH

VIEW FROM PREFERRED SITE ALTERNATIVE 1 TOWARDS THE SOUTH WEST

VIEW FROM PREFERRED SITE ALTERNATIVE 1 TOWARDS THE WEST

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VIEW FROM SITE ALTERNATIVE 2 TOWARDS THE NORTH

VIEW FROM SITE ALTERNATIVE 2 TOWARDS THE NORTH EAST

VIEW FROM SITE ALTERNATIVE 2 TOWARDS THE EAST

VIEW FROM SITE ALTERNATIVE 2 TOWARDS THE SOUTH EAST

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VIEW FROM SITE ALTERNATIVE 3 TOWARDS THE NORTH

VIEW FROM SITE ALTERNATIVE 3 TOWARDS THE NORTH EAST

VIEW FROM SITE ALTERNATIVE 3 TOWARDS THE EAST

VIEW FROM SITE ALTERNATIVE 3 TOWARDS THE SOUTH EAST

VIEW FROM SITE ALTERNATIVE 3 TOWARDS THE SOUTH

VIEW FROM SITE ALTERNATIVE 3 TOWARDS THE SOUTH WEST

VIEW FROM SITE ALTERNATIVE 3 TOWARDS THE WEST

VIEW FROM SITE ALTERNATIVE 3 TOWARDS THE NORTH WEST

APPENDIX C: FACILITY ILLUSTRATION

A terrain development plan in accordance with the requirements of the Tlokwe Municipality will be compiled and submitted as addendum to this report prior to commencement of the activity.

APPENDIX D: SPECIALIST REPORTS & TERMS OF REFERENCE

Appendix D1: Comparative Civil Services Report

Appendix D2: Engineering Services Report (preferred site alternative)

Appendix D3: Comparative Legal Information Report

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DIRECT FAX: 086 538 0410
Your ref.: *201120-56WCA*
Kabelo Mpobole
Date: *22 September 2011*

KAPANO DEVELOPMENT CC
t/a PLANWORKS
MAFIKENG

BY E-MAIL: kmpobole@gmail.com

Dear Sirs

RE : POTCHEFSTROOM MILITARY HOSPITAL SITE – CLEARANCE PROJECT (WCS 048907)

1. *We refer to the abovementioned matter and the instruction to our firm to supply you with services related to the evaluation of three different properties/sites for the development and erection of the planned Potchefstroom Military Hospital.*

2. *We confirm the instruction that we should issue conveyancer certificates, after consideration of the title deeds of the three different properties, specifically dealing with the conditions contained in the various title deeds and the possible*

effect thereof on the intended development of the respective sites and also as to whether any of such conditions need to be removed, prior to the client being able to develop the land.

3. *We firstly wish to apologise for us not being able to supply you with the conveyancer's certificates to date hereof. The reason for the aforementioned delay and unavailability of the conveyancer certificates is the fact that we were unable to obtain copies of the title deeds for two of the properties.*

4. *We were however able to obtain a copy of one title deed to wit of portion 431, (site 1) but this title deed is hand written in Dutch and totally illegible. Our correspondents in Pretoria do have a facility available where such title deeds are retyped and translated but our correspondents were unable, to date hereof, to supply us with such retyped and translated version of this specific title deed.*

5. *We have also, with the assistance of the local authority, visited the deeds office in an attempt to obtain copies of the other two title deeds but to date hereof Mr. Ben Robbertse of the Tlokwe City Council, was unable to obtain copies thereof from the deeds office.*

6. *The correct description of the three properties are the following:*

   6.1 ***Alternative 1**: Situated on the Remainder **and** portion 431 of the farm Town and Townlands of Potchefstroom, Number 435, Registration Division I.Q.*

   6.2 ***Alternative 2**: Situated on the remainder **and** portion 429 (a portion of portion 20 of the farm Town and Townlands of Potchefstroom, Number 435, Registration Division I.Q.*

   6.3 ***Alternative 3**: Remainder of the farm Town and Townlands of Potchefstroom, Number 435 I.Q. (this property is therefore not yet subdivided and forms part of the total remainder of the said farm, which farm is in extent approximately 49 000 hectares).*

7. *We were however able to obtain a copy of a notarial deed of servitude with regard to portion 429 (a portion of portion 2), to wit alternative 2, confirming the provisions related to the three water pipe line servitudes referred to in report by Mr. Du Preez, the land surveyor.*

8. *After informal discussions with the local authority and especially Mr. Ben Robberts, who has been with the City Council for many years dealing with properties within the jurisdiction of the Tlokwe Municipality, he does not foresee any difficulty with regard to onerous conditions in any of the title deeds or in the event of such onerous conditions that the applicant should not have difficulty in having same removed.*

9. *We trust that this interim report would be of assistance but as recorded above we will only be able to supply you with our conveyancer certificates once we had the opportunity to consider the content of the respective title deeds.*

Yours faithfully

WILLEM COETZEE INCORPORATED

Per:

CC: *thinus@plancentre.co.za*

hdp@geopro.co.za

Appendix D4: Comparative Topographical Report

Appendix D5: Comparative Geotechnical Report

Appendix D6: Geotechnical Report (preferred site alternative)

Appendix D7: Heritage Impact Assessment

3. DEFINITIONS

The broad generic term *Cultural Heritage Resources* refers to any physical and spiritual property associated with past and present human use or occupation of the environment, cultural activities and history. The term includes sites, structures, places, natural features and material of palaeontological, archaeological, historical, aesthetic, scientific, architectural, religious, symbolic or traditional importance to specific individuals or groups, traditional systems of cultural practice, belief or social interaction.

4. PROTECTED SITES IN TERMS OF THE NATIONAL HERITAGE ACT, Act. NO. 25 OF 1999

The following are the most important sites and objects protected by the **National Heritage Act: (see sections 4.1 and 4.2)**

- **a. Structures or parts of structures older than 60 years**
- **b. Archaeological sites and objects**
- c. Palaeontological sites
- d. Meteorites
- e. Ship wrecks
- f. Burial grounds
- g. Graves of victims of conflict
- **h. Public monuments and memorials**
- **i. Structures, places and objects protected through the publication of notices in the Government and Provincial Gazette**
- **j. Any other places or objects which are considered to be of interest or of historical or cultural significance**
- k. Geological sites of scientific or cultural importance
- l. Sites of significance relating to the history of slavery in South Africa
- m. Objects to which oral traditions are attached
- n. **Sites of cultural significance or other value to a community or pattern of South African history**

We furthermore specifically also refer to in Act 25 of 1999:-

Section 4.1.3. Heritage Impact Assessment

Section 4.1.3.a. The construction of a linear development such as a road exceeding 300 meters in length **Section 4.1.3.e.** Any other category provided for in the regulations of SAHRA or by PHRA

Section 4.1.5. Archaeology, Palaeontology and Meteorites

This section states clearly that archaeological material in any form may only **be disturbed** after receiving a permit from SAHRA. It also states clearly that **to destroy** such a disturbed site a second and separate permit is required.

The environmental act requires that:

"The disturbance of landscapes and sites that constitute a nation's cultural heritage should be avoided as far as possible and where this is not possible the disturbance should be minimized and remedied".

5. METHODOLOGY

5.1. African Heritage Consultants, ***further referred to as A.H.C.,*** were tasked by Envirovision Consulting CC to undertake a first phase heritage impact assessment for the proposed building of a new medical facility on the old Air Force Base north of Potchefstroom

5.2. All relevant maps and documents that pertain to the project were studied and considered by A.H.C.

5.3. The site was visited and photographed on the 22nd of April 2014.

5.4. This visit and observation was confirmed by verbal communication with Major Wentzel[2] that indicated that the area was used for the placement of semi-permanent housing during the period 1970 to 2002 (?)

5.5. The internet was used to retrieve information regarding the background of the history, geology and vegetation of the area.

[2] *Liaison officer SANDF tel. 0845053832*

fashioned with loopholes in 1854. These were joined by a magazine shortly afterwards at a position unknown.
By 1853 the first town regulations were in place regulated by a town council that was democratically elected on the 30th March 1854.
Shortly afterwards the construction of a bridge over the river to the north of the town was in progress, as well as the construction of a larger and more permanent church. By 1860 the impact of the trade with the ZAR with visiting traders started having an impact, with the construction of permanent stores and shops around the market and church squares, two of which being those of Pavey & Reid and Vergottini & Klein. Drawings of these were made by Jeppe on his town map of 1863 *(See figure 099).*
By 1865 one Thomas Leask had the following to say about the town……' *…a rather nice looking town, well watered after the Boer style, viz water sluits running down every street…..streets straight, wide, crossing each other at right angles……minus any sort of pavement …….houses are straggling and scattered over a large space of ground….some rather of unattractive aspect…..many substantial and one or two ornamental buildings….several large stores….churches are plentifull……but in need of a good hotel.* '…….

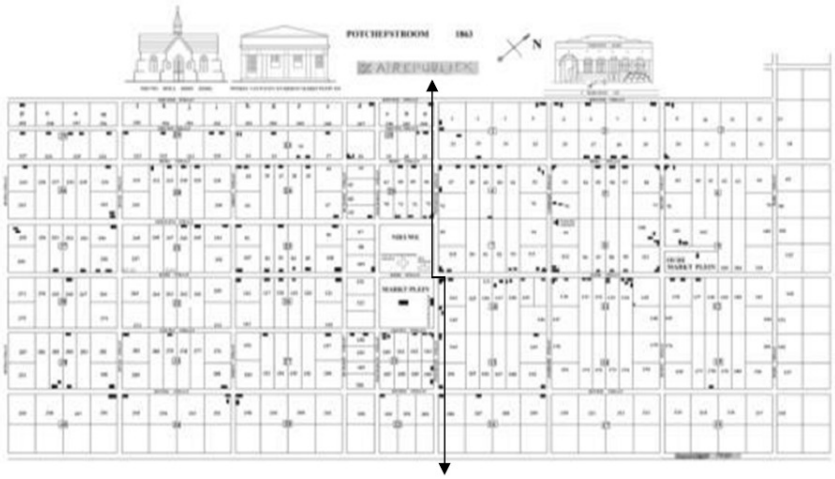

Fig. 14. *Site map of Potchefstroom as documented by Jeppe in 1863. As the town was founded much earlier. This map was probably compiled for an extension of the town taking into consideration the 'OUDE MARKT PLEIN' and the 'NIEUWE MARKT PLEIN'. This map is a copy of the original that is housed in the Potchefstroom Museum, redrawn by the author in 2012. Note the orientation of the town as indicated on top of the drawing, while the Google Earth image shows a perfect east-west orientation.* ***(SM Miller Schoemansdal report 1992)***

In 1868 Fred Jeppe commented that there were some 408 erven in the town. In his 1863 map of the town we also see it named as Potchefstroom, so one must assume this happened between 1859 and 1868, probably after his death in 1852. Jeppe furthermore remarks that there are 275 houses in the town, 3 Dutch churches, 3 English churches, one church for 'blacks' 15 large shops, a government school, a free masons lodge and 5 hotels.
Regarding the inhabitants he surmises that there are 1200 people, of which 200 were branded as '*buitelanders'* or foreigners. Of this number one must be cautious, as it is well known that most of the surrounding farmers had 'townhouses' for the purpose of attending communion. We find the same problem at Schoemansdal where the priest Santa Rita de Montana describing the town to have 1800 inhabitants, which we know was not possible.
In contrast Lady Florence Dixie in 1882, after the siege of the town during the First South African War stated that…' It was a quaint little town with its long row of unevenly built houses, its broad sandy street, over which the weeping willows arched and cast their welcome shade. Cozy cottages peeped from their green retreats….I rode through the principal and in

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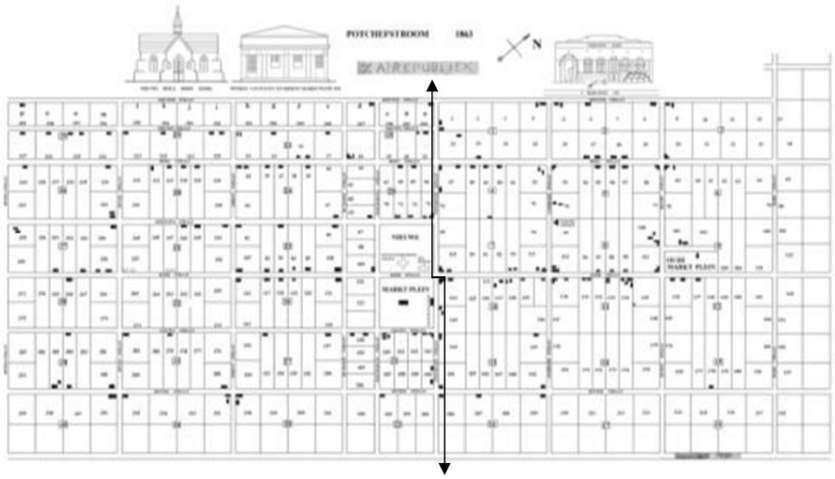

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fact only real street of Potchefstroom….the cemetery, enclosed by strong brick walls…..a line of small houses…was riddled with bullets, and the whole of the Tronk, or goal, was that of disfigurement and ruin.
Apparently it was also in the eighteen sixties that several mills were put to use, and the then President, M. W. Pretorius, erected his home that survives in a restored format. Fortunately there survive a number of drawings from this early period of the history that captures the true 'spirit' of Boeredorpe although most of the buildings themselves disappeared.
From the 1890's onwards the diamonds of Kimberly, and the gold of the Rand, and the Second South African War brings along the Anglicization of South African architecture in the form of Victorian, Edwardian and Art Deco influences, not only in Potchefstroom, but throughout the Transvaal. This emerges both in true form, as well as in the hybridization of the Z.A.R. 'Traditionalism' that petered out during the Second World War.

8.3.4. Potchefstroom time line (Potchefstroom Herald Newspaper)

1838
a. Potchefstroom was proclaimed on 22 December by the Voortrekker leader Andries Hendrik Potgieter. The town was originally at Oudedorp, approximately 10 km upstream from where the city is today.
1841
a. The town is relocated from Oudedorp to its current location.
b. Potchefstroom became the capital of the Transvaal.
c. First town magistrate appointed.

1846
a. First school. The first school of Potchefstroom was housed in the first church building which stood on the north-east corner of Church Plain. ***(Fig. 15)***
1847
a. Postal service inaugurated between Lydenburg and Potchefstroom. The post was carried by post runners.
b. Market started in Potchefstroom
c. Market on the plain - Photograph taken between 1896 and 1908.
Photo: Potchefstroom Museum ***(Fig. 16)***

1851
a. First church building (Nederduits Hervormde Church).

1852
a. First execution of a murderer.
1853
a. First gunpowder magazine built (still exists). The gunpowder magazine in Potchindustria was declared a heritage site in 1969.
Photo: Potchefstroom Museum. ***(Fig. 17)***
b. Gold discovered in Potchefstroom district.
1857
a. First newspaper (De Staats Courant).
b. First North Bridge built. ***(Fig. 18)***
Photo: Potchefstroom Museum

1859
a. First Postmaster appointed.
1861
a. New water furrow.
b. New cemetery (second) laid out.
1862
a. Civil War between President Paul Kruger and usurper Stephanus Schoeman. Bombardment between them took place on the Bult.
1863
a. Swedish immigrants settled at Skandinawiëdrif.
O.W.A. Forssman with his wife, Emelia. He was the leader of the Scandinavians who settled near Potchefstroom. Photo: Potchefstroom Museum ***(Fig. 19)***
b. First Cricket club in Transvaal founded in Potchefstroom.
1864
a. Mail-coach service started between Pretoria and Potchefstroom.
1866
a. First mill opened.
b. Potchefstroom had 275 houses and 1 200 inhabitants and is the largest town in Transvaal, the second largest town being Pretoria with 180 inhabitants.
c. The second and current building of the Nederduitsche Hervormde Church was inaugurated.

1867
a. Gravel on streets.
b. First agricultural show.
c. First Reformed Church building and Dutch Reformed Church building inaugurated.
d. First Anglican Church building inaugurated.
1868
a. First municipal elections.
1869
a. Theological School of the Reformed Church founded at Burgersdorp (later moved to Potchefstroom).
1872
a First Methodist Church building.
1877
a. British troops annexed the Zuid Afrikaansche Republiek.
b. First commercial bank, Standard Bank, opened.
c. Black location, later Willem Klopperville, laid out south of town. The old Native Location of Potchefstroom, later also known as William Klopperville or Makweteng. Photo: Potchefstroom Museum ***(Fig. 20)***

1878
a. First library service and museum movement.
1880
a. The Fort at Potchefstroom besieged. The 322 people in the Fort included a few civilians and British troops under Col Winslow. For 95 days they were confined to an area 25 X 25 metres and subsequently six people died. This was the first hostilities of the First Anglo-Boer War.
This model shows the Fort at the time of the Siege. ***(Fig. 21)***

1881
a. Potchefstroom fell to the Boers.
1884
a. First Asians in Potchefstroom.
1887
a. First private post-boxes made available.
1889
a. Potchefstroom Stock Exchange founded.
b. M L Fick Primary School, currently the oldest school, founded.
Photo: Potchefstroom Museum ***(Fig. 22)***

1890
a. First Rugby club in Transvaal founded.
1891
a. President Pretorius Primary School founded.
1892
a. A park with sporting fields, Alexandra Park, next to cemetery is developed.
Alexandra Park. ***(Fig. 23)***
1893
a. First tennis club in Transvaal founded in Potchefstroom.
1895
a. Second Dutch Reformed Church inaugurated. This building is the oldest DR Church across the Vaal River and was restored after a devastating fire in 2007.
Photo: Lennie Gouws

1896
a. Landdrost-, Post-en Telegraafkantoor is office officially opened.
Photo: Potchefstroom Museum. ***(Fig. 24)***
1897
a. Railroad between Potchefstroom and Johannesburg opened
1897
a. Anglo Boer War declared
1900
a. British troops under General Sir Ian Hunter occupied Potchefstroom.
b. Military hospital built.
1902
a. Health Committee formed to become first local authority after war.
b. Church Street renamed King Edward Street and names of other streets changed.
c. Experimental Farm founded.
1903
a. British Garrison housed approximately 1 000 soldiers in cantonments.
b. Potchefstroom acquired municipal status
d.. First electrical power station came into operation.
e. The Lyric Theatre opened on the corner of King Edward Street and Lombard Street.
f. New cemetery (current) laid out.
g.Two orphanages are combined. Out of this developed the Hoër Tegniese Skool.

1904
a. Potchefstroom town council held its first meeting.
b. New Methodist Church opened in May. Photo: Lennie Gouws. ***(Fig. 25)***

- Küsel, U.S. 2008. Cultural Heritage Resources Impact Assessment of the Farm Koedoekop 664 IQ North West Province.
- Naudé, M. 2005. Beyond the frontier history of the Vredefort Dome Area. In Reimold, W.U. & Gibson, R.L. (eds) *Meteorite Impact! The danger from space and South Africa's mega-impact, the Vredefort Structure*, pp. 197-209. Pretoria: Chris van Rensburg Publications.
- Nkhasi, M.E. 2008. *Sotho/Tswana stone-wall settlements: investigating the nature of aggregation and variability in Late Iron Age settlements in the Vredefort Dome: A Geographic Information Systems application.* MSc University of Cape Town.
- Pelser, A. 2003. *Askoppies: Late Iron Age Sotho-Tswana settlement on the Vredefort Dome*. MA University of the Witwatersrand.
- Pelser, A. 2005. Travelling through time: archaeology and the Vredefort Dome. In Reimold, W.U. & Gibson, R.L. (eds) *Meteorite Impact! The danger from space and South Africa's mega-impact*. Johannesburg: Chris van Rensburg Publications.
- Pelser, A. 2006. An assessment of archaeological sites in the Vredefort Dome World Heritage site.
- Pretorius, F. 2001. The Great Escape of the Boer Pimpernel.
- Sadr, K. 2012. Archaeological Excavations at Holkrans Rock Shelter, Vredefort Dome, North West Province. Wits University Archaeology Field School July 2011 - September 2012.

APPENDIX A: DECLARATION OF INDEPENDENCE

I, Sidney Mears Miller (ID 5412135029082) declare that:

•I act as an independent environmental practitioner in this application

•I will perform the work relating to the application in an objective manner, even if this results in views and findings that are not favourable to the applicant

•I declare that there are no circumstances that may compromise my objectivity in performing such work;

•I have expertise in conducting environmental impact assessments, including knowledge of the National Heritage Resources Act (No 25 of 1999) and any guidelines that have relevance to the proposed activity;

•I will comply with the Act, regulations and all other applicable legislation;

•I will take into account, to the extent possible, the matters listed in regulation 8 of the regulations when preparing the application and any report relating to the application;

•I have no, and will not engage in, conflicting interests in the undertaking of the activity;

•I undertake to disclose to the applicant and the competent authority all material information in my possession that reasonably has or may have the potential of influencing - any decision to be taken with respect to the application by the competent authority; and - the objectivity of any report, plan or document to be prepared by myself for submission to the competent authority;

•I will ensure that information containing all relevant facts in respect of the application is distributed or made available to interested and affected parties and the public and that participation by interested and affected parties is facilitated in such a manner that all interested and affected parties will be provided with a reasonable opportunity to participate and to provide comments on documents that are produced to support the application;

•I will ensure that the comments of all interested and affected parties are considered and recorded in reports that are submitted to the competent authority in respect of the application, provided that comments that are made by interested and affected parties in respect of a final report that will be submitted to the competent authority may be attached to the report without further amendment to the report;

•I will keep a register of all interested and affected parties that participated in a public participation process; and

•I will provide the competent authority with access to all information at my disposal regarding the application, whether such information is favourable to the applicant or not

•all the particulars furnished by me in this form are true and correct;

•will perform all other obligations as expected from an environmental assessment practitioner in terms of the Regulations; and

•I realise that a false declaration is an offence in terms of regulation 71 and is punishable in terms of section 24F of the Act.

Disclosure of Vested Interest

I do not have and will not have any vested interest (either business, financial, personal or other) in the proposed activity AND OR proceeding other than remuneration for work performed in terms of the Environmental Impact Assessment Regulations,

SIDNEY MEARS MILLER

Appendix D8: Traffic Impact Assessment

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ADDENDA

LIST OF ABBREVIATIONS

LOS	Level of Service
V/C	Volume over Capacity Ratio

APPENDIX E: PUBLIC PARTICIPATION

Appendix E1: Advertisement & site notice

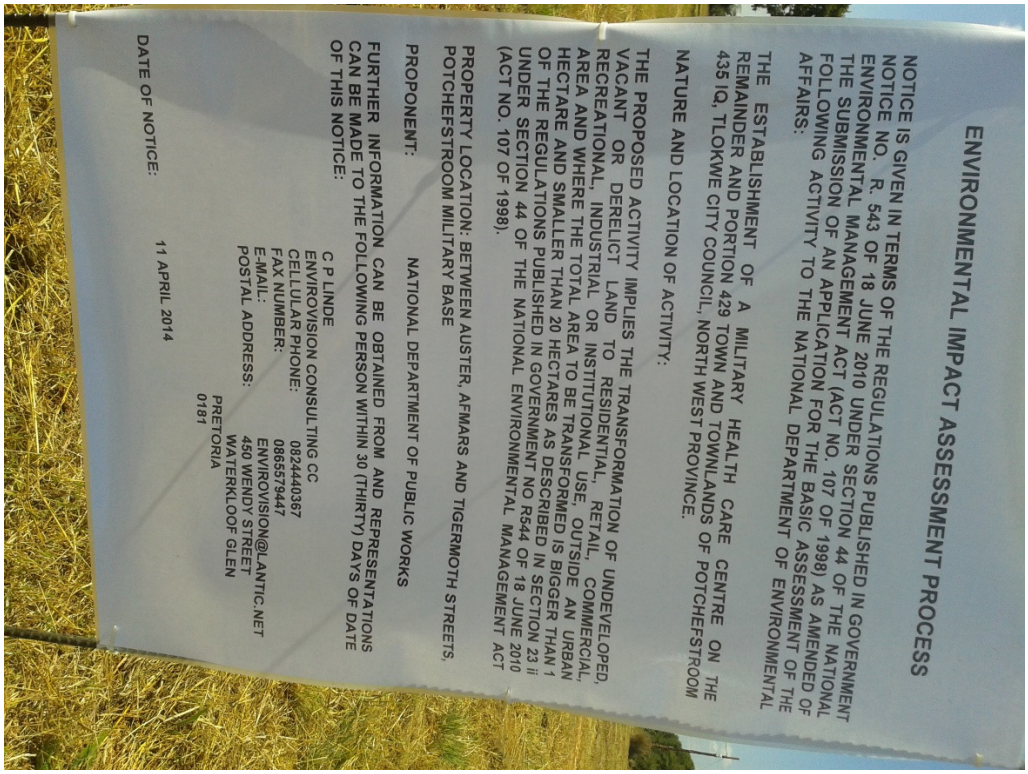
NOTICE 194 OF 2014

ENVIRONMENTAL IMPACT ASSESSMENT PROCESS

Notice is given in terms of the Regulations published in Government Notice No. 543 of 18 June 2010 under Section 44 of the National Environmental Management Act (Act No. 107 of 1998) as amended of an application for the basic assessment of the following activity to the National Department of Environmental Affairs for the establishment of a military health care centre on portions of the Remainder and Portion 429 Town and Townlands of Potchefstroom 435 IQ, Tlokwe City, North West Province.

Nature of activity: The proposed activity implies the transformation of undeveloped, vacant or derelict land to residential, retail, commercial, recreational, industrial or institutional use, inside an urban area and where the total area to be transformed is bigger than five hectares and smaller than 20 hectares as described in Section 23i of the Regulations published in Government Notice No. 544 of 18 June 2010 under Section 44 of the National Environmental Management Act (Act No. 107 of 1998) as amended.
Property location: Between Auster, Afmars and Tigermoth Streets, Potchefstroom Military Base.
Proponent: National Department of Public Works

Further information can be obtained from and representations can be made to the following person within 30 (thirty) days of date of placement of this notice: C P Linde; Envirovision Consulting CC; Cellular phone: 0824440367; Fax number: 0865579447; E-mail address: envirovision@lantic.net; Postal address: 450 Wendy Street, Waterkloof Glen, Pretoria, 0181.



ENVIRONMENTAL IMPACT ASSESSMENT PROCESS

NOTICE IS GIVEN IN TERMS OF THE REGULATIONS PUBLISHED IN GOVERNMENT NOTICE NO. R. 543 OF 18 JUNE 2010 UNDER SECTION 44 OF THE NATIONAL ENVIRONMENTAL MANAGEMENT ACT (ACT NO. 107 OF 1998) AS AMENDED OF THE SUBMISSION OF AN APPLICATION FOR THE BASIC ASSESSMENT OF THE FOLLOWING ACTIVITY TO THE NATIONAL DEPARTMENT OF ENVIRONMENTAL AFFAIRS:

THE ESTABLISHMENT OF A MILITARY HEALTH CARE CENTRE ON THE REMAINDER AND PORTION 429 TOWN AND TOWNLANDS OF POTCHEFSTROOM 435 IQ, TLOKWE CITY COUNCIL, NORTH WEST PROVINCE.

NATURE AND LOCATION OF ACTIVITY:

THE PROPOSED ACTIVITY IMPLIES THE TRANSFORMATION OF UNDEVELOPED, VACANT OR DERELICT LAND TO RESIDENTIAL, RETAIL COMMERCIAL, RECREATIONAL, INDUSTRIAL OR INSTITUTIONAL USE. OUTSIDE AN URBAN AREA AND WHERE THE TOTAL AREA TO BE TRANSFORMED IS BIGGER THAN 1 HECTARE AND SMALLER THAN 20 HECTARES AS DESCRIBED IS SECTION 23 ii OF THE REGULATIONS PUBLISHED IN GOVERNMENT NO R544 OF 18 JUNE 2010 UNDER SECTION 44 OF THE NATIONAL ENVIRONMENTAL MANAGEMENT ACT (ACT NO. 107 OF 1998).

PROPERTY LOCATION: BETWEEN AUSTER, AFMARS AND TIGERMOTH STREETS, POTCHEFSTROOM MILITARY BASE

PROPONENT: NATIONAL DEPARTMENT OF PUBLIC WORKS

FURTHER INFORMATION CAN BE OBTAINED FROM AND REPRESENTATIONS CAN BE MADE TO THE FOLLOWING PERSON WITHIN 30 (THIRTY) DAYS OF DATE OF THIS NOTICE:

C P LINDE
ENVIROVISION CONSULTING CC
CELLULAR PHONE: 0824440367
FAX NUMBER: 086557947
E-MAIL: ENVIROVISION@LANTIC.NET
POSTAL ADDRESS: 450 WENDY STREET
WATERKLOOF GLEN
PRETORIA
0181

DATE OF NOTICE: 11 APRIL 2014

Appendix E2: Written notification of stakeholders

Appendix E3: Comments & Response Report

In the absence of any comments a Comments and Response Report was not compiled.

Appendix E4: Written notification of governmental stakeholders

Appendix E5: Registered I&AP's

I&AP	Contact person (Title, Name and Surname)	Tel No	Fax No	e-mail	Postal address
Tlokwe Municipality	The Municipal Manager & Ward Councillor, Mr S Tyatya	(018) 2995001	018) 299 5130	-	P O Box 113 , Potchefstroom
Department of Water Affairs	The Office Manager: Potchefstroom, Mr L Caldwell	(018) 2973867	(018) 2948233	-	Private Bag X936, Potchefstroom, 2520
North West DEDECT	Environmental Officer: Mr S Mabula	(018) 2996710	(018) 2946008	mmabula@nwpg.co.za	P/Bag X804 Potchefstroom 2520
SAHRA	CEO: Mr P Mokwena	(021) 4624502	(012) 4624509	Pmokwena.sahra.org.za	P O Box 4637 Cape Town 8000

Appendix E6: Minutes of meetings

In the absence of any response information meetings have not been held.

APPENDIX F: IMPACT ASSESSMENT

IMPACT ASSESSMENT

PROPOSED ESTABLISHMENT OF A NEW MILITARY HEALTH CARE CENTRE

TLOKWE LOCAL MUNICIPALITY

NORTH WEST PROVINCE

COMPILED BY:

ENVIROVISION CONSULTING CC
ENVIRONMENTAL SPECIALISTS

PHYSICAL ADDRESS 450 Wendy Street, Waterkloof Glen, Pretoria, 0181
CELL 082 444 0367 • FAX 086 557 9447 • E-MAIL envirovision@lantic.net
MEMBER Cappie Linde M.ENV.DEV (UKN) • CK2003/050777/23

1. ENVIRONMENTAL ISSUES & POTENTIAL IMPACTS

The identification of potential impacts is based on the listing of so-called environmental aspects. This is a term used for actions during the construction and operational stages of the project that may have an impact to some degree or another on one or more environmental components.

In the absence of any comments that were received during the prescribed public participation process, environmental aspects listed in this section had been identified by the independent consultant based on professional experience as well as the content of the relevant specialist reports. Distinctions were made between direct, indirect and cumulative impacts. Comparisons were also drawn between the respective alternatives that included the no-go alternative.

It is the purpose with this section to identify potential key environmental aspects and to translate it into issues and potential impacts that may be encountered as a result of the proposed activity. The allocation of significance to these issues and impacts as well as the presentation of appropriate mitigating measures receives consideration in the section dealing with significance assessment and mitigation measures. The methodology that was followed to allocate significance is being explained in the section dealing with impact assessment methodology.

Environmental aspect Phase 1: Planning Phase 2: Construction Phase 3: Operational	**Impact category**	**Impact description**
DIRECT IMPACTS		
Planning (Phase 1)	Socio-economic	Non-Conformation to development planning may place the proposed activity in jeopardy prior to commencement.
Land use zoning (Phase 1)		Incompatible land use zonings may place the proposed activity in jeopardy prior to commencement.
Adjacent land uses (Phases 1, 2 & 3)		Incompatibility with adjacent land uses may place the proposed activity in jeopardy prior to commencement.
Need & Desirability (Phases 1, 2 & 3)		No real need for the proposed project can place its sustainability and continued operation in jeopardy.
Social disruptioon (Phases 1& 2)		Where sourcing of local labour is not possible, “outsiders” may need to be employed in order to address skills shortages. On-site accommodation may lead to social disturbances in the area and will also require additional service provisioning measures.
General construction activities (Phases 1 & 2)	Infrastructural	Construction activities such as open trenches and excavations will increase safety risks for local residents, motorists and passengers.

Services availability (Phases 1 & 2)		The inability of the Municipality to provide the necessary service may place the activity in jeopardy prior to commencement.
Dust generation (Phase 2)	Physical	The movement of construction vehicles will generate dust, thus affecting air quality though temporary in nature.
Protection of archaeological & heritage resources (Phases 1 & 2)	Cultural	The uncovering of arcaelogical & heritage resources during construction may lead to the loss of scarce heritage resources as well as unforeseen delays.
Disturbance of natural vegetation & animal life (Phase 2)	Biological	Site preparation and the construction of foundations will impact on vegetation and faunal activities.
INDIRECT IMPACTS		
Employment generation (Phases 1, 2 & 3)	Socio-economic	The proposed development will lead to the employment of construction workers during the construction phases and maintenance staff etc. during the operational phase.
Patronage of local businesses (Phases 1,2 & 3)		Contractors, construction workers, newly appointed staff, patients and visitors will support the local commercial sector.
Improved health services & Increased health standards (Phases 1, 2 & 3)		The receiving environment will gain access to improved health services and increased health standards.
Increased noise levels (Phases 2 & 3)		It is being envisaged that noise levels may increase on the development site especially during the construction phase.
Service infrastructure & maintenance (Phases 1,2 & 3)	Infrastructural	Ground water, subsoil and surface water contamination may occur if the proposed sanitation system is not satisfactorily designed, installed and maintained.
Erection of structures and provisioning of lighting (Phases 1, 2 & 3)		The proposed development may provide a visual impact during the construction phases in the form of newly erected structures or lights used for night-time construction activities. It may also provide a visual impact in the form of security lighting and structures during the operational phase.
Topography (Phases 1, 2, & 3)	Physical	Steep gradients may lead to unfavourable building conditions and soils erosion.

Geology (Phases 1, 2 & 3)		Undesirable geological attributes such as dolomite or exceptional heave may compromise the structural integrity of buildings and improvements.
CUMULATIVE IMPACTS		
Increased traffic	Infrastructural	Increased traffic generated by the proposed activity as well as other existing and envisaged developments in the vicinity may place unprecedented pressure on the existing road network that in turn may lead to disrepair and/ or increased maintenance.

2. PROPOSED IMPACT ASSESSMENT METHODOLOGY

It is the purpose of the prescribed impact assessment process to *inter alia* conduct an assessment of each identified potentially significant impact including cumulative impacts, the nature of the impact, the extent and duration of the impact, the probability of the impact occurring, the degree to which the impact can be reversed, the degree to which the impact may cause irreplaceable loss of resources and the degree to which the impact can be mitigated.

The Integrated Environmental Management Information Series: Impact Significance (DEAT 2002d) states that predictions are based on simplified conceptual models of how natural processes function. Models range in complexity from those that are very intuitive to those based on explicit assumptions about environmental processes. Criteria that can be used to describe the nature of an impact include:

- Spatial extent;
- Duration of the impact;
- Intensity or severity of impact;
- Status of the impact (i.e either positive, negative or neutral);
- Reversibility (i.e. reversible or permanent);
- Degree of certainty; and
- Mitigatory potential.

A multitude of impact prediction models exist. For purposes of the study a systematic generic and judgemental criteria model that is being illustrated below will be used. As is the case with other models, this specific model has implicit strengths and weaknesses. In the absence of standards set by law or scientific knowledge, the description of significance is largely judgemental, subjective and variable. This may be seen as an intrinsic weakness. However, generic criteria can be used systematically to identify, predict, evaluate and determine the significance of impacts resulting from project construction, operation and decommissioning. This may be seen as an intrinsic strength.

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SIGNIFICANCE ASSESSMENT METHODOLOGY

The significance of environmental impacts was assessed in accordance with the following method:

Significance is the product of probability and severity. Probability describes the likelihood of the impact actually occurring, and is rated as follows:

PROBABILITY RATING	DETERMINATION OF RATING	VALUE OF RATING
Improbable	Low possibility of impact occurring either because of design or historical experience.	2
Probable	Prominent possibility that impact will occur.	3
Highly probable	Most likely that impact will occur.	4
Definite	Impact will occur regardless of any prevention measures.	5

The severity rating is calculated from the factors given to intensity and duration. Intensity and duration factors are awarded to each impact as described below.

The intensity factor is awarded to each impact according to the following method:

INTENSITY FACTOR	DETERMINATION OF FACTOR	VALUE OF FACTOR
Low intensity	Nature and / or man made functions not affected and a minor impact may occur.	1
Medium intensity	Environment affected but natural functions and processes can continue though often in a slightly altered manner.	2
High intensity	Environment affected to the extent that natural functions are altered to the extent that it will temporarily or permanently cease.	4

Duration / reversibility is assessed and a factor awarded in accordance with the following:

DURATION / REVERSIBILITY FACTOR	DETERMINATION OF FACTOR	VALUE OF FACTOR
Short term (high reversibility)	≤ 1-5 years	2
Medium term (medium reversibility)	5-15 years	3
Long term (low reversibility)	Impact will only cease after the operational life of the activity, either because of natural process or by human intervention.	4
Permanent (non – reversible)	Mitigation, either by natural process or by human intervention, will not occur in such a way or within such a time span that the impact can be considered transient.	5

The severity rating is obtained from calculating a severity factor, and comparing the severity factor to the rating in the table below, for example:

The severity factor = Intensity factor x Duration factor

= 2 x 3

= 6

A severity factor of 6 (six) equals a severity rating of medium severity (Rating 3) *as per* the table below:

RATING	FACTOR
Low severity (Rating 2)	Calculated values 2 to 4
Medium severity (Rating 3)	Calculated values 5-8
High severity (Rating 4)	Calculated values 9-12
Very high severity (Rating 5)	Calculated values 13-16 and more
Severity factors below 3 indicate no impact	

A significance rating is calculated by multiplying the severity rating with the probability rating.

SIGNIFICANCE RATING	VALUE OF RATING	POSITIVE IMPACT	NEGATIVE IMPACT
Low significance	4-6	Impacts should have no influence on the proposed development project.	
Medium significance	≥ 7 to 12	Should indicate that the proposed project should be approved	Should be mitigated or mitigation measures should be formulated before the proposed project can be approved.
High significance	≥ 13-18	Should point towards a decision for the project to be approved and should be enhanced in final design.	Should weigh towards a decision to terminate proposal, or mitigation should be formulated and implemented to reduce significance to at least a low significance rating.
Very high significance	≥ 19 to 25 and more	Positive indication that the project should be approved.	This weighs towards the termination of the proposal if mitigation cannot be effectively implemented.

The impact prediction model that has been used for purposes of this study provides for the following assessment criteria:

Significance & mitigation

The significance rating provides guidance on the formulation of a final recommendation with regard to the approval or not of a proposed activity as well as the need for mitigation in the case of approval. The extent to which a potential impact can be mitigated is further determined through a process of impact assessment.

Probability

This criteria provides an indication of the likelihood of the impact actually occurring.

Duration & reversibility

This criteria provides an indication of the projected duration of an activity, as well as the degree to which the impact can be reversed, if at all.

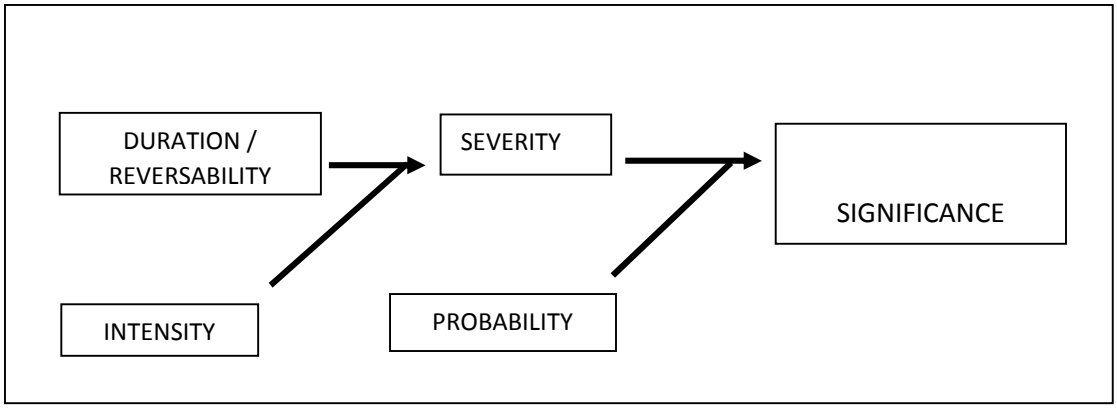
Intensity

This criteria reflects on the degree to which an activity may cause irreplaceable loss of resources.

Severity

This factor represents the product of duration / reversibility and intensity.

The figure below provides a schematic depiction of the interrelationship between the respective criteria in the determination of significance.



Potential cumulative impacts do not represent a separate criteria in terms of this assessment model but are being assessed as a specific potential impact category in the section dealing with impact assessment.

3. SIGNIFICANCE ASSESSMENT AND MITIGATION MEASURES

It is the purpose of this section to comparatively assess the three identified location alternatives as well as the "No-go" alternative.

3.1 PREFERRED SITE ALTERNATIVE 1: VACANT SITE BETWEEN AUSTER, AFMARS & TIGERMOTH STREETS, POTCHEFSTROOM MILITARY BASE

3.1.1 Direct impacts

Conformation to development planning initiatives

If an activity does not take into account and conform to relevant development and spatial planning initiatives for the area in question, it may receive municipal and other forms of governmental sanction. This could in principle represent a potentially negative impact on the environment. However, in this instance the proposed activity conforms to the Tlokwe City Council IDP 2011 – 2016 in that the site is situated within its "urban edge" and "urban fringe". This contributes positively to site suitability in as far as conformation to spatial planning initiatives in the area is concerned.

Viewed against these mitigating factors this potential impact represents a potentially positive contribution to the environment that does not necessitate mitigating measures.

Impact evaluation

Duration & reversibility	*Intensity*	*Severity*	*Probability*	*Significance*	
				Unmitigated	*Mitigated*
Long term	Low	Medium	High	Medium positive	Medium positive

Conformation to land use zoning

The proposed activity on this proposed site also conforms to zoning initiatives in that it is being zoned in the Tlokwe City Council IDP 2011 – 2016 for Government, the same as that of the activity.

Viewed against these mitigating factors this potential impact represents a potentially positive contribution to the environment that does not necessitate mitigating measures.

Impact evaluation

Duration & reversibility	*Intensity*	*Severity*	*Probability*	*Significance*	
				Unmitigated	*Mitigated*
Long term	Low	Medium	High	Medium positive	Medium positive

Conformation to adjacent land uses

Surrounding land uses include a mixture of residential and institutional uses. The proposed activity on the proposed site does not pose any contradictions in this regard.

Viewed against these mitigating factors this potential impact represents a potentially positive contribution to the environment that does not necessitate mitigating measures.

Impact evaluation

Duration & reversibility	*Intensity*	*Severity*	*Probability*	*Significance*	
				Unmitigated	*Mitigated*
Long term	Low	Medium	High	Medium positive	Medium positive

Need and desirability

If there is no real need for a proposed project its future sustainability can be placed in jeopardy. However, in this instance the proposed activity represents a national and district driven initiative that addresses an articulated need for improved military health services for the Potchefstroom Military base as well as the regional military community. These mitigating factors serve as strong motivation with regard to need and desirability and represents a potentially positive contribution to the environment that does not necessitate mitigating measures.

Impact evaluation

Duration & reversibility	*Intensity*	*Severity*	*Probability*	*Significance*	
				Unmitigated	*Mitigated*
Long term	Low	Medium	High	Medium positive	Medium positive

Social disruption

Where sourcing of local labour is not possible, “outsiders” will need to be employed in order to provide necessary skills. These employees may be accommodated in a construction camp. Historically, such camps create social impacts by introducing new people to an area. Changes can be both positive and negative – positive in that people exchange ideas and backgrounds, and negative in terms of conflict that these differences may evoke.

The construction camp may also attract women who may use the opportunity to generate income. This may increase the potential for family disintegration as well increased incidences of sexually transmitted diseases.

On-site accommodation also requires specific services such as water, sanitation and housing.

Mitigation measures

- Maximise local labour to allow employees to be closer to their homes and families, thereby limiting the need to accommodate employees on site.
- Wherever people from other areas are employed and accommodated on site, strict access control measures will be implemented with only authorised personnel allowed at the camping site.
- Chemical toilets will be placed on site for the duration of the construction period.

Impact evaluation

Duration & reversibility	*Intensity*	*Severity*	*Probability*	*Significance*	
				Unmitigated	*Mitigated*
Short term	Medium	Low	Probable	Low negative	Low negative

Safety risks

Construction activities will result in increased traffic in the area from heavy vehicles, as well as disruptions to traffic flow along access routes. This increase in traffic together with construction activities such as open trenches will lead to an increase in safety risks for local residents, motorists and passengers. Increased traffic during the operational phase will also represent an additional traffic load on existing access routes. This is considered to represent a potentially negative impact on the environment and mitigation measures are proposed.

Mitigation measures

- Apply strict safety measures around trenches and excavations.
- Implement regulated traffic safety procedures.
- Minimise extent of roadside disruptions on adjoining roads where possible in order to allow for normal traffic flow.

Impact evaluation

Duration & reversibility	*Intensity*	*Severity*	*Probability*	*Significance*	
				Unmitigated	*Mitigated*
Medium term	Medium	Low	Probable	Low negative	Low negative

Services availability

The unavailability of municipal services and / or the inability of the municipality to provide services may place the proposed activity in jeopardy prior to commencement.

With regard to this preferred site alternative the Municipality however confirmed in writing that services will be available (BAR Appendices D2 & J3).

Duration & reversibility	*Intensity*	*Severity*	*Probability*	*Significance*	
				Unmitigated	*Mitigated*
Long term	Medium	Medium	Improbable	Low negative	Low negative

Dust generation

It is being envisaged that dust levels may increase on the subject property and access routes during the construction phase.

Mitigation measures

- Dust control measures such as the watering of work areas, must be implemented to reduce dust arising from construction activities.

Impact evaluation

Duration & reversibility	*Intensity*	*Severity*	*Probability*	*Significance*	
				Unmitigated	*Mitigated*
Short term	Medium	Low	Probable	Low negative	Low negative

Archaeological & heritage resources

During the environmental impact assessment process no objects of cultural or historical value were recorded. Due to the physically and biologically transformed

condition of the proposed activity site a low archaeological conservation value was allocated to the site.

In addition a Heritage Impact Assessment (Appendix D7) was conducted with regard to this site alternative that did not reveal heritage resources.

However, it cannot be totally ruled out that the construction process may in principle lead to the destruction of valuable heritage resources.

Mitigation measures

- In the event of terrestrial artefacts being uncovered, it shall be reported to the Project Manager, Environmental Control Officer and the South African Heritage Resource Authority (SAHRA) immediately.
- Work in that area shall then also be stopped until such time as the necessary assessment has been undertaken and the required authorisation to continue has been received from SAHRA.

Impact evaluation

Duration & reversibility	*Intensity*	*Severity*	*Probability*	*Significance*	
				Unmitigated	*Mitigated*
Short term	Medium	Low	Improbable	Low negative	Low negative

Biological impact

Although the proposed activity site has been subjected to biological transformation and degradation over an extended period of time and although a low conservation value can thus be allocated, the proposed may still in principle impact negatively on vegetation and faunal activities.

Certain measures are being suggested to mitigate this potential impact to acceptable levels.

Mitigation measures

- Indigenous large trees (i.e. 200 mm trunk diameter) and shrubs are to be retained where applicable and possible during construction activities.
- Clearing of natural vegetation must be restricted, particularly on areas prone to erosion.
- Woods and invader plants that are declared such in terms of the Conservation of Agricultural Resources Act, 1983 (Act No. 43 of 1983) must be controlled as specified in the Act.
- Removal of existing vegetation must be done in a staged manner so as to minimise the duration of its exposure to erosion by wind and rain.
- Soil should be stripped in a phased manner in order to retain vegetation cover for as long as possible. The topsoil layer (the top 200mm seedbank material) must be stripped first and stockpiled separately for rehabilitation purposes. This material will be stored in stockpiles not more than 2 metres high in order to maximise the viability of seed and soil organisms present in the material.
- A suitable site for soil stockpiling must be identified. The site must be:
    - Removed from the working area;
    - In a sheltered position so that soil will not be exposed to the effects of erosion;
    - Removed from drainage lines to minimise the risk of flooding;

- Removed from areas of indigenous vegetation; and
- Removed from the base of a bank so that run-off from the bank does not cause ponding of water along the stockpile.

- Firebreaks should be established in terms of the requirements and conditions of the National Veld and Forest Fires Act, 1998 (Act No. 101 of 1998).
- Erosion must be controlled as specified in the Conservation of Agricultural Resources Act 1983 (Act No. 43 of 1983).
- Only indigenous plant species, preferably species that are indigenous to the natural vegetation of the area, should be used for landscaping.
- The contractor shall ensure that all temporary structures, equipment, materials, waste and facilities used for construction purposes are removed upon completion of the project. The site clean-up shall be to satisfaction of the Project Manager and Environmental Control Officer.
- Where appropriate, Contractors shall employ suitably qualified persons to rehabilitate areas damaged by construction activities within and surrounding the Contractor's camps. Contractors shall be responsible for rehabilitating areas identified by the PM and ECO, and the contractor's procedures for rehabilitation, including plans and method statements, shall be approved by the Environmental Control Officer and Project Manager.

Impact evaluation

Duration & reversibility	*Intensity*	*Severity*	*Probability*	*Significance*	
				Unmitigated	*Mitigated*
Long term	Medium	Medium	Probable	Low negative	Low negative

3.1.2 Indirect Impacts

Employment generation

The proposed development will generate employment during the construction phase (builders, other contract workers etc.) as well as its operational phase. This is considered to represent a positive impact on the environment that need not be mitigated.

Impact evaluation

Duration & reversibility	*Intensity*	*Severity*	*Probability*	*Significance*	
				Unmitigated	*Mitigated*
Long term	Low	Medium	High	Medium positive	Medium positive

Patronage of local businesses

The proposed development will lead to the strengthening of the local commercial sector in that contractors, construction workers, patients and visitors will support the local commercial sector. This is considered to represent a positive impact on the environment that need not be mitigated.

Impact evaluation

Duration & reversibility	*Intensity*	*Severity*	*Probability*	*Significance*	
				Unmitigated	*Mitigated*
Long term	Low	Medium	High	Medium positive	Medium positive

Increased health standards and improved health facilities

The proposed development will lead to an improvement in existing health facilities at the Potchefstroom Military Base as well as an increase in health standards. This is considered to represent a potentially positive contribution to the environment that does not require mitigating measures.

Impact evaluation

Duration & reversibility	*Intensity*	*Severity*	*Probability*	*Significance*	
				Unmitigated	*Mitigated*
Long term	Low	Medium	High	Medium positive	Medium positive

Increased noise levels

It is being envisaged that noise levels may increase on the development site especially during the construction phase.

Mitigation measures

- The applicant must inform adjacent occupants of any unusually noisy activities that will be undertaken during the construction phase.
- Contractors shall comply with local by-laws with regard to working hours and should also restrict construction hours to:
  - 6h30 – 18h30 on weekdays;
  - 7h00 – 17h00 on Saturdays; and
  - No operations on Sundays and public holidays.
- Noise generating methods such as mechanical excavations and piling will be limited to a minimum during the construction phase;
- Construction vehicles must be kept in a good state of repair.

Impact evaluation

Duration & reversibility	*Intensity*	*Severity*	*Probability*	*Significance*	
				Unmitigated	*Mitigated*
Short term	Medium	Low	High	Medium negative	Low negative

Water and subsoil contamination

The use of indiscriminate sanitation systems, sub-standard designs and construction methods as well as inadequate maintenance practices may in principle lead to subsoil and underground water contamination. Leakage or overflow will inevitably lead to pollution of water within the upper 3-4m soil layer, which provides moisture to trees and other vegetation in the area.
To this extent municipal confirmation of availability of services including a water-borne sanitation system with regard to this preferred site alternative has been obtained (Appendices D2 & J3).

Mitigation measures

- Designs must conform to the relevant engineering standards and material must adhere to SABS standards.
- Construction needs to be monitored by an appointed Environmental Control Officer in accordance with the stipulations of the relevant EMP, RoD and other regulatory requirements.

Impact evaluation

Duration & reversibility	*Intensity*	*Severity*	*Probability*	*Significance*	
				Unmitigated	*Mitigated*
Long term	Medium	Medium	Improbable	Medium negative	Low negative

Visual impact

The proposed development may provide a visual impact during the construction phases in the form of newly constructed structures and lights used for night-time construction activities. It may also provide a visual impact in the form of structures and security lighting during the operational phase.

Impact evaluation

Duration & reversibility	*Intensity*	*Severity*	*Probability*	*Significance*	
				Unmitigated	*Mitigated*
Long term	Medium	Medium	High	Medium negative	Low negative

Mitigation measures

- Night time construction activities should as far as possible be avoided by restricting construction hours to:
  - 6h30 – 18h30 on weekdays;
  - 7h00 – 17h00 on Saturdays; and
  - No operations on Sundays and public holidays.
- In the event of night time construction activities taking place, lighting should be used that does not contravene existing night time lighting patterns of the receiving environment. The same applies to security lighting if any during the operational phase.
- If floodlights are used it should be directed at working areas and not at the river banks or residential areas. The same applies for security lighting if any during the operational phase.
- Structures need to be designed and constructed in accordance with architectural plans and guidelines.

Topography & gradients

Steep gradients may lead to unfavourable building conditions and soils erosion. In this regard it has been found in a topographical report that this preferred site alternative is relatively flat and will not need much earth works (Appendix D4).

No specific mitigation measures are thus being suggested for this potential impact coupled to this preferred site alternative.

Impact evaluation

Duration & reversibility	*Intensity*	*Severity*	*Probability*	*Significance*	
				Unmitigated	*Mitigated*
Long term	Medium	Medium	Improbable	Low negative	Low negative

Geological suitability

Undesirable geological attributes such as dolomite or exceptional heave may compromise the structural integrity of buildings and improvements that may in turn compromise the sustainability of the activity itself.

To this extent a site specific geotechnical and dolomite investigation was conducted and a response from the Council for Geosciences was obtained (Appendices D6 & J4).

It is concluded in the report that this preferred site alternative is non-dolomitic and that no additional precautionary measures related to development on dolomite are necessary.

Certain mitigating measures are being proposed in the relevant report.

- At least 1.5 metre of the soil profile should be removed below the foundation areas of buildings extending at least 1 metre beyond the perimeter of the buildings and replace with inert backfill as specified in Appendix D6. On-site material is not suitable for this soil raft.
- Stiffened cellular raft foundations should be constructed on the soil rafts and special care should be given to on-site drainage, plumbing and wet services.

Impact evaluation

Duration & reversibility	*Intensity*	*Severity*	*Probability*	*Significance*	
				Unmitigated	*Mitigated*
Long term	Medium	Medium	Improbable	Low negative	Low negative

3.1.3 Cumulative impacts

Increased traffic generated by the proposed activity as well as other existing or envisaged developments in the vicinity may place unprecedented pressure on the existing road network that in turn may lead to disrepair and/ or increased maintenance.

The proposed activity on this preferred site alternative is being supported from a traffic engineering point of view (Appendix D8).

Certain measures are being proposed in the report to address the cumulative effect of increased traffic in future.

Mitigation measure(s)

- Following the implementation of the proposed activity, a traffic signal should be installed at the intersection of the R53 and Auster Street (once warranted).
- During the compilation of the Site Development Plan attention should be given to the provision of efficient on-site parking and the manoeuvring of emergency vehicles and delivery vehicles should be addressed.

Impact evaluation

Duration & reversibility	*Intensity*	*Severity*	*Probability*	*Significance*	
				Unmitigated	*Mitigated*
Long term	Medium	Medium	Improbable	Low negative	Low negative

3.2 SITE ALTERNATIVE 2: VACANT SITE ON THE NORTH WESTERN CORNER OF ROAD R 53 AND ELEAZER STREET, POTCHEFSTROOM MILITARY BASE

3.2.1 Direct impacts

Conformation to development planning initiatives

If an activity does not take into account and conform to relevant development and spatial planning initiatives for the area in question, it may receive municipal and other forms of governmental sanction. This could in principle represent a potentially negative impact on the environment. However, in this instance the proposed activity conforms to the Tlokwe City Council IDP 2011 – 2016 in that the site is situated within its "urban edge" and "urban fringe". This contributes positively to site suitability in as far as conformation to spatial planning initiatives in the area is concerned.

Viewed against these mitigating factors this potential impact represents a potentially positive contribution to the environment that does not necessitate mitigating measures.

Impact evaluation

Duration & reversibility	*Intensity*	*Severity*	*Probability*	*Significance*	
				Unmitigated	*Mitigated*
Long term	Low	Medium	High	Medium positive	Medium positive

Conformation to land use zoning

The proposed activity on this proposed site does not conform to zoning initiatives in that it is being zoned in the Tlokwe City Council IDP 2011 – 2016 for Residential.

Although these zoning initiatives are not permanent and are reviewed on a regular basis, this lack of alignment impacts negatively on the desirability of the proposed activity coupled with this site alternative over the short to medium term.

No mitigating measures are suggested for this potential impact.

Duration & reversibility	*Intensity*	*Severity*	*Probability*	*Significance*	
				Unmitigated	*Mitigated*
Medium term	Medium	Low	Probable	Low negative	Low negative

Conformation to adjacent land uses

This site alternative currently consists of vacant land as is the case with land to its north and north-west. Envisaged land uses for both this site alternative as well as adjacent vacant land relate to residential land uses.

To this extent the proposed activity does not conform to existing or envisaged land uses for the subject site as well as adjacent vacant land.

This aspect may negatively influence the potential suitability of this site for purposes of the proposed activity.

No mitigating measures are suggested for this potential impact.

Duration & reversibility	*Intensity*	*Severity*	*Probability*	*Significance*	
				Unmitigated	*Mitigated*
Medium term	Medium	Low	Probable	Low negative	Low negative

Need and desirability

If there is no real need for a proposed project its future sustainability can be placed in jeopardy. However, in this instance the proposed activity represents a national and district driven initiative that addresses an articulated need for improved military health services for the Potchefstroom Military base as well as the regional military community. These mitigating factors serve as strong motivation with regard to need and desirability and represents a potentially positive contribution to the environment that does not necessitate mitigating measures. The proposed activity coupled with this site alternative may however be less than desirable due to non-conformation with aspects such as land zoning and existing and future land uses on-site as well as on adjacent land.

No mitigating measures are suggested for this potential impact.

Duration & reversibility	*Intensity*	*Severity*	*Probability*	*Significance*	
				Unmitigated	*Mitigated*
Medium term	Medium	Low	Probable	Low negative	Low negative

Social disruption

Where sourcing of local labour is not possible, “outsiders” will need to be employed in order to provide necessary skills. These employees may be accommodated in a construction camp. Historically, such camps create social impacts by introducing new people to an area. Changes can be both positive and negative – positive in that people exchange ideas and backgrounds, and negative in terms of conflict that these differences may evoke.

The construction camp may also attract women who may use the opportunity to generate income. This may increase the potential for family disintegration as well increased incidences of sexually transmitted diseases.

On-site accommodation also requires specific services such as water, sanitation and housing.

Mitigation measures

- Maximise local labour to allow employees to be closer to their homes and families, thereby limiting the need to accommodate employees on site.
- Wherever people from other areas are employed and accommodated on site, strict access control measures will be implemented with only authorised personnel allowed at the camping site.
- Chemical toilets will be placed on site for the duration of the construction period.

Impact evaluation

Duration & reversibility	*Intensity*	*Severity*	*Probability*	*Significance*	
				Unmitigated	*Mitigated*
Short term	Medium	Low	Probable	Low negative	Low negative

Safety risks

Construction activities will result in increased traffic in the area from heavy vehicles, as well as disruptions to traffic flow along access routes. This increase in traffic together with construction activities such as open trenches will lead to an increase in safety risks for local residents, motorists and passengers. Increased traffic during the operational phase will also represent an additional traffic load on existing access routes. This is considered to represent a potentially negative impact on the environment and mitigation measures are proposed.

Mitigation measures

- Apply strict safety measures around trenches and excavations.
- Implement regulated traffic safety procedures.
- Minimise extent of roadside disruptions on adjoining roads where possible in order to allow for normal traffic flow.

Impact evaluation

Duration & reversibility	*Intensity*	*Severity*	*Probability*	*Significance*	
				Unmitigated	*Mitigated*
Medium term	Medium	Low	Probable	Low negative	Low negative

Services availability

The unavailability of municipal services and / or the inability of the municipality to provide services may place the proposed activity in jeopardy prior to commencement.

With regard to this site alternative no Municipal confirmation of services could be obtained either verbally or in writing.

This could impact negatively on the proposed activity if it is established on this site alternative.

No mitigation measures for this potential negative impact has been proposed.

Impact evaluation

Duration & reversibility	*Intensity*	*Severity*	*Probability*	*Significance*	
				Unmitigated	*Mitigated*
Long term	Medium	Medium	Probable	Low negative	Low negative

Dust generation

It is being envisaged that dust levels may increase on the subject property and access routes during the construction phase.

Mitigation measures

- Dust control measures such as the watering of work areas, must be implemented to reduce dust arising from construction activities.

Impact evaluation

Duration & reversibility	*Intensity*	*Severity*	*Probability*	*Significance*	
				Unmitigated	*Mitigated*
Short term	Medium	Low	Probable	Low negative	Low negative

Archaeological & heritage resources

During the environmental impact assessment process no objects of cultural or historical value were recorded. However, due to the predominantly pristine condition of this site alternative and in the absence of a Heritage Impact Assessment it cannot be totally ruled out that the construction process may in principle lead to the destruction of valuable heritage resources. To this extent medium archaeological value has been be allocated. Certain mitigation measures are also being proposed in the event of the proposed activity taking place on this site.

Mitigation measures

- Conduct a Phase1 Heritage Impact Assessment prior to commencement of the proposed activity on this site.
- In the event of terrestrial artefacts being uncovered, it shall be reported to the Project Manager, Environmental Control Officer and the South African Heritage Resource Authority (SAHRA) immediately.
- Work in that area shall then also be stopped until such time as the necessary assessment has been undertaken and the required authorisation to continue has been received from SAHRA.

Impact evaluation

Duration & reversibility	*Intensity*	*Severity*	*Probability*	*Significance*	
				Unmitigated	*Mitigated*
Short term	Medium	Low	High	Medium negative	Medium negative

Biological impact

This specific site alternative is predominantly pristine and has not been subjected to biological transformation and degradation over an extended period of time. Medium conservational value has thus be allocated. There is also a high probability that the proposed activity will impact negatively on vegetation and faunal activities if it takes place on this site alternative. Certain mitigation measures will also be required.

Mitigation measures

- Conduct an ecological study prior to commencement of the proposed activity on this site.
- Indigenous large trees (i.e. 200 mm trunk diameter) and shrubs are to be retained where applicable and possible during construction activities.
- Clearing of natural vegetation must be restricted, particularly on areas prone to erosion.
- Woods and invader plants that are declared such in terms of the Conservation of Agricultural Resources Act, 1983 (Act No. 43 of 1983) must be controlled as specified in the Act.
- Removal of existing vegetation must be done in a staged manner so as to minimise the duration of its exposure to erosion by wind and rain.

- Soil should be stripped in a phased manner in order to retain vegetation cover for as long as possible. The topsoil layer (the top 200mm seedbank material) must be stripped first and stockpiled separately for rehabilitation purposes. This material will be stored in stockpiles not more than 2 metres high in order to maximise the viability of seed and soil organisms present in the material.
- A suitable site for soil stockpiling must be identified. The site must be:
    - Removed from the working area;
    - In a sheltered position so that soil will not be exposed to the effects of erosion;
    - Removed from drainage lines to minimise the risk of flooding;
    - Removed from areas of indigenous vegetation; and
    - Removed from the base of a bank so that run-off from the bank does not cause ponding of water along the stockpile.
- Firebreaks should be established in terms of the requirements and conditions of the National Veld and Forest Fires Act, 1998 (Act No. 101 of 1998).
- Erosion must be controlled as specified in the Conservation of Agricultural Resources Act 1983 (Act No. 43 of 1983).
- Only indigenous plant species, preferably species that are indigenous to the natural vegetation of the area, should be used for landscaping.
- The contractor shall ensure that all temporary structures, equipment, materials, waste and facilities used for construction purposes are removed upon completion of the project. The site clean-up shall be to satisfaction of the Project Manager and Environmental Control Officer.
- Where appropriate, Contractors shall employ suitably qualified persons to rehabilitate areas damaged by construction activities within and surrounding the Contractor's camps. Contractors shall be responsible for rehabilitating areas identified by the PM and ECO, and the contractor's procedures for rehabilitation, including plans and method statements, shall be approved by the Environmental Control Officer and Project Manager.

Impact evaluation

Duration & reversibility	*Intensity*	*Severity*	*Probability*	*Significance*	
				Unmitigated	*Mitigated*
Long term	Medium	Medium	High	Medium negative	Low negative

3.2.2 Indirect Impacts

Employment generation

The proposed development will generate employment during the construction phase (builders, other contract workers etc.) as well as its operational phase. This is considered to represent a positive impact on the environment that need not be mitigated.

Impact evaluation

Duration & reversibility	*Intensity*	*Severity*	*Probability*	*Significance*	
				Unmitigated	*Mitigated*
Long term	Low	Medium	High	Medium positive	Medium positive

Patronage of local businesses

The proposed development will lead to the strengthening of the local commercial sector in that contractors, construction workers, patients and visitors will support the

local commercial sector. This is considered to represent a positive impact on the environment that need not be mitigated.

Impact evaluation

Duration & reversibility	*Intensity*	*Severity*	*Probability*	*Significance*	
				Unmitigated	*Mitigated*
Long term	Low	Medium	High	Medium positive	Medium positive

Increased health standards and improved health facilities

The proposed development will lead to an improvement in existing health facilities at the Potchefstroom Military Base as well as an increase in health standards. This is considered to represent a potentially positive contribution to the environment that does not require mitigating measures.

Impact evaluation

Duration & reversibility	*Intensity*	*Severity*	*Probability*	*Significance*	
				Unmitigated	*Mitigated*
Long term	Low	Medium	High	Medium positive	Medium positive

Increased noise levels

It is being envisaged that noise levels may increase on the development site especially during the construction phase.

Mitigation measures

- The applicant must inform adjacent occupants of any unusually noisy activities that will be undertaken during the construction phase.
- Contractors shall comply with local by-laws with regard to working hours and should also restrict construction hours to:
  - 6h30 – 18h30 on weekdays;
  - 7h00 – 17h00 on Saturdays; and
  - No operations on Sundays and public holidays.
- Noise generating methods such as mechanical excavations and piling will be limited to a minimum during the construction phase;
- Construction vehicles must be kept in a good state of repair.

Impact evaluation

Duration & reversibility	*Intensity*	*Severity*	*Probability*	*Significance*	
				Unmitigated	*Mitigated*
Short term	Medium	Low	High	Medium negative	Low negative

Water and subsoil contamination

The use of indiscriminate sanitation systems, sub-standard designs and construction methods as well as inadequate maintenance practices may in principle lead to subsoil and underground water contamination. Leakage or overflow will inevitably lead to pollution of water within the upper 3-4m soil layer, which provides moisture to trees and other vegetation in the area.

To this extent municipal confirmation of availability of services including a water-borne sanitation system with regard to this site alternative could not be obtained.

Mitigation measures

- Designs must conform to the relevant engineering standards and material must adhere to SABS standards.
- Construction needs to be monitored by an appointed Environmental Control Officer in accordance with the stipulations of the relevant EMP, RoD and other regulatory requirements.

Impact evaluation

Duration & reversibility	*Intensity*	*Severity*	*Probability*	*Significance*	
				Unmitigated	*Mitigated*
Long term	Medium	Medium	Probable	Medium negative	Medium negative

Visual impact

The proposed development may provide a visual impact during the construction phases in the form of newly constructed structures and lights used for night-time construction activities. It may also provide a visual impact in the form of structures and security lighting during the operational phase.

Impact evaluation

Duration & reversibility	*Intensity*	*Severity*	*Probability*	*Significance*	
				Unmitigated	*Mitigated*
Long term	Medium	Medium	High	Medium negative	Low negative

Mitigation measures

- Night time construction activities should as far as possible be avoided by restricting construction hours to:
  - 6h30 – 18h30 on weekdays;
  - 7h00 – 17h00 on Saturdays; and
  - No operations on Sundays and public holidays.
- In the event of night time construction activities taking place, lighting should be used that does not contravene existing night time lighting patterns of the receiving environment. The same applies to security lighting if any during the operational phase.
- If floodlights are used it should be directed at working areas and not at the river banks or residential areas. The same applies for security lighting if any during the operational phase.
- Structures need to be designed and constructed in accordance with architectural plans and guidelines.

Topography & gradients

Steep gradients may lead to unfavourable building conditions and soils erosion.

In this regard it has been recorded in a topographical report that this preferred site alternative is the most uneven of all thee site alternatives and will require most earth works (Appendix D4).

No specific mitigation measures have been suggested for this potential impact coupled to this site alternative.

Impact evaluation

Duration & reversibility	*Intensity*	*Severity*	*Probability*	*Significance*	
				Unmitigated	*Mitigated*
Long term	Medium	Medium	High	Medium negative	Medium negative

Geological suitability

Undesirable geological attributes such as dolomite or exceptional heave may compromise the structural integrity of buildings and improvements that may in turn compromise the sustainability of the activity itself.

To this extent a comparative Phase 1 geotechnical and dolomite investigation (Appendix D5) recorded a strong possibility of dolomite on this site alternative. However, no known survey was conducted on this site to establish the presence/extent and nature of the dolomitic material across the site.

Impact evaluation

Duration & reversibility	*Intensity*	*Severity*	*Probability*	*Significance*	
				Unmitigated	*Mitigated*
Long term	Medium	Medium	High	Medium negative	Medium negative

3.2.3 Cumulative impacts

Increased traffic generated by the proposed activity as well as other existing or envisaged developments in the vicinity may place unprecedented pressure on the existing road network that in turn may lead to disrepair and/ or increased maintenance.

No traffic impact assessment has been obtained to determine the total extent of this potential impact or to provide any mitigating measures.

Impact evaluation

Duration & reversibility	*Intensity*	*Severity*	*Probability*	*Significance*	
				Unmitigated	*Mitigated*
Long term	Medium	Medium	High	Medium negative	Medium negative

3.3 SITE ALTERNATIVE 3: SPORTS FIELDS, POTCHEFSTROOM MILITARY BASE

3.3.1 Direct impacts

Conformation to development planning initiatives

If an activity does not take into account and conform to relevant development and spatial planning initiatives for the area in question, it may receive municipal and other forms of governmental sanction. This could in principle represent a potentially negative impact on the environment. However, in this instance the proposed activity conforms to the Tlokwe City Council IDP 2011 – 2016 in that the site is situated within its "urban edge" and "urban fringe". This contributes positively to site suitability in as far as conformation to spatial planning initiatives in the area is concerned.

Viewed against these mitigating factors this potential impact represents a potentially positive contribution to the environment that does not necessitate mitigating measures.

Impact evaluation

Duration & reversibility	*Intensity*	*Severity*	*Probability*	*Significance*	
				Unmitigated	*Mitigated*
Long term	Low	Medium	High	Medium positive	Medium positive

Conformation to land use zoning

The proposed activity on this proposed site conforms to zoning initiatives in that it is being zoned in the Tlokwe City Council IDP 2011 – 2016 for Government.

However, note should be taken that the *de facto* land use zoning on the site relate to various fully operational sports facilities and could therefore be described as recreational or institutional.

Although these zoning initiatives are not permanent and are reviewed on a regular basis, this lack of alignment impacts negatively on the desirability of the proposed activity coupled with this site alternative over the short to medium term.

No mitigating measures are suggested for this potential impact.

Duration & reversibility	*Intensity*	*Severity*	*Probability*	*Significance*	
				Unmitigated	*Mitigated*
Medium term	Medium	Low	Probable	Low negative	Low negative

Conformation to adjacent land uses

This site alternative currently consists of various fully operational sports facilities.

Surrounding land uses range from residential to institutional.

A specific concern with regard to adjacent land uses in relation to the proposed activity coupled with this site alternative was raised in the comparative topographical report (Appendix D4). The concern relates to the close proximity of this site to the approach path of low flying aircraft on final approach for landing on runway 03 as well aircraft taking off from runway 21. The noise from these low flying aircraft can be a factor, as well as building height restrictions.

To this extent the proposed activity does not conform to existing or envisaged land uses for the subject site as well as adjacent land.

This aspect may negatively influence the potential suitability of this site for purposes of the proposed activity.

No mitigating measures are suggested for this potential impact.

Duration & reversibility	*Intensity*	*Severity*	*Probability*	*Significance*	
				Unmitigated	*Mitigated*
Medium term	Medium	Low	Probable	Low negative	Low negative

Need and desirability

If there is no real need for a proposed project its future sustainability can be placed in jeopardy. However, in this instance the proposed activity represents a national and district driven initiative that addresses an articulated need for improved military health services for the Potchefstroom Military base as well as the regional military community. These mitigating factors serve as strong motivation with regard to need and desirability and represents a potentially positive contribution to the environment that does not necessitate mitigating measures.

The proposed activity coupled with this site alternative may however be less than desirable due its location in relation to the approach path of low flying aircraft. The site is also not deemed very accessible by road and not next to or close to a provincial road for easy access (Appendix D4).

No mitigating measures are suggested for this potential impact.

Duration & reversibility	*Intensity*	*Severity*	*Probability*	*Significance*	
				Unmitigated	*Mitigated*
Medium term	Medium	Low	Probable	Low negative	Low negative

Social disruption

Where sourcing of local labour is not possible, “outsiders” will need to be employed in order to provide necessary skills. These employees may be accommodated in a construction camp. Historically, such camps create social impacts by introducing new people to an area. Changes can be both positive and negative – positive in that people exchange ideas and backgrounds, and negative in terms of conflict that these differences may evoke.

The construction camp may also attract women who may use the opportunity to generate income. This may increase the potential for family disintegration as well increased incidences of sexually transmitted diseases.

On-site accommodation also requires specific services such as water and sanitation.

Another instance of social disruption that can be anticipated if the proposed activity takes place on this site alternative relates to the implied decommissioning and / or relocation of the existing sports facilities.

Mitigation measures

- Maximise local labour to allow employees to be closer to their homes and families, thereby limiting the need to accommodate employees on site.

- Wherever people from other areas are employed and accommodated on site, strict access control measures will be implemented with only authorised personnel allowed at the camping site.
- Chemical toilets will be placed on site for the duration of the construction period.

Impact evaluation

Duration & reversibility	*Intensity*	*Severity*	*Probability*	*Significance*	
				Unmitigated	*Mitigated*
Short term	Medium	Low	Probable	Low negative	Low negative

Safety risks

Construction activities will result in increased traffic in the area from heavy vehicles, as well as disruptions to traffic flow along access routes. This increase in traffic together with construction activities such as open trenches will lead to an increase in safety risks for local residents, motorists and passengers. Increased traffic during the operational phase will also represent an additional traffic load on existing access routes. This is considered to represent a potentially negative impact on the environment and mitigation measures are proposed.

Mitigation measures

- Apply strict safety measures around trenches and excavations.
- Implement regulated traffic safety procedures.
- Minimise extent of roadside disruptions on adjoining roads where possible in order to allow for normal traffic flow.

Impact evaluation

Duration & reversibility	*Intensity*	*Severity*	*Probability*	*Significance*	
				Unmitigated	*Mitigated*
Medium term	Medium	Low	Probable	Low negative	Low negative

Services availability

The unavailability of municipal services and / or the inability of the municipality to provide services may place the proposed activity in jeopardy prior to commencement.

With regard to this site alternative no Municipal confirmation of services could be obtained either verbally or in writing.

This could impact negatively on the proposed activity if it is established on this site alternative.

No mitigation measures for this potential negative impact has been proposed.

Impact evaluation

Duration & reversibility	*Intensity*	*Severity*	*Probability*	*Significance*	
				Unmitigated	*Mitigated*
Long term	Medium	Medium	Probable	Low negative	Low negative

Dust generation

It is being envisaged that dust levels may increase on the subject property and access routes during the construction phase.

Mitigation measures

- Dust control measures such as the watering of work areas, must be implemented to reduce dust arising from construction activities.

Impact evaluation

Duration & reversibility	*Intensity*	*Severity*	*Probability*	*Significance*	
				Unmitigated	*Mitigated*
Short term	Medium	Low	Probable	Low negative	Low negative

Archaeological & heritage resources

During the environmental impact assessment process no objects of cultural or historical value were recorded. Due to the physically and biologically transformed condition of the proposed activity site a low archaeological conservation value was allocated to the site.

However, it cannot be totally ruled out that the construction process may in principle lead to the destruction of valuable heritage resources.

Mitigation measures

- Conduct a Phase1 Heritage Impact Assessment prior to commencement of activity on this site.
- In the event of terrestrial artefacts being uncovered, it shall be reported to the Project Manager, Environmental Control Officer and the South African Heritage Resource Authority (SAHRA) immediately.
- Work in that area shall then also be stopped until such time as the necessary assessment has been undertaken and the required authorisation to continue has been received from SAHRA.

Impact evaluation

Duration & reversibility	*Intensity*	*Severity*	*Probability*	*Significance*	
				Unmitigated	*Mitigated*
Short term	Medium	Low	Probable	Medium negative	Medium negative

Biological impact

Although the proposed activity site has been subjected to biological transformation and degradation over an extended period of time and although a low conservation value can thus be allocated, the proposed may still in principle impact negatively on vegetation and faunal activities.

Certain measures are being suggested to mitigate this potential impact to acceptable levels.

Mitigation measures

- Indigenous large trees (i.e. 200 mm trunk diameter) and shrubs are to be retained where applicable and possible during construction activities.
- Clearing of natural vegetation must be restricted, particularly on areas prone to erosion.
- Woods and invader plants that are declared such in terms of the Conservation of Agricultural Resources Act, 1983 (Act No. 43 of 1983) must be controlled as specified in the Act.
- Removal of existing vegetation must be done in a staged manner so as to minimise the duration of its exposure to erosion by wind and rain.
- Soil should be stripped in a phased manner in order to retain vegetation cover for as long as possible. The topsoil layer (the top 200mm seedbank material) must be stripped first and stockpiled separately for rehabilitation purposes. This material will be stored in stockpiles not more than 2 metres high in order to maximise the viability of seed and soil organisms present in the material.
- A suitable site for soil stockpiling must be identified. The site must be:
    - Removed from the working area;
    - In a sheltered position so that soil will not be exposed to the effects of erosion;
    - Removed from drainage lines to minimise the risk of flooding;
    - Removed from areas of indigenous vegetation; and
    - Removed from the base of a bank so that run-off from the bank does not cause ponding of water along the stockpile.
- Firebreaks should be established in terms of the requirements and conditions of the National Veld and Forest Fires Act, 1998 (Act No. 101 of 1998).
- Erosion must be controlled as specified in the Conservation of Agricultural Resources Act 1983 (Act No. 43 of 1983).
- Only indigenous plant species, preferably species that are indigenous to the natural vegetation of the area, should be used for landscaping.
- The contractor shall ensure that all temporary structures, equipment, materials, waste and facilities used for construction purposes are removed upon completion of the project. The site clean-up shall be to satisfaction of the Project Manager and Environmental Control Officer.
- Where appropriate, Contractors shall employ suitably qualified persons to rehabilitate areas damaged by construction activities within and surrounding the Contractor's camps. Contractors shall be responsible for rehabilitating areas identified by the PM and ECO, and the contractor's procedures for rehabilitation, including plans and method statements, shall be approved by the Environmental Control Officer and Project Manager.

Impact evaluation

Duration & reversibility	*Intensity*	*Severity*	*Probability*	*Significance*	
				Unmitigated	*Mitigated*
Long term	Medium	Medium	High	Medium negative	Low negative

3.3.2 Indirect Impacts

Employment generation

The proposed development will generate employment during the construction phase (builders, other contract workers etc.) as well as its operational phase. This is considered to represent a positive impact on the environment that need not be mitigated.

Impact evaluation

Duration & reversibility	*Intensity*	*Severity*	*Probability*	*Significance*	
				Unmitigated	*Mitigated*
Long term	Low	Medium	High	Medium positive	Medium positive

Patronage of local businesses

The proposed development will lead to the strengthening of the local commercial sector in that contractors, construction workers, patients and visitors will support the local commercial sector. This is considered to represent a positive impact on the environment that need not be mitigated.

Impact evaluation

Duration & reversibility	*Intensity*	*Severity*	*Probability*	*Significance*	
				Unmitigated	*Mitigated*
Long term	Low	Medium	High	Medium positive	Medium positive

Increased health standards and improved health facilities

The proposed development will lead to an improvement in existing health facilities at the Potchefstroom Military Base as well as an increase in health standards. This is considered to represent a potentially positive contribution to the environment that does not require mitigating measures.

Impact evaluation

Duration & reversibility	*Intensity*	*Severity*	*Probability*	*Significance*	
				Unmitigated	*Mitigated*
Long term	Low	Medium	High	Medium positive	Medium positive

Increased noise levels

It is being envisaged that noise levels may increase on the development site especially during the construction phase.

Mitigation measures

- The applicant must inform adjacent occupants of any unusually noisy activities that will be undertaken during the construction phase.
- Contractors shall comply with local by-laws with regard to working hours and should also restrict construction hours to:
  - 6h30 – 18h30 on weekdays;
  - 7h00 – 17h00 on Saturdays; and
  - No operations on Sundays and public holidays.
- Noise generating methods such as mechanical excavations and piling will be limited to a minimum during the construction phase;
- Construction vehicles must be kept in a good state of repair.

Impact evaluation

Duration & reversibility	*Intensity*	*Severity*	*Probability*	*Significance*	
				Unmitigated	*Mitigated*
Short term	Medium	Low	High	Medium negative	Low negative

Water and subsoil contamination

The use of indiscriminate sanitation systems, sub-standard designs and construction methods as well as inadequate maintenance practices may in principle lead to subsoil and underground water contamination. Leakage or overflow will inevitably lead to pollution of water within the upper 3-4m soil layer, which provides moisture to trees and other vegetation in the area.

To this extent municipal confirmation of availability of services including a water-borne sanitation system with regard to this site alternative could not be obtained.

Mitigation measures

- Designs must conform to the relevant engineering standards and material must adhere to SABS standards.
- Construction needs to be monitored by an appointed Environmental Control Officer in accordance with the stipulations of the relevant EMP, RoD and other regulatory requirements.

Impact evaluation

Duration & reversibility	*Intensity*	*Severity*	*Probability*	*Significance*	
				Unmitigated	*Mitigated*
Long term	Medium	Medium	Probable	Medium negative	Medium negative

Visual impact

The proposed development may provide a visual impact during the construction phases in the form of newly constructed structures and lights used for night-time construction activities. It may also provide a visual impact in the form of structures and security lighting during the operational phase.

Impact evaluation

Duration & reversibility	*Intensity*	*Severity*	*Probability*	*Significance*	
				Unmitigated	*Mitigated*
Long term	Medium	Medium	High	Medium negative	Low negative

Mitigation measures

- Night time construction activities should as far as possible be avoided by restricting construction hours to:
  - 6h30 – 18h30 on weekdays;
  - 7h00 – 17h00 on Saturdays; and
  - No operations on Sundays and public holidays.
- In the event of night time construction activities taking place, lighting should be used that does not contravene existing night time lighting patterns of the receiving environment. The same applies to security lighting if any during the operational phase.
- If floodlights are used it should be directed at working areas and not at the river banks or residential areas. The same applies for security lighting if any during the operational phase.
- Structures need to be designed and constructed in accordance with architectural plans and guidelines.

Topography & gradients

Steep gradients may lead to unfavourable building conditions and soils erosion.

In this regard it has been recorded in a topographical report that this preferred site alternative is relatively flat and that very little earth works will be required (Appendix D4).

No specific mitigation measures have been suggested for this potential impact coupled to this site alternative.

Impact evaluation

Duration & reversibility	*Intensity*	*Severity*	*Probability*	*Significance*	
				Unmitigated	*Mitigated*
Long term	Medium	Medium	High	Medium negative	Medium negative

Geological suitability

Undesirable geological attributes such as dolomite or exceptional heave may compromise the structural integrity of buildings and improvements that may in turn compromise the sustainability of the activity itself.

To this extent a comparative Phase 1 geotechnical and dolomite investigation (Appendix D5) recorded a strong possibility of dolomite on this site alternative. However, no known survey was conducted on this site to establish the presence/extent and nature of the dolomitic material across the site.

Impact evaluation

Duration & reversibility	*Intensity*	*Severity*	*Probability*	*Significance*	
				Unmitigated	*Mitigated*
Long term	Medium	Medium	Improbable	Low negative	Low negative

3.3.3 Cumulative impacts

Increased traffic generated by the proposed activity as well as other existing or envisaged developments in the vicinity may place unprecedented pressure on the existing road network that in turn may lead to disrepair and/ or increased maintenance.

No traffic impact assessment has been obtained to determine the total extent of this potential impact or to provide any mitigating measures.

Impact evaluation

Duration & reversibility	*Intensity*	*Severity*	*Probability*	*Significance*	
				Unmitigated	*Mitigated*
Long term	Medium	Medium	High	Medium negative	Medium negative

3.4 "NO-GO" ALTERNATIVE

3.4.1 Direct impacts

Conformation to development planning initiatives

The *status quo* will be maintained without any resultant potential impacts of any determined significance.

Conformation to land use zoning

The *status quo* will be maintained without any resultant potential impacts of any determined significance.

Conformation to adjacent land uses

The *status quo* will be maintained without any resultant potential impacts of any determined significance.

Need and desirability

If the proposed activity does not take place it implies that an articulated need for modern and upgraded military health care, both locally and regionally will not be addressed.

This will have a decidedly negative potential impact on the receiving environment.

No mitigating measures are suggested for this potential impact.

Duration & reversibility	*Intensity*	*Severity*	*Probability*	*Significance*	
				Unmitigated	*Mitigated*
Long term	High	High	High	High negative	High negative

Social disruption

If the proposed activity does not take place, this potential impact will no longer be relevant for purposes of assessment.

Safety risks

If the proposed activity does not take place, this potential impact will no longer be relevant for purposes of assessment.

Services availability

If the proposed activity does not take place, this potential impact will no longer be relevant for purposes of assessment.

Dust generation

If the proposed activity does not take place, this potential impact will no longer be relevant for purposes of assessment.

Archaeological & heritage resources

The *status quo* will be maintained without any resultant potential impacts of any determined significance.

Biological impact

The *status quo* will be maintained without any resultant potential impacts of any determined significance.

3.4.2 Indirect Impacts

Employment generation

If the proposed activity does not take place it implies the loss of an opportunity to generate employment during the construction phase (builders, other contract workers etc.) as well as its operational phase. This is considered to represent a potentially negative impact for which no mitigation measures are proposed.

Impact evaluation

Duration & reversibility	*Intensity*	*Severity*	*Probability*	*Significance*	
				Unmitigated	*Mitigated*
Long term	Low	Medium	High	Medium negative	Medium negative

Patronage of local businesses

If the proposed activity does not take place, this potential impact will no longer be relevant for purposes of assessment.

Increased health standards and improved health facilities

If the proposed activity does not take place, this potential impact will no longer be relevant for purposes of assessment.

Increased noise levels

If the proposed activity does not take place, this potential impact will no longer be relevant for purposes of assessment.

Water and subsoil contamination

If the proposed activity does not take place, this potential impact will no longer be relevant for purposes of assessment.

Visual impact

If the proposed activity does not take place, this potential impact will no longer be relevant for purposes of assessment.

Topography & gradients

If the proposed activity does not take place, this potential impact will no longer be relevant for purposes of assessment.

Geological suitability

If the proposed activity does not take place, this potential impact will no longer be relevant for purposes of assessment.

3.4.3 Cumulative impacts

If the proposed activity does not take place, this potential impact will no longer be relevant for purposes of assessment.

3.5 Summary of impact evaluation

Impact	Significance (unmitigated)			
	Alt 1	**Alt 2**	**Alt 3**	**No-Go**
Direct impacts				
Planning	Medium +	Medium +	Medium +	Status quo
Land use zoning	Medium +	Low –	Low –	Status quo
Surrounding land use	Medium +	Low –	Low –	Status quo
Need & desirability	Low –	Low –	Low –	High negative
Social disruption	Low –	Low –	Low –	Not relevant
Safety risks	Low –	Low –	Low –	Not relevant
Services availability	Low –	Medium –	Medium –	Not relevant
Dust generation	Low –	Low –	Low –	Not relevant
Archaeology	Low –	Medium –	Medium –	Status quo
Biological impact	Low –	Medium –	Medium –	Status quo
Indirect impacts				
Employment generation	Medium +	Medium +	Medium +	Medium – Status quo Status quo Not relevant Not relevant Not relevant Not relevant Not relevant
Patronage of local business	Medium +	Medium +	Medium +	Status quo
Increased health facilities	Medium +	Medium +	Medium +	Status quo
Increased noise levels	Medium –	Medium –	Medium –	Not relevant
Groundwater contamination	Medium –	Medium –	Medium –	Not relevant
Visual impact	Medium –	Medium –	Medium –	Not relevant
Topography & gradients	Low –	Medium –	Low –	Not relevant
Geological suitability	Low –	Medium –	Low –	Not relevant
Cumulative				
Increased traffic	Low-	Medium –	Medium -	Not relevant

APPENDIX G: ENVIRONMENTAL MANAGEMENT PROGRAMME (EMPr)

DRAFT ENVIRONMENTAL MANAGEMENT PROGRAMME

PROPOSED ESTABLISHMENT OF A NEW MILITARY HEALTH CARE CENTRE ON PORTIONS OF THE REMAINDER AND PORTION 429 TOWN AND TOWNLANDS OF POTCHEFSTROOM 435 IQ

TLOKWE LOCAL MUNICIPALITY

NORTH WEST PROVINCE

SUBMITTED BY:

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Submitted to:

3. Ms M Rabothata (Environmental Officer: Integrated Environmental Authorisations)
   National Department of Environmental Affairs

4. Registered Interested and Affected Parties

Departmental reference:

14/12/16/3/3/1/1196

Submitted on:

13 July 2014

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1. INTRODUCTION

1.1 Background

The Department of Public Works intends to establish a new military health care centre on portions of the Remainder and Portion 429 Town and Townlands of Potchefstroom 435 IQ, Tlokwe Local Municipality, North West Province.

The proposed development implies the following activity listed in the 2010 EIA Regulations:

Listing No. 1 : Activity Number 23 (i):
The transformation of undeveloped, vacant or derelict land to residential, retail, commercial, recreational, industrial or institutional use, inside an urban area, and where the total area to be transformed is 5 hectares or more, but less than 20 hectares.

In terms of Government Regulation No. R. 543 of 18 June 2010, a basic assessment must be conducted for this activity.

As part of the Basic Assessment Report to be compiled and submitted in terms of the above referred to regulations, an Environmental Management Programme is being required.

Apart from being one of the requirements of the prescribed Basic Assessment Report, an Environmental Management Programme (EMPr) is a vital tool in ensuring that the environmental controls identified by an EIA are properly understood, clearly formulated and included in the construction specifications, and that its application can be monitored and that corrective action can be undertaken when necessary.

1.2 Terms of Reference

The purpose of an EMPr is defined in the Integrated Environmental Management (IEM) Guideline Series (Department of Environmental Affairs, 1992) as: "A plan that organises and co-ordinates mitigation, rehabilitation and monitoring measures in order to guide the implementation of the proposal".

The objectives of this EMPr are thus to:

- Prescribe the practicable control methods to abate the environmental impacts associated with the construction of the residential structures;
- Monitor and audit the performance of construction personnel in applying such controls.

2. ENVIRONMENTAL POLICY AND LEGISLATION

2.1 Environmental Policy Statement

The policy statement that follows is formulated specifically to support the construction phase EMPr for the proposed construction of top structures and in particular engineering services on the subject property. All construction personnel shall be required to commit themselves to the following policy:

- Adherence to the requirements of the construction EMP for the proposed development and engineering services installation;
- Management of all construction and associated activities so as to minimise the risk of pollution of ground and surface water, the air and the soil;
- Management of all construction and associated activities so as to minimise the nuisance and disruption to humans working or residing in, or commuting through the area;
- Adherence to the environmental legislation relevant to the location and nature of the work being conducted; and
- Compliance with the monitoring and auditing programmes contained in the EMP, to ensure its accountable and transparent implementation.

2.2 Relevant Environmental Legislation

Cognisance shall be taken of, but will not be limited to the following legislation during the construction phase of the proposed development:

- National Environmental Management Act (Act 107 of 1998)
- National Water Act (Act 36 of 1998)
- Occupational Health and Safety Act (Act 85 of 1993)

3. RESPONSIBILITY LINKAGES

Essentially, the responsibility for the application of the construction phase or the proposed development begins with the applicant / his appointed contractors, who shall nominate a project manager to assume this task within his or her portfolio. In practice, on site responsibility would typically lie with an engineer who would also assume the role of project manager.

With the Project Manager (PM) and Environmental Control Officer (ECO) roles being particularly important, these are now described in more detail.

3.1 Role of the Project Manager (PM)

The PM is responsible for ensuring that on-site activities are undertaken in accordance with the requirements of the EMP. The project manager shall thus need to ensure that:

- Environmental requirements are adequately covered in tender and contract documents;
- Appropriate corrective action is identified if non-compliance occur or unforeseen environmental issues arise that require environmental management action;
- Corrective action is implemented as required;
- Appropriate records and information regarding compliance with the EMP requirements are maintained and made available to the ECO;
- All site instructions are copied to the ECO;
- Instructions as required by the ECO are issued to the relevant contractor.

3.2 Role of the Environmental Control Officer (ECO)

The Environmental Control Officer (ECO) is responsible for ensuring that the requirements of the EMP are implemented. Whereas the Project Manager (PM) has overall responsibility for the construction site, the ECO's focus is on the environmental aspect of the construction phase. The ECO shall thus:

- Undertake ongoing monitoring of the construction site and activities through regular site inspection;
- Record important findings of the site inspection;
- Advise the PM on environmental matters during construction;
- Monitor the implementation of specific elements of the EMP;
- Receive and review all site instructions issued by the PM,
- Advise the PM on action or issues impacting on the environment, provide appropriate recommendation to address these and confirm the issuing of subsequent site instructions;
- Ensure that contractors have copies of the EMP;
- Act as intermediary between the applicant and directly affected parties.

4. DESCRIPTION OF THE PROPOSED DEVELOPMENT

4.1 Local Context

It is envisaged that the proposed activity will take place on the preferred alternative site that consists of vacant land between Auster Afmars and Tigermoth Streets, Potchefstroom Military Base. A detailed discussion of the local context is found in the relevant Basic Assessment report that must be read together with this document.

4.2 Construction Phase

It is required from the Contractor to submit a properly detailed construction programme, clearly showing the critical path of the construction operation. The construction of the works will not commence until such a construction programme is approved by the PM. The Contractor will be required to update this programme if any of the programmed operations falls two weeks behind programme or if ordered to do so by the PM. It is anticipated that the construction of services and structures will commence during 2014 and will continue for a period not exceeding one year.

- Sanitary Facilities

Sanitary facilities are not available on the site and it will be required from the Contractor to supply such. All toilets shall conform to the requirements of the Local Authority and the location on the site shall be approved by the PM.

- Source of water

A water tanker must be used as a temporary measure if municipal water connections cannot be secured up front.

- Source of electricity

Electricity connections where required need to be arranged with the Municipality.

- Road Access

Road access is to be obtained from Auster street.

It is a requirement of the project that the Contractor allows for the subcontracting of labour-based work. Rates for labour-based excavation, bedding and back-filling shall be obtained from local contractors before commencement of the work. Training must be provided to local labourers to assist in the construction of houses. Locally sourced employment is a vital component in this regard. One controlling entity that monitors and records all "unskilled / non-contracted" labour is vital. The developer must sign on as accepting this condition.

5. ENVIRONMENTAL CONTROLS: CONSTRUCTION PHASE

5.1 General Controls

This section contains generic procedures that need to be adhered to regarding all construction activities.

5.1.1 Location of the Contractor's Camp

The Contractor's camp is defined as the demarcated area where the Contractor will establish offices, living quarters and storage facilities and forms a discrete part of the construction site.

In choosing a site for the camp, the following factors have to be adhered to:

- Choose a level an area as possible;
- Avoid watercourses;
- If possible, the camp must be located within the construction area;
- An already disturbed area must be used, and
- Lighting must not be imposing.

The construction camp and site should only have one access route, if possible, and where possible, existing roads and tracks should be used. Access road(s) must be upgraded to cope with heavy construction machinery and vehicles, and must be maintained in an adequate condition so as to minimise dust and erosion.

The Project Manager must recommend and approve the location of the camp prior to its establishment.

5.1.2 Site clearing

Indigenous large trees (i.e. 200 mm trunk diameter) and shrubs are to be retained where applicable and possible during construction activities. Clearing of natural vegetation must be restricted, particularly on areas prone to erosion.

Woods and invader plants that are declared such in terms of the Conservation of Agricultural Resources Act, 1983 (Act No. 43 of 1983) must be controlled as specified in the Act.

Removal of existing vegetation must be done in a staged manner so as to minimise the duration of its exposure to erosion by wind and rain.

Soil should be stripped in a phased manner in order to retain vegetation cover for as long as possible. The topsoil layer (the top 200mm seedbank material) must be stripped first and stockpiled separately for rehabilitation purposes. This material will be stored in stockpiles not more than 2 metres high in order to maximise the viability of seed and soil organisms present in the material.

A suitable site for soil stockpiling must be identified. The site must be:

- Removed from the working area;
- In a sheltered position so that soil will not be exposed to the effects of erosion;
- Removed from drainage lines to minimise the risk of being washed away;
- Removed from areas of indigenous vegetation; and
- Removed from the base of a bank so that run-off from the bank does not cause ponding of water along the stockpile.

Firebreaks should be established in terms of the requirements and conditions of the National Veld and Forest Fires Act, 1998 (Act No. 101 of 1998).

Erosion must be controlled as specified in the Conservation of Agricultural Resources Act 1983 (Act No. 43 of 1983) and as specified in this document.

5.1.3 Archeology

Certain measures are proposed in the event of material of archaeological value being uncovered on site.

When any material of archaeological or cultural significance is uncovered during the development / construction phase, the PM must immediately notify the ECO who, in turn, will notify the relevant SAHRA Office for directives.

In the event of uncovering any material of archaeological or cultural significance, all further construction work must be stopped until an archaeologist has investigated the material and has given approval for the work to be continued.

No archaeological material may be removed from the site without prior approval from the archaeologist.

5.1.4 Dust control

Dust control measures, such as watering of work areas, must be implemented to reduce dust arising from construction activities.

Vehicle speeds must not exceed 40 km/h on demarcated construction roads on the site or 20 km/h when traversing unconsolidated areas.

5.1.5 Noise control

The Contractor must inform adjacent residents of any unusually noisy activities that will be undertaken during the construction phase.

Contractors shall comply with local by-laws with regard to working hours and should also restrict working hours for construction activities to:

- 06:30 -18:30 on weekdays;
- 07:00 -17:00 on Saturdays, and
- Operation being prohibited on Sundays and public holidays.

If Contractors wish to work outside of these hours, it must be with the agreement of the PM AND ECO. Given the general nature of the construction phase, which will mostly entail the building of residential units, then oise disturbance is not seen as inimical to the project. The ECO is however to be fully informed of any complaints received regarding noise levels during the construction period.

Activities such as blasting and piling shall only be undertaken with the necessary controls in place, as stipulated by the local Noise Control Regulations.

5.1.6 Pollution & waste management

The contractor must provide litter-bins during the construction phase for the disposal of litter and waste material.

The contractor shall ensure that employees deposit all refuse in bins, and these shall be emptied on a regular basis to prevent overflowing. Refuse bins shall be watertight, wind-proof and scavenger-proof and shall be placed at regular intervals throughout the site.

The contractor shall provide workers to clean up the site on a regular basis and the general cleanliness of the site shall form part of the contractor's responsibility.

All waste material generated during the construction phase, including construction rubble and waste concrete, must be removed from the site and disposed of at an approved Municipal Waste Disposal site.

No waste material shall be disposed of at an informal waste disposal site in the adjacent open space or elsewhere.

The contractor must provide waste bins on site for the duration of the development phase and waste material, including builders' rubble, will be removed on a regular basis to a proclaimed waste disposal site.

The ECO in liaison with the PM, must draw up a waste disposal management plan for the duration of the development phase, in order to comply with relevant legislation pertaining to waste disposal.

Tests must be conducted to determine the extent of surface water and / or ground water contamination as soon as spillage of fuel occurs. Appropriate remediation must be followed. Contaminated soil must be collected and disposed of at an officially approved waste disposal site. Proof of the disposal of contaminated soil must be submitted to the North West Department of Economic Development, Environment, Conservation & Tourism within 3 days of the disposal thereof.

The clean-up of a spill and any damage caused by a spill shall be for the relevant Contractors account.

5.1.7 Fuel and hazardous material storage

The contractor shall identify fuels and hazardous substances to be stored on site and shall ensure that he knows the effect of these substances on his staff and the environment. The contractor shall supply a copy of the fuels and hazardous substance inventory to the PM and ECO.

The contractor shall ensure that the quantities of fuel and chemicals on site are appropriate to the requirements and are stored and handled so as to avoid the risk of spillage.

All fuels, oils and chemical shall be confined to specific and secured areas. These materials shall be stored in area with a concrete or other impervious base, which is adequately bunded. The volume of the bund shall be two times the volume of the container stored.

Gas and fuel should not be stored in the same storage area, and any generator used on the site should be placed on a bunded surface.

Any tank used regularly for re-fuelling vehicles shall be located within a bund, which has a concrete base and brick walls. The fuel dispenser shall be suspended within the bunded area when not in use.

Polluted storm-water run-off from the concreted storage areas shall be collected, stored and disposed of at an approved waste site. Contaminated soil shall also be removed, stored in a skip and disposed of at an approved waste disposal site.

5.1.8 Equipment and machinery

Contractors shall position any equipment that may leak on watertight drip trays to contain any pollutants.

The drip trays shall be of such a size that equipment can be positioned within its perimeter.

Drip trays shall be cleaned regularly and shall not be allowed to overflow.

Materials collected in these drip trays shall be collected and disposed of off-site at an approved waste disposal site.

5.1.9 Demarcation of eating areas

Eating areas shall be restricted to the site offices and Contractor's camp. If employees are to eat elsewhere on site, the Contractor shall, in consultation with the PM or ECO, designate places for eating in the working areas. The contractor shall provide adequate water for washing, toilets and refuse bins at all places and shall keep the eating are clean at all times.

5.1.10 Sanitation

The contractor must provide removable chemical toilet facilities on site during the construction phase, at a ratio of one toilet for every fifteen employees.

5.1.11 Storm-water control

The contractor shall take reasonable measures to prevent erosion resulting from a diversion, restriction or increase in the flow of storm- water caused by the presence of his works, operation and activities, all to the satisfaction of the PM and ECO.

Any storm-water collected in bunded areas containing oils, fuels, chemicals or other potentially polluting substances shall be pumped out of the bund, collected in a suitable container and removed from the site for appropriate disposal at an approved Municipal Waste Disposal Site. Berms or storm-water drainage systems shall be used to prevent surface run off from entering site excavation.

Control measures to prevent storm-water damage and erosion during construction shall include the control by sump, as well as storm-water being directed into attention ponds wherever possible. All methods of storm-water control during the construction phase are to be agreed to and approved by the PM and ECO.

Storm water management infrastructure shall be designed and installed in accordance with the relevant engineering services report and construction shall be overseen by a suitably qualified engineer.

5.1.12 Provision of water

Contractors shall be responsible for providing construction water, water required for dust control, drinking and washing water.

Contractors shall be responsible for providing washing facilities for all staff. Waste water from washing facilities shall be discharged into the existing sewage system, or removed from the site by the Contractor by other means, should existing services be unavailable. Such alternative means shall be submitted to the PM and ECO for approval.

5.1.13 Electrical power

The proponent shall not supply electrical power for the Works and Contractors shall make their own arrangements for electrical power requirements.

5.1.14 Cleanliness of the public roads

Contractors shall ensure that construction vehicles are not overloaded, and as a result do not spill construction or excavation material onto public roads.

Contractors shall provide a washing system for cleaning the wheels of vehicles moving off-site and shall ensure that this is utilised as required.

5.1.15 Traffic control and safety

Traffic control and safety (if and where necessary) shall be done in accordance with the South African Traffic Safety Manual, with the relevant signs, flagmen, barriers, etc. being provided where required.

Traffic control shall be done in co-operation with local traffic officials.

All laws and regulation applicable on the public road system are enforceable on the construction site.

Access roads and routes during construction shall be demarcated and constructed in accordance with the relevant engineering services report.

Contractors must ensure that their vehicles are road-worthy and that loads are properly secured.

The extent of road side disruption on the access route must be minimised where possible.

5.1.16 Lighting

General area lighting must be marked on an overall site plan.

Each Contractor is responsible for providing additional lighting so as to comply with the Occupational Health and Safety Act (Act 85 of 1993) as amended.

5.1.17 Safety on site

Contractors shall follow the guidelines of the Occupational Health and Safety Act (Act 85 of 1993). These include:

The wearing of hard hats by:

- all persons entering the site;
- all person within 10 m of any situation where any form of lifting or hoisting equipment is being used; and
- any person working in any other situation where the possibility of head injury is present, e.g. an area where overhead work is taking place.

The wearing of gloves by personnel:

- handling heavy materials;
- carrying out maintenance activities within a crusher;
- engaged in welding or gas cutting activities; and
- handling material/ equipment with unfinished steel edges.

The wearing of approved safety shoes or safety boots by:

- all person entering the construction site or workshop, storage and depot areas.

The wearing of safety goggles by:

- person operating equipment under dusty condition;
- person engaged in cutting or welding activities; and
- person engaged in grinding activities.

The wearing of hearing protection by:

- all person engaged in rock drilling activities (>85 decibel);
- all crushing operators; and
- any person entering into high noise areas (>85 decibel).

These areas shall be appropriately marked using a standard National Occupational Safety Association (NOSA) pictogram.

The wearing of safety belts by:

- any person carrying out work 2 m above ground level, unless it is being carried out from a safe and protected work platform; and
- all heavy equipment operators.

Where blasting is resorted to, it shall be carried out strictly according to the Explosives Act and regulation of 1956 (Act No. 26 of 1956, as amended).

In no case will blasting be allowed if a reasonable possibility exists of injury to any foundation, wall, pipe, cable or any structure, complete or partly complete.

Wherever blasting is permitted and resorted to in the vicinity of the adjacent residential area, it shall only be executed under the cover of heavy wire mesh screens or rubber matting of adequate weight and area to prevent the blasted material from being ejected from the trench.

5.1.18 First aid procedure

Contractors shall provide and maintain a suitable first aid kit on site and shall ensure that a qualified first aid practitioner is present during working hours, in accordance with the Occupational Health and Safety Act (Act 85 of 1993).

Contractors shall ensure that their staff know and carry out the procedures for dealing with accidents and shall clearly define the emergency procedure to be followed for obtaining medical treatment and assistance in the event of serious injury.

5.1.19 Emergency advisory procedure

The contractor shall ensure that there is an emergency advisory procedure on site before commencing with any operation that may endanger the lives of any personnel on site, or caused damage to the environment.

The contractor shall ensure that all personnel are familiar with all emergency procedures to be followed. He must ensure that list of all emergency numbers and contact people are regularly updated and names are posted at relevant locations at all times.

Smoking should be permitted on the site only at the discretion of the Project Manager and the Contractor shall ensure that all personnel are aware of the fire risk and the need to extinguish cigarettes before disposal.

Wherever work involves welding, gas cutting or cutting of metal, fire fighting equipment shall be immediately available.

A member of staff must be appointed to be responsible for the installation and inspection of fire extinguishers. The Project Manager shall receive copies of the inspection report. A map must be drawn up to indicate the location of fire extinguisher and they should be clearly visible and demarcated in accordance with legislation.

5.2 Site-Specific Controls

5.2.1 Employment

A local employment policy as well as equitable distribution of jobs and gender sensitivity must be emphasised.

5.2.2 Security and social stability

Contractors shall be responsible for the security of their personnel, construction camps equipment.

No personnel shall be permitted to live on the site and security personnel present after hours must be provided with the necessary cooking, heating and ablution facilities.

Security lighting should not result in a nuisance for neighbouring properties.

Maximise local labour to allow employees to be closer to their homes and families.

Chemical toilets will be placed on site for the duration of the construction period.

5.2.3 Geological impact

At least 1.5 metre of the soil profile should be removed below the foundation areas of buildings extending at least 1 metre beyond the perimeter of the buildings and replace with inert backfill as specified in Appendix D6. On-site material is not suitable for this soil raft.

Stiffened cellular raft foundations should be constructed on the soil rafts and special care should be given to on-site drainage, plumbing and wet services.

All findings and recommendations contained in the relevant geotechnical report should be taken into account during both design and construction.

5.2.4 Visual impact

Construction must take place in accordance with an approved site development plan.

Construction must take place in accordance with all relevant architectural plans and guidelines.

The contractor must provide waste bins on site for the duration of the development phase and waste material, including builders' rubble, will be removed on a regular basis to a proclaimed waste disposal site.

The ECO in liaison with the PM, must draw up a waste disposal management plan for the duration of the development phase, in order to comply with relevant legislation pertaining to waste disposal.

Tests must be conducted to determine the extent of surface water and / or ground water contamination as soon as spillage of fuel occurs. Appropriate remediation must be followed. Contaminated soil must be collected and disposed of at an officially approved waste disposal site. Proof of the disposal of contaminated soil must be submitted to the Gauteng Department of Agriculture, Conservation, Environment and Tourism within 3 days of the disposal thereof.

5.3 Site Rehabilitation

The contractor shall ensure that all temporary structures, equipment, materials, waste and facilities used for construction purposes are removed upon completion of the project. The site clean-up shall be to satisfaction of the PM and ECO.

Where appropriate, Contractors shall employ suitably qualified persons to rehabilitate areas damaged by construction activities within and surrounding the Contractor's camps. Contractors shall be responsible for rehabilitating areas identified by the PM and ECO, and the contractor's procedures for rehabilitation, including plans and method statements, shall be approved by the ECO and PM.

6. ENVIRONMENTAL CONTROLS: OPERATIONAL PHASE

It is being understood that this EMPr is not a static document and needs to be adapted and developed as and when required.

With this in mind environmental controls for the operation phase should best be established and developed during the operational phase in order to provide for site specific and activity specific factors.

Certain operational environmental controls may however already be proposed based on similar experiences.

6.1 Landscaping and gardening

Indigenous large trees (i.e. 200 mm trunk diameter) and shrubs are to be retained where applicable and possible during operation. Clearing of natural vegetation must be restricted, particularly on areas prone to erosion.

Preference should be given to the introduction of plants that are endemic to the area in question.

6.2 Dust control

All surfaces should be either tarred/paved or covered by vegetation.

6.3 Noise control

Municipal by-laws regarding noise regulation should be rigidly adhered to.

6.4 Pollution & waste management

All waste generated by the activity must be disposed of in terms of the provisos of the National Environmental Management Waste Act (NEMWA).

The applicant must provide litter bins at strategic positions on the proposed development site that must be emptied on a regular basis to prevent overflowing. The

bins shall be watertight, wind-proof and scavenger-proof and shall be placed at regular intervals throughout the site.

The applicant shall provide workers to clean up the site on a regular basis and the general cleanliness of the site shall form part of the applicant's responsibility.

The applicant must draw up and implement a waste disposal management plan for the duration of the operational phase, in order to comply with relevant legislation pertaining to waste disposal.

6.5 Security and social stability

The applicant will be required to exercise strict access control.

No personnel shall be permitted to live on the site and security personnel present after hours must be provided with the necessary ablution facilities.

Security lighting should not result in a nuisance for neighbouring properties.

6.6 Visual impact

All additions or alterations to structures need to take into account the approved site development plan and architectural plans and need to follow the necessary approval processes.

No imposing exterior lighting alterations should be made.

7. RECORD OF AUDITING AND CORRECTIVE ACTION

Measuring the performance of those personnel responsible for implementing the environmental controls stipulated in this EMP is important to demonstrate compliance with specified controls, identify non-conformance and ensure that appropriate corrective action is taken to minimise the impact that may result from non-compliance.

7.1 Auditing

An auditing programme shall be instituted, which shall comprise:

- visual inspection of the site activities by the PM on a regular basis;
- visual inspection of the site activities by the ECO on a regular basis. Where a particular aspect requires more detailed monitoring, more frequent inspection shall be undertaken; and

- review of records and documentation to reconcile these with the construction programme.

Records shall be maintained during the construction phase to enable compliance with the EMP specification to be demonstrated. These shall typically comprise a daily log of activities that record waste management, fuel and chemicals management and other environmental issues, e.g. adverse weather, surface water run-off, etc.

7.2 Corrective Action

Issues of non-conformance noted by the ECO shall be communicated to the PM who shall be responsible for seeing that the relevant parties are informed of the non-conformance so that appropriate corrective action can be taken by them. The ECO shall advise on the appropriate corrective action, where necessary, and these shall be agreed upon collectively.

Environmental issues shall be addressed at regular site meetings between ECO and the PM. The ECO shall present a verbal report of any environmental concern or issues that have arise and of corrective action that have been taken. Outstanding corrective action shall be discussed and agreed at these meetings. Issues relating to complaints or comments received from the public shall also be discussed at these meetings.

8. PENALTIES

Non –compliance with the conditions of this EMP, which form part of the Contract agreement, shall constitute a breach of contract. Penalties may be issued in instance of non-compliance by contractors or any employee, Sub-Contractor, etc. the penalty shall be issued to the principal contractor where applicable in the following manner:

- The contractor shall be informed in writing of any infringement of the environment control measures stipulated in this EMP, and a time frame in which corrective action must be taken will be issued;
- Should corrective action not be undertaken within the given time frame, a written warning shall be issued along with a time frame in which the issue needs resolution;
- Should the warning be ignored, a penalty shall be imposed on the Contractor. The penalty amount shall be determined by the ECO in consultation with the PM. The penalty amount shall be deducted from the contractor's certificate and held in an environmental fund.

Cappie Linde

Environmental Practitioner

Appendix H: Details of EAP and expertise

CURRICULUM VITAE

CAREL PETRUS LINDE

1. Personal particulars

Name:	Carel Petrus Linde
Identity number:	6805275073084
Cellular:	0824440367
Fax number:	0865579447
Physical address:	450 Wendy Street, Waterkloof Glen, Pretoria
Postal address:	450 Wendy Street, Waterkloof Glen, 0010
Tertiary Qualifications:	BA (Potchefstroom University 1990)
	BA Hons (Potchefstroom University 1991)
	M.Env.Dev. (University of Kwazulu Natal 2006)
Certification:	ICB Certified

2. Professional expertise

Over a period of ten years starting 1991, Carel Petrus Linde has been closely involved in the regulatory implementation environment at national level attached to the Department of Land Affairs in a final capacity as a Deputy Director. In this capacity his focus and experience has been developed in the areas of development, land use, land rights and related environmental matters. He also established valuable working relationships and networks at national, provincial and local government level.

During that time he served on the DANCED (Danish Council for Environmental Development) study team on the Environmental Aspects of South African Land Reform Projects. He also represented his Department on the Gauteng Provincial Environmental Planning Framework Committee.

He obtained a Masters Degree in the Environment and Development from the University of Kwazulu-Natal in 2006 (attached). His thesis concentrated on the quality of the integrated environmental management system in South Africa based on sectoral case studies (medical incineration).

Over the past ten years he has been acting as an environmental assessment practitioner. During this period he facilitated the issuing of more than a hundred Records of Decision and various other environmental assignments in five different provinces.

He is registered with the Interim Certification Board (ICB) as a certified environmental assessment practitioner. He is also a registered member of the South African branch of the International Association of Impact Assessment and a founding member of the Environmental Assessment Practitioners Association of South Africa (EAPASA),

.

During this period he has proven his abilities in the following fields:

- His ability to be independent;
- His ability to conduct environmental impact assessments, including knowledge of the National Environmental Management Act, 1998 (Act 107 of 1998), these Regulations and any guidelines that have relevance to the proposed activity;
- His ability to perform the work relating to the application in an objective manner, even if this results in views and findings that are not favourable to the applicant;
- His ability to comply with the National Environmental Management Act, the relevant Regulations and all other applicable legislation;
- His ability to take into account, to the extent possible, the matters listed in Section **8**(b) of Government Notice No. R. 385 of 21 April 2006 when preparing the application and any related report; and
- His ability to disclose to the applicant and the competent authority all material information in the possession of the EAP that reasonably has or may have the potential of influencing –
    - any decision to be taken with respect to the application by the competent authority in terms of these Regulations; or
    - the objectivity of any report, plan or document to be prepared by the EAP in terms of these Regulations for submission to the competent authority.

The above referred to abilities correspond with the requirements that have been set for environmental assessment practitioners in terms of Section 18 of Government Notice No. R. 385 of 21 April 2006 as well as Section 17 of Government Notice No. R. 540 of 18 June 2010.

3. References

NAME	CAPACITY	CONTACT NUMBER
Robert Streak	Town Planner: Urban Consult	0825730409
Joze Maleta	Town Planner: JML	082 556 6320
Sakkie Nienaber	Client / Developer: DHR Services (Pty) Ltd	082 875 8151
Christo Duminy	Client / Developer: Ivora (Pty) Ltd	082 563 4810
Hennie Nasveld	Client / Developer: Crimson King (Pty) Ltd	083 252 8410
Ben Botha	Attorney / Client: Botha De Wet Roodt	(018) 4623751

POTCHEFSTROOMSE UNIVERSITEIT
VIR CHRISTELIKE HOËR ONDERWYS

BACCALAUREUSGRAAD

Kragtens die bevoegdheid aan die Universiteit verleer
word hiermee aan

** CAREL PETRUS LINDE **

die graad

Baccalaureus Artium

toegeken
nadat aan die vereistes vir die graad voldoen is

POTCHEFSTROOM 19 Maart 1990

Vise-kanselier

Registrateur

Gesertifiseer as 'n ware afskrif van die oorspronklike. Geteken
Certified as a true and correct copy of the original. Signed
te Pta hierdie 26 dag van Maart 19 96
at ..... this ..... day of .....
HC van Wyk
Kommissaris van Ede vir die Republiek van Suid-Afrika
Commissioner of Oaths for the Republic of South Africa
Distrik van Pretoria
District of Pretoria
Ex Officio: Rang SAB
Ex Officio: Rank .....

POTCHEFSTROOMSE UNIVERSITEIT
VIR CHRISTELIKE HOËR ONDERWYS

HONNEURSGRAAD

Kragtens die bevoegdheid aan die Universiteit verleen
word hiermee aan

** CAREL PETRUS LINDE **

die graad

Honneurs Baccalaureus Artium

toegeken
nadat aan die vereistes vir die graad voldoen is

POTCHEFSTROOM 22 April 1991

Vise-kanselier

Gesertifiseer as 'n ware afskrif van die oorspronklike. Geteken
~~Certified~~ as a true and correct copy of the original. Signed
at Pta hierdie 26 dag van Maart 19 91
day of

Kommissaris van Ede vir die Republiek van Suid Afrika
Commissioner of Oaths for the Republic of South Africa
Distrik van Pretoria
District of Pretoria
Ex Officio: Rang SAP
Ex Officio: Rank

Registrateur

UNIVERSITY OF KWAZULU-NATAL

The Universities of Durban-Westville and Natal merged
to become the University of KwaZulu-Natal on 1 January 2004

This is to certify that

Carel Petrus Linde

was admitted this day
at a congregation of the University
to the degree of

Master of Environment and Development

having satisfied the conditions prescribed for the degree.

M W Makgoba
Vice-Chancellor

E Mneney
Registrar

J A Cooke
Dean

9 October 2006

Appendix I: Specialist's declaration of interest

4.2 The specialist appointed in terms of the Regulations_

I, H.T du Preez , declare that --

General declaration:

I act as the independent specialist in this application
I will perform the work relating to the application in an objective manner, even if this results in views and findings that are not favourable to the applicant
I declare that there are no circumstances that may compromise my objectivity in performing such work;
I have expertise in conducting the specialist report relevant to this application, including knowledge of the Act, regulations and any guidelines that have relevance to the proposed activity;
I will comply with the Act, regulations and all other applicable legislation;
I have no, and will not engage in, conflicting interests in the undertaking of the activity;
I undertake to disclose to the applicant and the competent authority all material information in my possession that reasonably has or may have the potential of influencing - any decision to be taken with respect to the application by the competent authority; and - the objectivity of any report, plan or document to be prepared by myself for submission to the competent authority;
all the particulars furnished by me in this form are true and correct; and
I realise that a false declaration is an offence in terms of Regulation 71 and is punishable in terms of section 24F of the Act.

Signature of the specialist

Kroep & Rossouw inc.
Name of company (if applicable):

26/05/2014
Date:

environmental affairs

Department:
Environmental Affairs
REPUBLIC OF SOUTH AFRICA

DETAILS OF SPECIALIST AND DECLARATION OF INTEREST

	(For official use only)
File Reference Number:	12/12/20/
NEAS Reference Number:	DEAT/EIA/
Date Received:	

Application for authorisation in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended and the Environmental Impact Assessment Regulations, 2010

PROJECT TITLE

Potchefstroom Military Hospital

Specialist:	GeoStable SA cc – Geotechnical investigations		
Contact person:	Beverly Keyter		
Postal address:	P.O. Box 3145, PINEGOWRIE		
Postal code:	2123	Cell:	0762683400
Telephone:	0762683400	Fax:	0865042100
E-mail:	bkeyter@geostable.co.za		
Professional affiliation(s) (if any)	SACNASP - 400141/2000 SAIEG – 95/170		

Project Consultant:	GeoStable SA cc		
Contact person:	Beverly Keyter		
Postal address:	P.O.Box 3145, OINEGOWRIE		
Postal code:	2123	Cell:	0762683400
Telephone:	0762683400	Fax:	0865042100
E-mail:	bkeyter@geostable.co.za		

APPENDIX J: ADDITIONAL INFORMATION

Appendix J1: Identification and comparative assessment of alternatives

IDENTIFICATION AND COMPARATIVE ASSESSMENT OF ALTERNATIVES

PROPOSED ESTABLISHMENT OF A NEW MILITARY HEALTH CARE CENTRE

TLOKWE LOCAL MUNICIPALITY

NORTH WEST PROVINCE

COMPILED BY:

ENVIROVISION CONSULTING CC
ENVIRONMENTAL SPECIALISTS

PHYSICAL ADDRESS 450 Wendy Street, Waterkloof Glen, Pretoria, 0181
CELL 082 444 0367 • FAX 086 557 9447 • E-MAIL envirovision@lantic.net
MEMBER Cappie Linde M.ENV.DEV (UKN) • CK2003/050777/23

1. Introduction

Three different sites location alternatives are currently being considered as being potentially suitable for purposes of the proposed activity relocation of the Potchefstroom Military Health Care Centre. It is the purpose of this section to provide a detailed description of these alternatives with specific reference to the findings and recommendations of specialist studies. A description of the environment that may be affected by the activity and the manner in which the physical, biological, social, economic and cultural aspects of the environment may be affected by the proposed activity is also being provided as well as initial suitability ratings.

2. Alternative 1 (presented as Alternative 2 in relevant BAR): Situated on the Remainder and portion 431 of the farm Town and Townlands of Potchefstroom, Number 435, Registration Division I.Q.

Figure 1: Satellite image of proposed development site alternative 1 in relation to its immediate receiving environment

This potential site alternative will be known and referred to as Alternative 1 for purposes of this report. It should however be noted that it is known and referred to as Alternative 2 in the relevant BAR. It is located on the north western outskirts of Potchefstroom on the north western corner of the R53 road to Klerksdorp and the Eleazer Road. It is known for deeds registration purposes as a portion of the Remainder **and** portion 431 of the farm Town and Townlands of Potchefstroom, Number 435, Registration Division I.Q (BAR J1). It is approximately 10 hectares in extent. As far as could be determined the site has not been utilized for any specific purpose in the recent past.

2.1 Physical suitability

Topographical suitability

According to a topographical survey that was conducted by Kroep & Rossouw Professional Land Surveyors (BAR Appendix D4) this site will need the most earth works as it is the most uneven of the three sites.

Suitability rating:

Least suitable	*Less suitable*	*More suitable*	*Most suitable*
√			

Geological suitability

According to a first phase geotechnical site evaluation and dolomite stability investigation that was conducted by Geostable SA CC (Appendix 5), it is highly likely that dolomite will be encountered on this site. Prior to development an initial dolomite stability investigation with a geotechnical investigation will have to be conducted and if it points towards the occurrence of dolomite, a full dolomite would have to be carried out. In addition the stability conditions could also indicate the site unsuitable for the proposed activity. This may lead to cost escalation, time delays and uncertainty.

Suitability rating:

Least suitable	*Less suitable*	*More suitable*	*Most suitable*
√			

Biological suitability

A terrain inspection was conducted by the writer on 18 August 2011.

View of Alternative 1 f(BAR Alternative 2) from Eleazer Street towards the north.

The site predominantly consists of natural vegetation whilst a rocky outcrop is also present. According to Mucina & Rutherford (2006) the property falls within the Grassland Biome, Mesic Highveld Grassland Bioregion, Rand Highveld Grassland Vegetation Unit (GM11). The conversation status that is being allocated to this vegetation unit is "endangered" and "poorly conserved". Based on the above natural land within this vegetation unit should be conserved and development should be considered with extreme caution. Prior to development a biodiversity assessment should be conducted that supports the development.

Suitability rating:

Least suitable	*Less suitable*	*More suitable*	*Most suitable*
	√		

2.2 Social suitability

Suitability in terms of spatial planning initiatives for the area

In terms of the Tlokwe City Council IDP 2011 – 2016 the site is situated within its "urban edge" and "urban fringe". This contributes positively to site suitability in as far as conformation to spatial planning initiatives in the area is concerned. However, according to the same document the site has been earmarked for residential development – a different zoning from that of the activity. This detracts from the site's suitability in terms of spatial planning initiatives for the area.

Suitability rating:

Least suitable	*Less suitable*	*More suitable*	*Most suitable*
	√		

Suitability in terms of existing land use

The site is currently vacant and is as far as could be determined not currently being utilised for any purpose. It has also not in the recent past been utilised for any particular purpose. If the proposed activity thus took place on this site it would not impact on any existing land use.

Suitability rating:

Least suitable	*Less suitable*	*More suitable*	*Most suitable*
		√	

Suitability in terms of neighbouring land use

The site is being bordered on two sides by the R53 Road between Potchefstroom and Ventersdorp to the east and Eleazer Street to the south. It borders Potchefstroom City Council water reservoirs to the north whilst the remainder abuts vacant land. It should however be borne in mind that the area has been earmarked for residential

development that may detract from its suitability in terms of neighbouring land use in future.

Suitability rating:

Least suitable	*Less suitable*	*More suitable*	*Most suitable*
	√		

2.3 Infrastructural suitability

Access

In terms of the relevant engineering services report the proposed site can be accessed from the existing Provincial road known as Eleazer Street linking onto the R53 Potchefstroom Ventersdorp road because it is an arterial road with limited access (BAR Appendix D1). It is therefore being concluded that the site can be classified as fairly accessible for emergency vehicles. It is also approximately 600 metres from the Potchefstroom airfield and can be considered close should patients be flown in from other areas to the Potchefstroom airfield.

Suitability rating:

Least suitable	*Less suitable*	*More suitable*	*Most suitable*
		√	

Internal storm water reticulation

No internal storm water system currently exists for this alternative. The site drains naturally towards Road R53 as well as Eleazer Street (BAR Appendix D1).

All storm water will have to be accommodated on the surface. Construction of a pipe system would be necessary to convey the storm water runoff underneath the Eleazer Street or R53 to the nearest storm water system. The latter may lead to cost escalations as well as project delays.

Suitability rating:

Least suitable	*Less suitable*	*More suitable*	*Most suitable*
	√		

Internal sanitation reticulation

This site's sewage can be accommodated into an existing 150 mm diameter sewer pipe situated to the south of the proposed development. A sewage line must however be constructed from the proposed site up to the existing sewage pipe. The existing system will have sufficient capacity to accommodate the additional inflow from the proposed activity into the system (Appendix 4). An important implication that may lead to cost escalation and time delay is that the pipeline will have to cross Eleazer Street.

Suitability rating:

Least suitable	*Less suitable*	*More suitable*	*Most suitable*
	√		

Water supply and reticulation

The entire Potchefstroom Military Base currently obtains its water from the 600mm diameter bulk feeder line from the Tlokwe City Council reservoir situated next to Road R53 between Potchefstroom and Ventersdorp (BAR Appendix D1).

A water line will have to be constructed from the military area directly to the south of Eleazer Street up to the site. This implies that Eleazer Street will *inter alia* have to be crossed. Based on the information at hand water availability to this site could not be guaranteed at the time of writing. Until such a time that water availability can be guaranteed this site cannot be deemed suitable in terms of water supply and reticulation.

Suitability rating:

Least suitable	*Less suitable*	*More suitable*	*Most suitable*
√			

Servitudes

This site is outlined by bulk water lines in existing servitudes on the eastern as well as the western side. Another bulk water line is also situated within the site boundaries towards the north (BAR Appendix D1). Should any of these pipes be located within the planned development they will have to be moved and new servitudes will have to be registered. This may lead to cost escalations and time delays.

Suitability rating:

Least suitable	*Less suitable*	*More suitable*	*Most suitable*
	√		

2.4 Cultural suitability

The subject property consists of unimproved land that is predominantly biologically pristine. Although no signs of heritage resources were recorded by the writer during a site inspection the presence of such cannot be ruled out. It may thus be concluded that this site may be less suitable for purposes of development from a cultural point of view than the development of land that has previously been subjected to biological degradation.

Suitability rating:

Least suitable	*Less suitable*	*More suitable*	*Most suitable*
	√		

3.2 Alternative 2 (BAR Alternative 1): Situated on the remainder and portion 429 (a portion of portion 20 of the farm Town and Townlands of Potchefstroom, Number 435, Registration Division I.Q.

Figure 2: Satellite image of proposed development site alternative 2 (BAR Alternative 1) in relation to its immediate receiving environment

This potential site alternative will be known and referred to as Alternative 2 for purposes of this report and Alternative 1 for purposes of the relevant BAR. It is located on the north western outskirts of Potchefstroom. It can be accessed from the existing Auster Street that runs along the northern boundary of the site. Afmars street is on the western boundary and Tigermoth Street on the eastern boundary. Auster street links this site to the R53 Road between Potchefstroom and Ventersdorp. The site is being bordered to the south by houses that are currently being placed at the disposal of members of the permanent force. The site is known for deeds registration purposes as a portion of the remainder and portion 429 (a portion of portion 20) of the farm Town and Townlands of Potchefstroom, Number 435, Registration Division I.Q (BAR Appendix D3). According to Major Le Roux Wentzel the site has in the past been used to house temporary housing units and signs of original infrastructure are still present. It is approximately 5 hectares in extent. At present the site is vacant.

3.1 Physical suitability

Topographical suitability

According to a topographical survey that was conducted by Kroep & Rossouw Professional Land Surveyors (BAR Appendix D4) this site is relatively flat and will not need much earth works.

Suitability rating:

Least suitable	*Less suitable*	*More suitable*	*Most suitable*
		√	

Geological suitability

It is being concluded in the first phase geotechnical site evaluation and dolomite stability investigation that was conducted by Geostable SA CC (BAR Appendix D5) that this site is directly underlain by quartzite/shale of the Timeball Hill Formation with the possibility of underlying dolomite. The site can also be partially underlain by lava of the Hekpoort Formation. According to a follow-up dolomitic stability assessment that was conducted by Geostable SA CC the subject property is non-dolemitic (BAR Appendix D6).

Suitability rating:

Least suitable	*Less suitable*	*More suitable*	*Most suitable*
			√

Biological suitability

A terrain inspection was conducted by the writer and Major Le Roux Wentzel on 18 August 2011.

View of Alternative 2 (BAR Alternative 1) from the centre of the site.

The site predominantly consists of biologically degraded land with a number of planted trees. According to Major Le Roux Wentzel the site has in the past been used to house temporary housing units and signs of original infrastructure are still present. At present

the site is vacant. Little to no signs of natural vegetation was recorded and a nominal conservation value can be allocated to the site.

Suitability rating:

Least suitable	*Less suitable*	*More suitable*	*Most suitable*
		√	

3.2 Social suitability

Suitability in terms of spatial planning initiatives for the area

In terms of the Tlokwe City Council IDP 2011 – 2016 the site is situated within its "urban edge" and "urban fringe". This contributes positively to site suitability in as far as conformation to spatial planning initiatives in the area is concerned. The site also conforms to zoning initiatives in that it is being zoned in the document for Government, the same as that of the activity.

Suitability rating:

Least suitable	*Less suitable*	*More suitable*	*Most suitable*
			√

Suitability in terms of existing land use

The site is currently vacant and as far as could be determined it is not currently being utilised for any purpose. It has also not in the recent past been utilised for any particular purpose. If the proposed activity thus took place on this site it would not impact on any existing land use.

Suitability rating:

Least suitable	*Less suitable*	*More suitable*	*Most suitable*
			√

Suitability in terms of neighbouring land use

The site is being bordered to the south by houses. The potential impact of emergency vehicles entering and exiting the site might be less than ideal for adjacent and nearby residents.

Suitability rating:

Least suitable	*Less suitable*	*More suitable*	*Most suitable*
	√		

3.3 Infrastructural suitability

Access

In terms of the relevant engineering services report the proposed site can be classified as fairly accessible for emergency vehicles should it be earmarked for the proposed activity (BAR Appendix D1). It is also approximately 200 metres from the Potchefstroom airfield and can be considered close should patients be flown in from other areas to the Potchefstroom airfield.

Suitability rating:

Least suitable	*Less suitable*	*More suitable*	*Most suitable*
		√	

Internal storm water reticulation

The area for this site drains naturally towards the south eastern corner of the proposed development. An existing 450 mm diameter storm water system is situated to the east of the site. All storm water can be accommodated on the surface towards the lowest point of the site, from where it can be conveyed with the existing water pipe system. No streets or roads need to be crossed in the process.

Suitability rating:

Least suitable	*Less suitable*	*More suitable*	*Most suitable*
		√	

Internal sanitation reticulation

This site's sewage can be accommodated into two existing 150 mm diameter sewer pipes situated on site. This area was previously developed for purposes of "Residential 1" stands and infrastructure was accordingly installed. This infrastructure can be used for the proposed activity without bulk infrastructure cost for the construction of new outfall systems. The existing system will have sufficient capacity to accommodate the additional inflow from the proposed activity into the system (BAR Appendices D1&2). The Tlokwe City Council also indicated in writing that the capacity in these lines is sufficient (BAR Appendix J3).

Suitability rating:

Least suitable	*Less suitable*	*More suitable*	*Most suitable*
			√

Water supply and reticulation

The entire Potchefstroom Military Base currently obtains its water from the 600mm diameter bulk feeder line from the Tlokwe City Council reservoir situated next to Road R53 between Potchefstroom and Ventersdorp (BAR Appendix D1).

This site is traversed with bulk as well as internal water lines. The bulk lines consist of three existing water pipelines within a 4 metre servitude running in a north south direction through the site. The existing internal reticulation system was constructed to accommodate the planned “Residential 1” development. These lines can be used to obtain water for the proposed activity. The Tlokwe City Council also indicated in writing that the capacity in these lines is sufficient (BAR Appendix J3).

Suitability rating:

Least suitable	*Less suitable*	*More suitable*	*Most suitable*
			√

Servitudes

The three bulk water pipelines traversing the site in a 4 meter servitude running north to south will have to be moved and new servitudes will have to be registered (Appendix 4). This may lead to cost escalations and time delays.

Suitability rating:

Least suitable	*Less suitable*	*More suitable*	*Most suitable*
	√		

3.4 Cultural suitability

The subject property consists of unimproved land that has been subjected to biological degradation over time. It may be concluded that this site may be more suitable for purposes of development from a cultural point of view than the development of land that is naturally pristine such as Alternative 1 (BAR Alternative 2). In addition a Heritage Impact Assessment (BAR Appendix D7) was conducted with regard to the subject property that did not record any heritage resources.

Suitability rating:

Least suitable	*Less suitable*	*More suitable*	*Most suitable*
			√

4. Alternative 3: Situated on a portion of the Remainder of the farm Town and Townlands of Potchefstroom, Number 435, Registration Division I.Q.

Figure 3: Satellite image of proposed development site alternative 3 in relation to its immediate receiving environment

This potential site alternative will be known and referred to as Alternative 3 for purposes of this report as well as the relevant BAR. It is located on the north western outskirts of Potchefstroom. The proposed site is outlined by four streets. These streets are Doelwit Street on the northern boundary, Boundary Street on the western boundary and General Koos De La Rey Street on the southern and eastern boundaries. Doelwit Street leads to Tigermoth Street which leads to Auster Street linking the site with Road R53 between Potchefstroom and Ventersdorp (Appendix 4). The site is bordered to the west by houses that are owned by the Department of Public Works / Republic of South Africa and that are currently being placed at the disposal of members of the permanent force. The site is known for deeds registration purposes as a portion of the Remainder of the farm Town and Townlands of Potchefstroom, Number 435, Registration Division I.Q (BAR Appendix D3). According to Major Le Roux Wentzel the site comprises of sport facilities that are currently being used by members of the Defense Force. The site is approximately 13,7 hectares in extent.

4.1 Physical suitability

Topographical suitability

According to a topographical survey that was conducted by Kroep & Rossouw Professional Land Surveyors (BAR Appendix D4) this site is relatively flat and will not need much earth works.

Suitability rating:

Least suitable	*Less suitable*	*More suitable*	*Most suitable*
		√	

Geological suitability

It is being concluded in the first phase geotechnical site evaluation and dolomite stability investigation that was conducted by Geostable SA CC (BAR Appendix D5) that this site is underlain by lava of the Hekpoort Formation and that no dolomite is expected to occur.

Suitability rating:

Least suitable	*Less suitable*	*More suitable*	*Most suitable*
			√

Biological suitability

A terrain inspection was conducted by the writer and Major Le Roux Wentzel on 18 August 2011.

View of Alternative 3 from the centre of the site.

The site predominantly consists of land that has been subjected to biological degradation over a long period of time due to its utilisation for sport facilities. According to Major Le Roux Wentzel most of the facilities are still in use. Little to no signs of natural vegetation was recorded and a nominal conservation value can be allocated to the site.

Suitability rating:

Least suitable	*Less suitable*	*More suitable*	*Most suitable*
		√	

4.2 Social suitability

Suitability in terms of spatial planning initiatives for the area

In terms of the Tlokwe City Council IDP 2011 – 2016 the site is situated within its "urban edge" and "urban fringe". This contributes positively to site suitability in as far as conformation to spatial planning initiatives in the area is concerned. The site also conforms to zoning initiatives in that it is being zoned in the document for Government, the same as that of the activity.

Suitability rating:

Least suitable	*Less suitable*	*More suitable*	*Most suitable*
			√

Suitability in terms of existing land use

The site is currently being used by members of the Defence Force for sport activities. The relocation of the activity to this site might thus lead to social disruption in that a community facility will be closed. It is not clear if alternative facilities are available. In the absence of any proof to that effect it must thus be assumed that alternative facilities might not be readily available. This aspect impacts negatively on the suitability of this site in terms of existing land use.

Suitability rating:

Least suitable	*Less suitable*	*More suitable*	*Most suitable*
	√		

Suitability in terms of neighbouring land use

The site is being bordered to the west by houses. The potential impact of emergency vehicles entering and exiting the site might be less than ideal for adjacent and nearby residents.

Suitability rating:

Least suitable	*Less suitable*	*More suitable*	*Most suitable*
	√		

4.3 Infrastructural suitability

Access

Doelwit Street leads to Tigermoth Street which leads to Auster Street linking the site with Road R53 between Potchefstroom and Ventersdorp). It is being pointed out in the relevant engineering services report that the road is not extremely accessible for emergency vehicles should it be earmarked for the activity. There are also existing calming structures placed on the roads in the immediate vicinity of the site. These structures restrict high speeds and will make it difficult for emergency vehicles to reach the activity in a short period of time (BAR Appendix D1).

The site is also close to the approach path of low flying aircraft on final approach for landing on runway 03 as well as aircraft taking of from runway 21. The noise from these low flying aircraft can be a factor, as well as building height restrictions (BAR Appendix D1).

Suitability rating:

Least suitable	*Less suitable*	*More suitable*	*Most suitable*
	√		

Internal storm water reticulation

The area for this site drains naturally towards the south eastern corner of the proposed development. An existing 1050 mm diameter storm water system is situated to the south of the site. All storm water can be accommodated on the surface towards the lowest point of the site, from where it can be conveyed with the existing water pipe system. No streets or roads need to be crossed.

Suitability rating:

Least suitable	*Less suitable*	*More suitable*	*Most suitable*
		√	

Internal sanitation reticulation

One sewage system, a 150 mm diameter sewage line, is situated to the south west of the site and another system, a 100 mm diameter sewage line, is situated to the south east of the site. The area naturally slopes towards the east and for this reason it will be difficult to construct a line from the proposed site to the sewage system situated to the south west of the site. The existing 150 mm diameter sewage line has sufficient capacity to accommodate the sewage effluent from the proposed activity. There is however a possibility that a pump station will have to be constructed to pump the sewage effluent upwards to the existing 150 mm diameter pipeline. The other existing sewage line is a 100 mm diameter pipe line. The capacity in this line might be too small to accommodate the additional inflow of effluent from the proposed activity. A sewage outfall line will have to be constructed from the site to this line if it was to be used (BAR Appendix D1).

Suitability rating:

Least suitable	*Less suitable*	*More suitable*	*Most suitable*
	√		

Water supply and reticulation

The entire Potchefstroom Military Base currently obtains its water from the 600mm diameter bulk feeder line from the Tlokwe City Council reservoir situated next to Road R53 between Potchefstroom and Ventersdorp (BAR Appendix D1).

This site is outlined with existing water pipes. There are no bulk water lines crossing the site. Based on the information at hand water availability to this site could not be guaranteed at the time of writing. Until such a time that water availability can be guaranteed this site cannot be deemed suitable in terms of water supply and reticulation.

Suitability rating:

Least suitable	*Less suitable*	*More suitable*	*Most suitable*
√			

Servitudes

There are no servitudes traversing the site (BAR Appendix D1).

Suitability rating:

Least suitable	*Less suitable*	*More suitable*	*Most suitable*
			√

4.4 Cultural suitability

The subject property consists of unimproved land that has been subjected to biological degradation over time. It may be concluded that this site may be more suitable for purposes of development from a cultural point of view than the development of land that is naturally pristine such as Alternative 1 (BAR Alternative 2).

Suitability rating:

Least suitable	*Less suitable*	*More suitable*	*Most suitable*
		√	

5. COMPARATIVE ASSESSMENT OF IDENTIFIED ALTERNATIVES

In the previous sections the three site alternatives were discussed and rated in terms of suitability. The following suitability factors were rated:

- **Physical suitability:**
    - Topographical suitability;
    - Geological suitability;
    - Biological suitability.
- **Social suitability:**
    - Conformation to spatial planning initiatives;
    - Existing land use;
    - Neighbouring land use.
- **Infrastructural suitability:**
    - Access;
    - Internal storm water reticulation;
    - Internal sanitation reticulation;
    - Water supply and reticulation;
    - Service servitudes.
- **Cultural suitability.**

The following suitability ratings were used:

Least suitable	*Less suitable*	*More suitable*	*Most suitable*

The ratings were informed by the following specialist studies:

- Topographical survey report (BAR Appendix D4);
- Comparative geotechnical site evaluation and dolomite stability study (BAR Appendix D5);
- Site specific geotechnical and dolomite stability study (BAR Appendix D5);
- Legal information report (BAR Appendix D3);
- Comparative engineering services report (Appendix D1);
- Site specific engineering services report (BAR Appendix D2);
- Municipal confirmation of services BAR Alternative 1 (BAR Appendix J3).

As far as biological suitability is concerned the ratings were informed by the classification of Mucina & Rutherford (2006) as well as the observations of the writer.

Ratings regarding social and planning aspects were informed by the Tlokwe City Council IDP 2011 – 2016.

Ratings regarding cultural suitability were informed by observations of the writer.

In order to attach comparable values and weights to the ratings, the following scoring system is being proposed for purposes of this report:

Least suitable	*Less suitable*	*More suitable*	*Most suitable*
1	2	3	4

5.1 Comparative alternative suitability rating

The following table has been compiled in order to present the alternative suitable ratings that were allocated in the previous section in a comparative format:

FACTOR	ALTERNATIVE 1 (BAR ALT 2)	ALTERNATIVE 2 (BAR ALT 1)	ALTERNATIVE 3 (BAR ALT 3)
PHYSICAL			
Topography	Least suitable	More suitable	More suitable
Geology	Least suitable	Less suitable	Most suitable
Biology	Least suitable	More suitable	More suitable
SOCIAL			
Planning	Less suitable	Most suitable	Most suitable
Land use	More suitable	Most suitable	Less suitable
Neighbours	Less suitable	Less suitable	Less suitable
INFRASTRUCTURAL			
Access	More suitable	More suitable	Less suitable
Storm water	Less suitable	More suitable	More suitable
Sanitation	Least suitable	Most suitable	Most suitable
Water	Least suitable	Most suitable	Least suitable
Servitudes	Less suitable	Less suitable	Most suitable
CULTURAL			
Cultural	Less suitable	Most suitable	More suitable

5.2 Comparative alternative suitability scoring

The following table has been compiled in order to combine the proposed scoring method with the alternative suitability ratings in a comparable format:

FACTOR	**ALT 1 (BAR ALT 2)**	**ALT 2 (BAR ALT 1)**	**ALT 3 (BAR ALT 3)**
PHYSICAL	*3*	*8*	*10*
Topography	1	3	3
Geology	1	2	4
Biology	1	3	3
SOCIAL	*7*	*10*	*8*
Planning	2	4	4
Land use	3	4	2
Neighbours	2	2	2
INFRASTRUCTURAL	*9*	*19*	*12*
Access	3	3	2
Storm water	2	3	3
Sanitation	2	4	2
Water	1	4	1
Servitudes	1	2	4
CULTURAL	*2*	*3*	*3*
Cultural	2	4	3
TOTALS	**21**	**38**	**32**

6. IDENTIFICATION OF PREFERRED ALTERNATIVE

In terms of the comparative alternative suitability scoring table that was used in the previous section, the following suitability scores were allocated to the various alternatives:

Alternative 1 (BAR Alternative 2): 21

Alternative 2 (BAR Alternative 1): 38

Alternative 3: (BAR Alternative 3) 32

According to these totals the opinion is being expressed that Alternative 2 (BAR Alternative 1) should be promoted as preferred alternative for purposes of environmental authorisation.

Appendix J2: Contract for the removal of medical waste

Appendix J3: Confirmation of municipal services availability for preferred site

Appendix J4: Council for Geo-Science Comments

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No. of Pages:3

07 April 2014

TLOKWE CITY COUNCIL
P O Box 133
Potchefstroom
2522

ATTENTION: Mr. Bernard Bautch

Dear Sir,

PROPOSED NEW POTCHEFSTROOM MILITARY HOSPITAL

The firm, GeoStable SA submitted a report; "Geotechnical and dolomite investigation for the proposed new Potchefstroom Military Hospital Tlokwe Municipality" dated March 2014 on behalf of their client, Kopano Developments, to this office for comment on 28 March 2014. This office acts as an agent to state authorities in reviewing dolomite stability investigations on their behalf.

The site is approximately 5ha in size and is bounded by Auster and Afmars Streets in the north and Tigermoth Street in the east. The Potchefstrrom Airport is located to the northeast of the site and the R53 towards Ventersdorp between 60m – 100m west of the site. The site is divided into two areas with Cessna Street running in an East-West Direction across the southern portion of the site.Various existing municipal services cross the site. An open pit containing water at a depth of approximately 2m is indicated in the southern central portion of the site was a "waterhole".

The following is noted from the Geostable report:

1. The site was expected to be mainly underlain by Timeball Hill Formation with possible Hekpoort andesite in the east. As the geological contact between dolomite of the Chuniespoort Group, shale and quartzite of the Timeball Hill Formation and andesitic lava of the Hekpoort Formation both of the Pretoria Group were all situated closely to the west of the site, it was viewed important to drill two boreholes in the northern and western

Appendix J5: DEA Screening Letter