



PROPOSED REZONING OF A PORTION OF THE REMAINDER OF THE FARM WILDEBEEST KUIL NO. 69, PLATFONTEIN, KIMBERLEY.

PREPARED FOR:

Plaatpal (Pty) Ltd, Registration No. 2020/729234/07

PREPARED BY:

*MVD Kalahari Town & Regional Planners and Ancillary
Services*

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1 APPOINTMENT, BACKGROUND AND PURPOSE OF THIS APPLICATION

1.1 APPOINTMENT

The Company MVD Kalahari Town and Regional Planners has been appointed by **JIM JIM, ID No. 800910 6513 081**, fully mandated by the **!Xhun & Khwe Communal Property Association, Reg. no. CPA/97/0002 (ACT, 1996)**, to prepare and submit this application for the proposed rezoning of a portion of the remainder of the farm Wildebeest Kuil No. 69, Platfontein, Kimberley as well as the registration of a long term lease for the affected portion.

A Special Power of Attorney is attached as *Annexure 1*.

1.2 BACKGROUND

Our client, **Plaatpal (PTY) Ltd** entered into a 99 year lease agreement with the **!Xhun & Khwe Communal Property Association**, and wishes to establish a truck stop on a piece of land owned by the CPA. The ±3ha development area lies on the intersection of the R31 and Platfontein road approximately 10 kilometres outside Kimberley.

The truck stop will provide a safe and clean port for drivers passing through the town and will also offer warm meals through its convenience store with take-away shop incorporated. Spotless ablution facilities and comfortable accommodation facilities will provide clients with a safe space to rest and energize. The truck stop will also provide a laundry facility and car wash to its clients. It is the intention of the developer to create a profitable business in the petroleum sector and to also create work opportunities for the residents of Platfontein and Kimberley.

The **PLAATPAL Truck Stop** will focus on the logistics and heavy transport sector and drivers carrying their cargo between the West Coast, Namaqualand and the Karoo to the Free State Central South Africa, Gauteng and Kwa-Zulu-Natal. It can also serve as a stop for vehicles driving through to Namibia and bordering countries.

1.3 LEGISLATION APPLICABLE TO THIS APPLICATION

The following list of legislation will be applicable to this application:

- Relevant sections according to the Spatial Planning and Land Use Management Act, Act 16 of 2013 (SPLUMA);
- Section 4(2)(a)(iii) and Section 6 of the Sol Plaatje Municipality Land Use Management By-Law 2015 pertaining to SPLUMA;
- The relevant specifications according to the Sol Plaatje Land Use Management Scheme 2008;
- The relevant sections of the Sol Plaatje Spatial Development Framework;
- The National Environmental Management Act 107 of 1998 (NEMA); and
- The Subdivision of Agricultural Land Act, Act 70 of 1970.

The Sol Plaatje Land Use Application form is attached as *Annexure 2*.

1.4 PURPOSE OF THE APPLICATION

The purpose of this application is to obtain the approval of the Sol Plaatje Municipality for the proposed rezoning of a portion of the remainder of the Farm Wildebeest Kuil No. 69, Platfontein, Kimberley, as well as the registration of a long-term lease for the affected portion, in order to develop the following:

- Truck Stop (filling station)
- Overnight accommodation units
- Car wash
- Retail building
- Ablution and kiosk.

2 SITE AND ENVIRONMENTAL CHARACTERISTICS

2.1 LOCALITY

The application is situated on Remainder of Farm Wildebeest Kuil No. 69, Platfontein, Kimberley.

A Locality plan is attached as *Annexure 3*.

2.2 PROPERTY DETAILS

The Erf can be described as follows:

- Property type Farm
- Region Kimberley, Northern Cape
- Municipality Sol Plaatje Local Municipality
- Farm Number RE/69
- Farm Name Wildebeest Kuil
- SG Diagram No. 1344/2009
- Title Deed No. T4709/1997
- Owner The !Xun and Khwe CPA, Registration No. CPA/97/0002

A copy of the Title Deed attached as *Annexure 4*.

2.3 BOUNDARY DESCRIPTION AND AREA

The necessary boundary descriptions, distances and measurements of Remainder of the Farm Wildebeest Kuil No. 69 is clearly indicated on SG Diagram No. 1344/2009.

See S.G. Diagram attached as *Annexure 5*.

2.4 RESTRICTIVE TITLE DEED CONDITIONS

There are no restrictive conditions within the Title Deed No. T4709/1997 which prohibit the application as tabled.

2.5 EXISTING MINERAL RIGHTS

De Beers Consolidated Mines is the custodian of the minerals on the farm.

2.6 EXISTING SERVITUDES

As per S.G. Diagram and Title Deeds, there are servitude registered over the Portion of the Remainder of the farm Wildebeest Kuil No. 69 but it will not prevent this application. The servitude mainly represents an electric power transmission servitude area over the farm Wildebeest Kuil No.69.

2.7 EXISTING ZONING

The Portion of the Remainder of Farm Wildebeest Kuil No.69 is zoned for *Agricultural* in terms of the Zoning Certificate provided by the Sol Plaatje Municipality.

See Zoning certificate attached as *Annexure 6*.

2.8 EXISTING LAND USE

The Farm is currently being used for agricultural purposes.

See photographs attached as *Annexure 7*.

2.9 SURROUNDING ZONINGS

The surrounding zonings within a 300m radius from the Portion of the Remainder of Farm Wildebeest Kuil No.69, Platfontein, Kimberley are indicated on *Annexure 8*.

2.9.1 NORTH

Agricultural

2.9.2 EAST

Agricultural

2.9.3 SOUTH

Agricultural

2.9.4 WEST

Agricultural

2.10 SURROUNDING LAND USE

The surrounding land uses within a 300m radius from the Portion of the Remainder of Farm Wildebeest Kuil No.69, Platfontein, Kimberley are indicated on *Annexure 9*.

2.10.1 NORTH

Game farm and the R31 to Barkly West.

2.10.2 EAST

Game farm, Galeshewe and Kimberley.

2.10.3 SOUTH

Game farm and ash dumping sites.

2.10.4 WEST

Agricultural land and Platfontein.

2.11 MORTGAGE BOND

There is no mortgage bond registered over the Portion of the Remainder of the Farm Wildebeest Kuil No.69. Platfontein, Kimberley.

2.12 GEO-TECHNICAL CONDITIONS

A detailed Geotechnical investigation was conducted on the site. The summary of the findings are as follows:

- In general, the materials which occur on site consists of a Low (<7.5mm) potential expansiveness according to Van der Merwe's Method (1964), with a high probability of collapsing nature according to Handy (1973), a high collapse probability according to Priklnski (1952) and the settlement will be small according to Clevenger (1958). The materials on site are in general classified as C (NHBRC, Part1, Section2, Table 1: Residential site class designations).
- The general foundation for construction purposes is considered to be: Normal (Strip footing or slab-on-the-ground) foundations. Foundation bearing pressure may not to exceed 50kPa. Note: The final decision on the type of foundation used for the applicable structure should be made and designed by a Structural Engineer.
- It is recommended that the site drainage should be improved to prevent surface flooding. Drainage canals can be constructed to channel the water from structures after construction.
- The general material on site consists of a COLTO classification of G6, G7 and no Classification. G6 materials are suitable for subbase, selected layers and fill.
- G7 materials are suitable for selected layers and fill. No Classification materials are not suitable for any layer works. The classifications of the materials must be confirmed by testing the stockpiled materials before use.
- Conditions can vary on site. Recommendations should be re-evaluated if this becomes apparent during the excavation.

The Geotechnical Report attached as *Annexure 10*.

2.13 TRAFFIC IMPACT ASSESSMENT

A detailed traffic impact study that was conducted on-site and the findings are stated as follows:

- The development will not have a notable effect on levels of service and capacity considerations are not of a concern;
- A full access from the access road to Platfontein is viable at an access separation of at least 100m. The access should preferably be developed with auxiliary lanes;
- A marginal access from the R31 as proposed is viable. The access should comply with the following:
 - Easily identifiable by means of road signs.
 - Developed with a deceleration have,
 - Provided with proper traffic signs to prevent exiting through the access road, and
 - A raised constructed median should be erected to prevent undesirable turning movements. The median must be provided over a distance extending 30 m beyond the length of the auxiliary turning lane.
- The proposed site development plan is in principle acceptable.

The Traffic Impact Study as *Annexure 11*.

2.14 EXISTING MUNICIPAL SERVICES

A detailed Bulk services report were prepared for the proposed development. The findings is as follows:

- **Sewer:**
 - No existing municipal sewer infrastructure exists within the immediate area of the proposed development. The existing Platfontein community is currently serviced by means of conservancy tanks, emptied by Sol Plaatje Municipality on a weekly basis with suction tankers.
- **Water:**
 - At present there is an existing 315mm Ø bulk water supply main situated in the road reserve of the Platfontein access road, north-west and adjacent to the proposed development site. This existing water main serves as main supply of potable water to the community of Platfontein.
- **Roads:**
 - The site of the proposed development is bordered on two sides by well-developed road infrastructure. To the north-east the site is bordered by the R31 Regional Road, while to the north-west it is bordered by the Platfontein access road. Both roads are paved roads. It must be noted that the R31 regional route falls under the jurisdiction of the Department of Roads and Public Works (DRPW).
- **Storm Water:**
 - At present there is no discernible existing storm water drainage infrastructure surrounding the proposed development site.

The Bulk Services Report as *Annexure 12*.

2.15 ENVIRONMENTAL IMPACT ASSESSMENT

An Environmental Impact Assessment (Basic Assessment) has been conducted for the proposed development and submitted to the Department of Environment and Nature Conservation for their approval.

The Final Basic Assessment Report is attached as *Annexure 13*.

3 MOTIVATION OF THE PROPOSED APPLICATION

3.1 INTRODUCTION

The proposed development is located on a Portion of the Remainder of Farm Wildebeest Kuil No.69, Platfontein, near the R31 and ideally located for truck stop development as well as accommodation and other ancillary facilities to a Truck Stop.

The location of this proposed development is ideal located, not just for the trucks passing through Kimberley but also for residents and taxi drivers to and from Platfontein and surrounding areas. The truck stop will provide a safe and clean port for drivers passing through the town and will also offer warm meals through its convenience store with take-away shop incorporated. Spotless ablution facilities and comfortable accommodation facilities will provide clients with a safe space to rest and energize. The truck stop will also provide a laundry facility and car wash to its clients.

The proposed application will benefit the community and vehicles traveling along the R31 corridor to and from Kimberley. There is sufficient demand for a filling station at the proposed site. The traffic volumes of 4173 vehicles a day is sufficient to sustain a filling station as an additional income stream. The estimated fuel sales of 300 000 litres a month is according to industry standards for a city development.

To elaborate, this truck stop will contribute to many trucks travelling along the R31 due to the mining and agricultural industries. Towns such as Danielskuil, Postmasburg, Kathu and Kuruman are all towns that consists of a huge mining sector in the Northern Cape and in South Africa. These mines include limestone, iron-ore, manganese, chrome and many more minerals with an average of extracting 350 tons per day.

3.2 LEASE AGREEMENT (DAFF)

No subdivision of the of Remainder portion of the Farm Wildebeest Kuil No. 69 will take place, only the rezoning of a portion of the Farm \pm 3ha is size. The permission of the Department of Agriculture, Land Reform and Rural Development must still be obtained in terms of the change in land use as well as the registration of the long-term lease on the Portion of the Remainder of the Farm Wildebeest Kuil No.69, Platfontein.

An application for their consent has been submitted.

See *Annexure 14* for the Proposed Lease Area

3.3 PROPOSED REZONING

The purpose of this application is to obtain the approval of the Sol Plaatje Municipality for the rezoning of a Portion of the Remainder of the Farm Wildebeest Kuil No.69 from *Agricultural* to *Business 1*, to develop the following:

- Truck Stop (filling station)
- Overnight accommodation units
- Car wash
- Retail building

- Ablution and kiosk.

The proposed portion is located east of the access road to Platfontein and is \pm 3ha in size.

See *Annexure 15* for the Proposed Rezoning Plan.

3.4 RESTRICTIVE TITLE DEED CONDITIONS

There are no restrictive conditions within the Title Deed No. T4709/1997 which prohibit the application as tabled.

3.5 PROPOSED LAND USE/ZONING AND DEVELOPMENT SPECIFICATIONS

The following land use and specifications will be applicable as stipulated in Section 3, Land development rights, of the Sol Plaatje Land Use Management Scheme, 2008.

3.5.1 BUSINESS 1

- Notation:



- May be erected and/or used: Hotels, guest houses, **places of refreshment, shops, business premises, dwelling units, residential building**, place of amusement, places of worship, including funeral parlours with chapels, places of instruction, dry cleaners, public garages, parking, car wash, social halls.
- May be erected and/or used with Consent of the Municipality: Building not under columns (3) and (5).
- Prohibited use: Noxious industrial buildings, scrap yards, panel beating and spray-painting workshops.

3.5.2 DEFINITIONS FOR LAND USES

Public Garage

A building used for anyone or more of the following purposes, for purposes of gain or reward: The maintenance, repair or fuelling of vehicles and associated purposes, and may include the parking or storage of vehicles, the sale of spare parts, accessories, fuels, and lubricants for vehicles and the sale of new and used vehicles, a convenience shop, car wash and automatic teller machine (ATM) but does not include panel beating and spray painting.

Place of Refreshment

Includes a restaurant or tea-room and means a building, which is not a hotel, residential club or boarding house, but which is designed and used for the preparation and sale of meals and refreshments, and may include the retail sale of fresh produce, mineral waters, tobacco, alcohol, reading material and sweets.

Shop

A building designed and used for the purpose of carrying on retail trade and includes an industrial building or workshop ordinarily used in connection with, but which sub-ordinate to the conduct of the retail business therein.

Business Premises

A building designed for and used as an office or for other business purposes for gain or remuneration including a financial institution, medical, dental and veterinary consulting rooms, but excludes a place of instruction or place of amusement or any building mentioned, whether by way of inclusion in or exclusion from the definition of "institution" or a building designed and used as a shop, place of refreshment, public garage, industrial building or noxious industrial building.

Dwelling Units

An interconnected suite of rooms which may not include more than one kitchen, designed for occupation and use by a family. It may also include such outbuildings and servant's quarters as are ordinarily incidental thereto.

Residential Building

A building other than a dwelling house or hotel designed or used for human habitation and includes a boarding house, a residential club, a guest house and a hostel.

3.5.3 BUSINESS 1 LAND USE RESTRICTIONS

- Floor area ratio: 6.0
- Density: -
- Height: -
- Coverage: 90%
- Building line restrictions:
 - Along the street boundary 4.5m
 - Along the side boundary 2.0m
 - Along the rear boundary 2.0m
- Parking: *As per section 23 & Table E of the Sol Plaatje LUMS.*

3.6 PROPOSED SITE DEVELOPMENT PLAN AND MOTIVATION THEREOF

A concept site development plan has been prepared by the client and is submitted with the application. See *Annexure 16*.

The Proposed development will consist of the following:

- Truck Stop (filling station)
- Overnight accommodation units
- Car wash
- Retail building
- Ablution and kiosk.

Access to the site will be provided as follows:

- On way entrance from the R 31 to the site; and
- Tow way entrance & exit from the Platfontein access road.

The ± 3ha site is large enough to accommodate all the proposed facilities as well as the parking requirements.

Note: A final detailed site development plan will be submitted with the submission of the building plans.

3.7 IMPACT ON THE SURROUNDING AREA

It is our opinion that the development within this area would have no negative impact on the surrounding area, as the proposed site is located along the R31 corridor. The proposed development will be beneficial for the surrounding area and community as well as the road users.

3.8 THE PROPOSED APPLICATION VERSUS THE SOL PLAATJE SPATIAL DEVELOPMENT FRAMEWORK

The proposed application is situated outside the Urban Edge of Kimberley and also outside the Settlement Edge of Platfontein. The proposed development is therefore not aligned with the existing SDF. We are however of the opinion that this application must still be evaluated due to the following:

- The existing SDF is outdated and is currently under review;
- There is a need for a Truck Stop development, especially along the R 31, to accommodate the Trucks from Postmasburg, Kathu & Kurman area transporting the Manganese & Iron ore reserves.

This proposed truck stop will be beneficial for all roleplayers and individuals as well as for the local community of Platfontein and Kimberley.

A copy of the Urban Edge, extracted from the Spatial Development Framework, is attached as *Annexure 17*.

3.9 SPLUMA DEVELOPMENT PRINCIPLES

We are of the opinion that this application is in line with the following principles:

SPLUMA PRINCIPLES	ALIGNMENT WITH PRINCIPLES
Spatial justice	<ul style="list-style-type: none"> • Past spatial and other development imbalances must be redressed through improved access to and use of land;
Spatial sustainability	<ul style="list-style-type: none"> • Promote land development that is within the fiscal, institutional and administrative means of the Republic; • Promote and stimulate the effective and equitable functioning of land markets; • Consider all current and future costs to all parties for the provision of infrastructure and social services in land developments; and • Promote land development in locations that are sustainable and limit urban sprawl.
Efficiency	<ul style="list-style-type: none"> • Land development optimises the use of existing resources and infrastructure.
Spatial resilience	<ul style="list-style-type: none"> • Flexibility in spatial plans, policies and land use management systems are accommodated to ensure sustainable livelihoods in communities most likely to suffer the impacts of economic and environmental shocks.
Good administration	<ul style="list-style-type: none"> • All spheres of government ensure an integrated approach to land use and land development that is guided by the spatial planning and land use management systems as embodied in this Act; • All government departments must provide their sector inputs and comply with any other prescribed requirements during the preparation or amendment of spatial development frameworks; • The requirements of any law relating to land development and land use are met timeously; • The preparation and amendment of spatial plans, policies, land use schemes as well as procedures for development applications, include transparent processes of public participation that afford all parties the opportunity to provide inputs on matters affecting them.

3.10 DEVELOPMENT AND PUBLIC PARTICIPATION

It is the intention to proceed with a transparent process according to established and on-going principles. This process is intended to avoid any legal appeal procedures, whilst permitting the surrounding landowners their right to be part of the planning process, and thereby protecting their vested interests.

It is therefore intended to proceed with the advertising process according to applicable legislation, and that should it be necessary, the developer should consult with the affected parties.

3.11 LAND USE PLANNING PRINCIPLES

Town planning and land use management is a holistic planning procedure to be approached in a sustainable fashion. The need, demand and approach of an application should be negotiated in an objective manner.

The evaluation of this application was prepared and submitted in this manner.

3.12 CONCLUSION

The proposed application has been analysed according to the SPLUMA principles and all relevant Municipal documents. It was found that the development is aligned with SPLUMA. No noticeable negative impacts are foreseen resulting from the proposed development.

The support of the Local Authority and other role-players in this regard is therefore requested.



ANNEXURE 1 – POWER OF ATTORNEY

SPECIAL POWER OF ATTORNEY

I, the undersigned,

JIM JIM, ID No. 800910 6513 081,

Fully mandated by the **!Xhun & Khwe Communal Property Association**, Reg. no. **CPA/97/0002 (ACT, 1996)**, do hereby nominate, constitute and appoint:

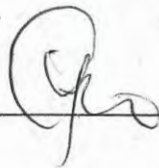
MVD KALAHARI Stads-en Streekbeplanners en aanverwante dienste CC, with power of substitution, to be my lawful agent in my name, place or stead to prepare and submit this application to the Sol Plaatje Local Municipality for the Proposed Rezoning of a Portion of the Remainder of the Farm Wildebeest Kuil No. 69, Platfontein, Kimberley, as well as submission of a long term lease application to the Department of Agriculture and Land Reform. Situated in the Administrative District of Kimberley, Northern Cape Province.

And generally for affecting the purposes aforesaid, to do or cause to be done whatsoever shall be requisite, as fully and effect, for all intents and purposes as I might or could do if personally present and acting herein - hereby ratifying, allowing and confirming and promising and agreeing to ratify, allow and confirm all and whatsoever my said attorney shall lawfully do, or cause to be done, by virtue of these presents.

SIGNED at Kimberley on this 07th day of March
2022 in the presence of the undersigned witnesses:

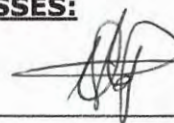
MANDATED:

1.



AS WITNESSES:

1.



2.

L.P. Khoete

DISCLAIMER

I/We fully understand that MVD Kalahari and or any of their Associates or Consultants will not be held responsible, unless by written agreement, for any changes to the application submitted by them, or to the property concerned, prior to the final consideration by the respective authorities, or acceptance of any conditions imposed by them.



**ANNEXURE 2 – SOL PLAATJE APPLICATION
FROM**

MUNICIPALITY:

SOL PLAATJE MUNICIPALITY

**LAND USE MANAGEMENT
APPLICATION FORM**

**APPLICATION FOR TOWNSHIP DEVELOPMENT, SUBDIVISION OF LAND,
CONSOLIDATION OF DIFFERENT PIECES OF LAND, AMENDMENT OF
LAND USE (REZONING), REMOVAL OF RESTRICTIVE CONDITIONS,
AMENDMENT OF TOWN PLANNING SCHEME OR DEPARTURE FROM
SCHEME REGULATIONS AND CONSENT USE**

Application for any of the above-mentioned MUST be done in accordance with the following legislation:

- Sol Plaatje Municipality Land Use Management By-laws, 2015

SECTION A

Details of Applicant (As per section 45(1) of the Spatial Planning and Land Use Act, 2013)

Name:	MVD KALAHARI TOWN AND REGIONAL PLANNERS AND ANCILLARY SERVICES	Contact person:	ENCEE HAARHOFF
Postal address:	PO BOX 580 KIMBERLEY	Physical address:	186 DU TOITSPAN ROAD KIMBERLEY
	Code: 8300		8301
Tel no:	053 831 1889	Cell no:	076 4133 061
Fax no:	053 833 4491	E-mail address:	nc@mvdkalahari.co.za
SACPLAN Reg No:	A/1881/2014		

SECTION B

Details of Land Owner (If different from Applicant)

Name:	!Xhun & Khwe CPA	Contact person:	Encee Haarhoff
Postal address:	Platfontein Kimberley	Physical address:	
	Code: 8301	Code:	
Tel no:		Cell no:	076 4133 061
Fax no:		E-mail address:	

SECTION C
Details of Property

Erf / Farm No	Physical address of erf / farm		Area (m ² or ha)	Existing land use	Existing zoning
RE/69	Street address:	R31 Platfontein	± 3 HA	Vacant	Agricultural
	Town:	Kimberley			
	Municipality:	Sol Plaatje LM			

SECTION D
Type of Application being Submitted (Mark with an X and give detail)

	Township development	Location:			
	Subdivision of land	Number of new erven (including remainder):			
	Consolidation of different pieces of land	Erf no.	Land use	Zoning	
X	Amendment of a land use or zoning (rezoning)	From (existing zoning): Agricultural	To (proposed zoning): Business Zone 1		
	Amendment of town planning scheme or departure from scheme regulations (consent use, relaxation of building lines, etc.)	Describe:			
	Removal, amendment or suspension of restrictive conditions NOTE: <i>Submit separate prescribed application form</i>	Sections to be removed:			

Brief description of proposed development / intent of application: (Detail motivation to be attached as annexure)

The purpose of this application is to obtain the approval of the Sol Plaatje Municipality for the proposed rezoning of a portion of the remainder of the Farm Wildebeest Kuil No. 69, Platfontein, Kimberley, as well as the registration of a long-term lease for the affected portion, in order to develop the following:

- Truck Stop (filling station)
- Overnight accommodation units
- Car wash
- Retail building
- Ablution and kiosk.

SECTION E

List of supporting information required / submitted (Mark with an X / number annexure)

Documents attached	Page reference	Yes	No	N/A
Application form - Land Use Management	Annexure 2	X		
Application form - Removal of Restrictions (list of sections to be altered/removed)				X
Power of attorney	Annexure 1	X		
Copy of Title deeds	Annexure 4	X		
Mortgage bond(s) - letter of approval/consent from mortgage holder				X
Conditions of establishment				X
Special endorsement/proxy				X
Cadastral information - diagram/General Plan including servitudes, lease areas, etc.	Annexure 5	X		
Status Report from Surveyor General - street closure or state owned land				X
Topographic map				X
Locality plan	Annexure 3	X		
Site plan	Annexure 16	X		
Zoning certificate	Annexure 6	X		
Zoning plan – including surrounding area (± 250m radius)	Annexure 8	X		
Land Use plan – including surrounding area (± 250m radius)	Annexure 9	X		
Land Use Map indicating existing facilities and threshold distances (Township development)				X
Proposed consolidation plan				X
Proposed subdivision plan				X
Proposed design/layout plan	Annexure 16	X		
Proposed development plan	Annexure 16	X		
Environment impact assessment (EIA) - including Heritage impact assessment (HIA - Dept Sport, Art and Culture) and Archaeological impact assessment (AIA - SAHRA)				X
Mineral impact assessment (MIA)				X
Social impact assessment (SIA)				X
Traffic impact assessment (TIA)				X
Geological and geo-technical report (NHBRC standards)				X
Engineering services including storm water report (bulk and internal infrastructure)				X
Flood line assessment				X
Coastal setback report				X
Subdivision of Agricultural Land - permission from relevant department				X
Adherence to Planning Profession Act 36 of 2002		X		
Adherence to planning legislation		X		
Alignment to Provincial SDF		X		
Alignment to DM SDF		X		
Alignment to Municipal SDF	Annexure 17	X		
Motivation report		X		
Public participation report and record of decisions (minutes) /copy of advertisements				
Reports from relevant departments /institutions				

The ***Guidelines for Human Settlement Planning and Design*** as published by CSIR - Building and Construction Technology, Pretoria forms the basis of planning standards.

SECTION F
Fees payable

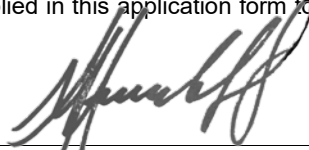
Application fee	R 3 298.00
Administration fee (including postage)	R 1 210.00
Advertisement fee	R 2 356.00
Other:	R 0.00
TOTAL	R 6 864.00

SECTION G
Declaration

Note: *If application is made by a person other than the owner, a Power of Attorney is compulsory. If the property is owned by more than one person, the signature of each owner is compulsory. Where the property is owned by a company, trust, or other juristic person, a certified copy of the Board of Directors/Trustees' resolution is compulsory.*

I hereby certify the information supplied in this application form to be complete and correct and that I am properly authorized to make this application.

Applicant's / Owner's Signature:



Date: 2 0 2 2 / 0 3 / 9

Full name (print):

NICOLAAS (ENCEE) HAARHOFF

Professional capacity:

PROFESSIONAL PLANNER (A/1881/2014)

Applicant's ref:

7474

SECTION H
For office use only

Date received:

Y	Y	Y	Y	M	M	D	D
---	---	---	---	---	---	---	---

Receipt No:

--	--	--	--	--	--	--	--	--	--

Received by:

--	--	--	--	--	--	--	--	--	--

File ref:

--	--	--	--	--	--	--	--	--	--

Date advertised:

Y	Y	Y	Y	M	M	D	D
---	---	---	---	---	---	---	---

Cut-off date for objections:

Y	Y	Y	Y	M	M	D	D
---	---	---	---	---	---	---	---

Publications:

--	--	--	--	--	--	--	--	--	--

Submit to Council by:

Y	Y	Y	Y	M	M	D	D
---	---	---	---	---	---	---	---

Resolution No:

--	--	--	--	--	--	--	--	--	--

Date of Letters to Applicant/Objectors conveying Council resolution:

Y	Y	Y	Y	M	M	D	D
---	---	---	---	---	---	---	---

Checklist of documents attached to be submitted to Provincial Government (Removal of Restriction application):

See SECTION I.

Comments:



The South African
Council *for* Planners
S A C P L A N

REGISTRATION CERTIFICATE

Issued in terms of Section 13 (4) of the Planning Profession Act, 2002
(Act 36 of 2002)

This is to Certify that

Nicolaas Haarhoff

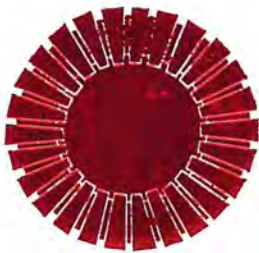
I.D. NUMBER 8701025045084

is registered as a

Professional Planner

In terms of the Planning Profession Act, 2002 and is authorised
to act as such in accordance with the said Act and the Rules
prescribed thereunder.

Issued under the Seal of the Council




CHAIRPERSON


REGISTRAR

27/08/2014
DATE

REGISTRATION NUMBER: A/1881/2014

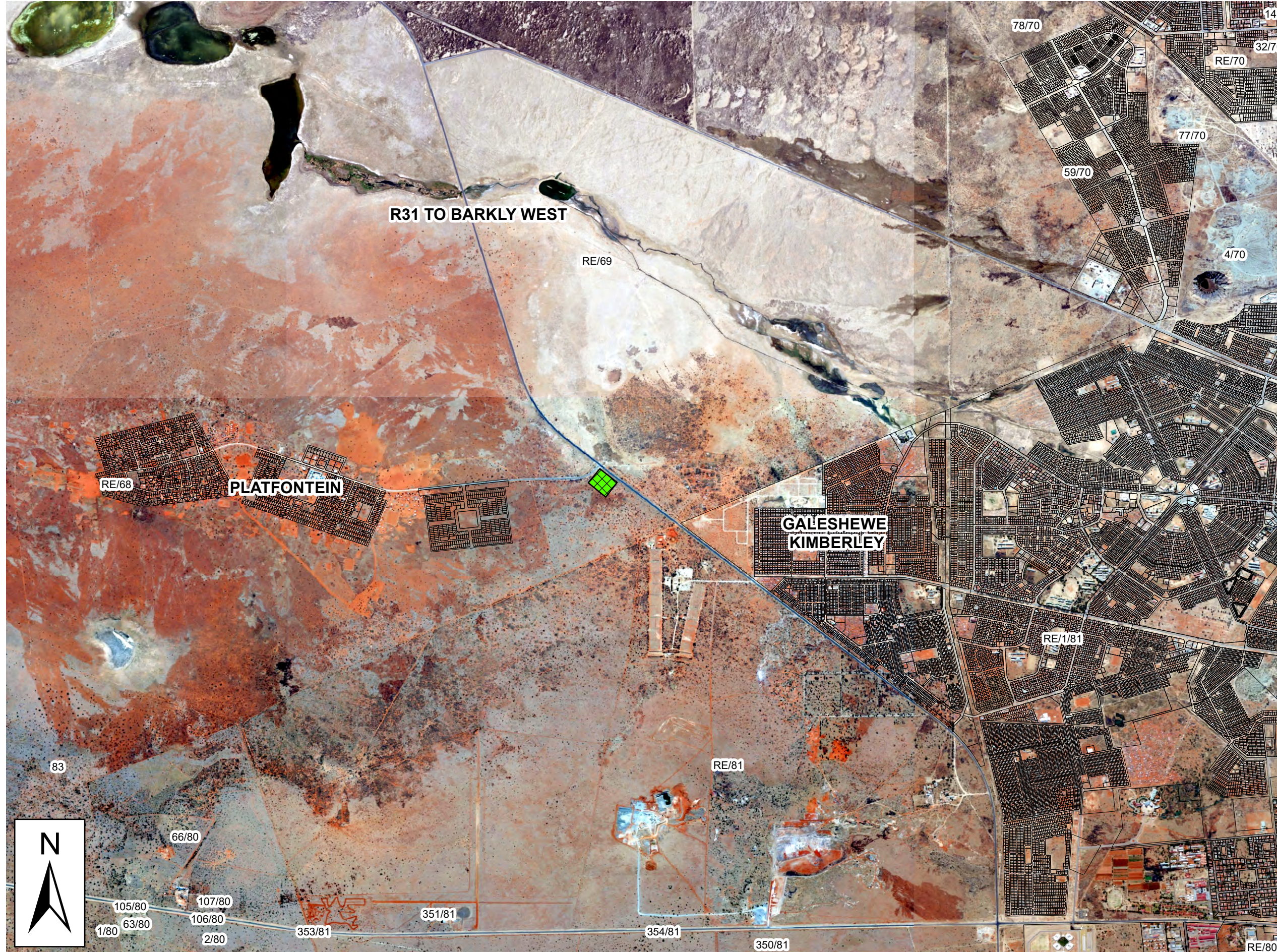
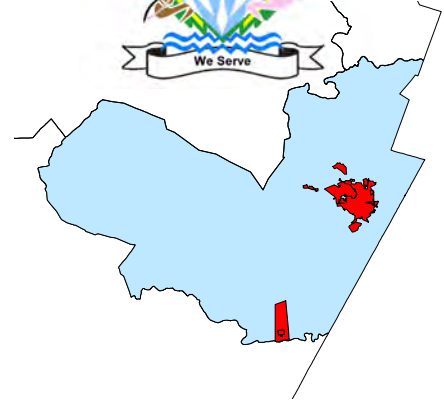


ANNEXURE 3 – LOCALITY PLAN

LOCALITY MAP

PORTION OF THE REMAINDER OF FARM WILDEBEEST KUIL NO. 69; KIMBERLEY

SOL PLAATJE LM



LEGEND

Application

PTN. OF RE/69

REF: 7474/001



MVD Kalahari

*Stads-en Streekbeplanners & Aanverwante Dienste
Town and Regional Planners & Ancillary Services*

*P.O. Box 580 - 186 Du Toitspan Road
Kimberley 8300
nc@mvdkalahari.co.za
Tel: +27 53 8311 889
Cell: +27 76 4133 061*



ANNEXURE 4 – DEED OF TRANSFER

Daarby
Dit by veremden ni 300n
dat dit eskat is

NIE GEVIND

I 3415/97C B
ged. a n/d. Claus

INTERDICTE NAGESIEEN
INTERDICTS CHECKED
28/11/97

D. no. 100 fontein n. 62 in efd. van Kimberley.
Onder die oop abtekonterofaarf van be-
trokspontakte geendosseer te slaake ant-
seingetransport. In wet die skientofaarf
nog geendosseer word, wanneer dit in-
geleed word. sien T 3482/97

F. M. CORNWALL

T 5168/96

BY RUSE F 68,69,62/a

15

1997 -11- 27

CJTR/JJ A09357

S. L. BAARDT

TRANSPORTAKTE Nr.

T 4709 /197

DIE TRUSTEES VAN DIE SUID-AFRIKAANSE !XU KHW TRUST Nr. T 338
ten gunste van

DIE !XU & KHWE VERENIGING VIR GEMEENSKAPLIKE EIENDOM
Nr. CPA?(&?)) 97/0002

[Handwritten signature]

Bevoedert
2/11/97
[Signature]

W. BOSHOFF

VAN DE WALL & VENNOTE PARTNERS
PROKUREURS, NOTARISSE & TRANSPORTBESORGERS
ATTORNEYS, NOTARIES & CONVEYANCERS
TELEFOON 811041 POSBUS 294
TELEPHONE 811041 P.O. BOX 294
FAKS 811046 N.K.
FAX 811046 KIMBERLEY N.C.

For Information Only

④

✓ Verbeter op p7 soos aangedui.

2) meld op volmag wat uitgeleed is ~~was~~ en datum van magtiging Trustee.

3) Oorgesien dit blyk asof die posare wat volmag getek is nie trustee van trust (T/gewer) is nie, moet die produksie wat hulle magtig ook ingedien word
Handel in N in besluit -

4) Tot nota 3- verup in altes en volmag na datum + plek v.d. spesiale produksie.

5) Tot nota 3/4. Indien hulle ~~was~~ trustee is, moet die volmag dit so aandi.

6) Verstaak volledige rede vir bespaediging op en orderteken dat 3

7) Tot nota: ~~was~~ na HPAK.

VIR VERDERE NOTAS SIEH NOTRUUEU FOR FURTHER NOTES SEE THE TRUSTEE

ORIGINAL STAMPED
OORSPRONKLIKE GESEEN

DUTY
SEELREO. _____

FEES
FOOIE. ki

Gesertifiseerde afskrif uitgereik in terme
van Reg. 68 (1) Wet 47/1937. Aansoek
betreft VA 103/2001

128 JUL 2001
AKTEKANTOOR
KIMBERLEY

REGISTRATEUR
VAN AKTES

FOR ENDORSEMENTS KYK BLADSY 9
FOR ENDORSEMENTS SEE PAGE 9

Opgestel deur my:
TRANSPORTBESORGER
ROODT C J T

T 4709 /1997

TRANSPORTAKTE

(Uit krag van 'n Prokurasie)

HIERBY WORD BEKENDGEMAAK

DAT CHRISTIAAN JOHANNES THEUNIS ROODT, voor my,
REGISTRATEUR VAN AKTES, KIMBERLEY, verskyn het, te KIMBERLEY
hy, die genoemde Komparant, synde behoorlik daartoe gemagtig deur 'n volmag
aan hom verleen deur

DIE TRUSTEES VAN DIE SUID-AFRIKAANSE !Xú KHWE TRUST
Nr. T 338

gedateer die 24ste dag van NOVEMBER 1997

en geteken te KIMBERLEY.

EN die Komparant het verklaar dat:

NADEMAAL :

- 1.1. Die **TRUST** gestig is ten einde na die belange van die San Gemeenskap wat woonagtig was te Schmidtsdrift om te sien;
- 1.2. Die Suid-Afrikaanse Regering ingewillig het om die San Gemeenskap finansieël by te staan in die verkryging van grond en die betaling van die koopprys van die grond;
- 1.3. Die **TRUST** handelende ten behoeve van die San Gemeenskap op 20 Junie 1996 'n skriftelike ooreenkoms aangegaan het om die eiendomme, hieronder na verwys, aan te koop van ene **JOHANNES BENJAMIN VAN DER WESTHUIZEN** vir die bedrag van R7 500.000.00 (SEWEMILJOEN VYFHONDERDDUISEND RAND), welke transaksie behoorlik geregistreer was in die Aktekantoor, Kimberley kragtens Akte van Transport Nr. T 5168/1996 op 26 September 1996.
- 1.4. Die Departement van Grondsake die koopprys, hierbo na verwys, behoorlik oorbetaal het aan die gesegde **JOHANNES BENJAMIN VAN DER WESTHUIZEN** op datum van registrasie.
- 1.5. Die Departement van Grondsake tans vereis dat die grond hergeregistreer moet word in die naam van **DIE !XU & KHWE VERENIGING VIR GEMEENSKAPLIKE EIENDOM** Nr. CPA/97/0002, 'n Vereniging wat gestig is kragtens die bepalinge van Artikel 8(3) van Wet 28/1996, welke Vereniging geregistreer is op 27 Februarie 1997.
- 1.6. Die **TRUST** bereid is om die eiendomme te herregistreer in die naam van **DIE !XU & KHWE VERENIGING VIR GEMEENSKAPLIKE EIENDOM** Nr. CPA/97/0002

NOU DERHALWE die genoemde Komparant in sy hoedanigheid voormeld hiermee in volkome en vrye eiendom sedeer en transporteer aan en ten gunste van

DIE !XU & KHWE VERENIGING VIR GEMEENSKAPLIKE EIENDOM
Nr. CPA/97/0002

Hul Diensopvolgers in titel of Regverkrygendes

BLADSY/PAGE 10

ENDOSSEMENT OP
ENDORSEMENT ON 4709/97

EIENDOM, PROPERTY Kimberley
RD Folio 68 MAE

~~BLADSY/PAGE~~ ~~IN BLADSY~~
~~ENDOSSEMENT~~ ~~SEE PAGE~~ 11

Para 1

SERTIFIKAAT VAN GEREISTREERDE TITEL UITGEREIK CERTIFICATE OF REGISTERED TITLE ISSUED	
TEN OPSIGTE VAN IN RESPECT OF <u>ERF 32506 Kimberley</u>	
<u>Grootte = 63,5009 ha</u> RESTANT REMAINDER <u>5201,2494 ha</u>	
<u>3208/2001</u>	L.C. SMIT REGISTRATEUR/REGISTRAR
<u>18 JUL 2001</u>	

Para-2

SERTIFIKAAT VAN GEREISTREERDE TITEL UITGEREIK CERTIFICATE OF REGISTERED TITLE ISSUED	
TEN OPSIGTE VAN IN RESPECT OF <u>Erf 34453 Kimberley</u>	
<u>grootte 44.038 HA</u> RESTANT REMAINDER <u>6623.5780 HA</u>	
<u>T.4612/2003</u>	L.C. SMIT REGISTRATEUR/REGISTRAR
<u>12 DEC 2003</u>	

~~Handwritten Note to Acts~~
~~by Registrar L.C. Smit~~

~~is the Registrar's Office~~
~~of the Kimberley District~~

~~is hereby notified that the~~
~~above mentioned title was issued in a certain manner~~
~~and will remain fully valid and in full force to the said District Deed, a copy whereof~~
~~is attached hereto.~~

~~Handwritten Signature~~

~~REGISTRATEUR/REGISTRAR~~

1. SEKER Plaas "Platfontein" Nr. 68
GELEE in die distrik Kimberley, Provinsie Noord-Kaap
GROOT 5264,7496 (Vyfduisend Tweehonderd vier en sestig komma Sewe Vier Nege Ses) Hektaar

AANVANKLIK OORGEDRA kragtens Grondbrief (KIMBERLEY ERFPAGTE BOEKDEEL 1, BLADSY 57) met Kaart wat daarop betrekking het en gehou kragtens Transportakte Nr. 2168/1996

- A. ONDERHEWIG aan die volgende voorwaarde ten gunste van DE BEERS CONSOLIDATED MINES LIMITED (waarkragtens Sertifikaat van Minerale Regte Nr. 5/1943, S.R.M uitgereik was) naamlik:

"That the Company reserves to itself all mineral rights, minerals, metals, diamonds and other precious stones in and under the ground and the Company shall in the exercise of such rights and the development of such minerals also have the trading right on and over the said land, provided, however, that the said trading rights shall only be exercised in the event of the Company exercising its mineral rights and conducting mining operations on the said properties"

- B. VERDER ONDERHEWIG aan die volgende voorwaardes geskep in Grondbrief (KIMBERLEY ERFPAGTE VOLUME 1, FOLIO 57) naamlik:

1. That this land shall be subject to a Public Outspanning and Grazing for the Cattle of Travellers, under such conditions as are already or hereafter shall be made by Law.
2. That the said land shall further be subject to all conditions and regulations as are already or shall in future be established concerning lands granted on similar tenure.

- C. VERDER ONDERHEWIG aan Onteining Kennisgewing Nr. RD 17/1904 in terme waarvan plus minus 2,8000 (Twee komma agt nul nul nul) hektaar onteien is deur die Departement van Paaie vir paddoeleindes. Planne is geliasseer met EX 65/81.

- D. VERDER ONDERHEWIG aan 'n ewigdurende reg om elektrisiteit te gelei kragtens Notariele Akte Nr. K 71/74S ten gunste van EVKOM

BLADSY/PAGE 11

ENDOSSEMENT OP
ENDORSEMENT ON T4709/97

BIENDOM/PROPERTY Kimberley Rd
Fol 68 Mae

Para 2 Restent

Kragtige Notariële Akte By Notarial Deed	358/2005	gedateer dated
<p>Die hierin vermeldde erfenis <u>is</u> Subject to a perpetual servitude within mentioned property <u>for telecommunication along the route as with</u> later <u>later</u> be agreed upon in favour of Estkon Holding Ltd</p>		
<p>as well as fully under <u>under</u> reference to the said Notarial Deed, a copy whereof is hereunto annexed</p>		
AKTEKANTOOR, DEEDS OFFICE, KIMBERLEY, 15 SEP 2005	L.C. SMIT REGISTRATEUR/REGISTRAR.	

E. VERDER ONDERHEWIG aan Notariële Akte van Serwituut Nr. 16 van 1962 S waarkragtens 'n serwituut van kraglyne verleen is ten gunste van die Elektrisiteitsvoorsieningskommissie om krag oor die eiendom te lei, welke serwituut gemerk is AC en CD op Kaart Nr. 10922/60 geheg aan bogenoemde Notariële Akte van Serwituut.

2. SEKER Restant van Plaas "Wildebeest Kuil" Nr. 69
GELEE in die distrik Kimberley, Provinsie Noord-Kaap
GROOT as sulks 6719,1709 (Sesduisend sewehonderd en negentien komma een sewe nul nege) Hektaar

AANVANKLIK OORGEDRA kragtens Grondbrief (GRIEKWALAND WES ERFPAGTE BOEKDEEL 22, BLADSY 9) met Kaart wat daarop betrekking het en gehou kragtens Transportakte Nr. T 5168/1996

A. ONDERHEWIG aan die volgende voorwaarde ten gunste van DE BEERS CONSOLIDATED MINES LIMITED (waarkragtens Sertifikaat van Minerale Regte Nr. 5/1943 S R M uitgereik was) naamlik:

"That the Company reserves to itself all mineral rights, minerals, metals, diamonds and other precious stones in and under the ground and the Company shall in the exercise of such rights and the development of such minerals also have the trading right on and over the said land, provided, however, that the said trading rights shall only be exercised in the event of the Company exercising its mineral rights and conducting mining operations on the said properties"

B. VERDER ONDERHEWIG aan die volgende voorwaardes geskep in Grondbrief (GRIEKWALAND WES ERFPAGTE BOEKDEEL 22, FOLIO 9) naamlik:

And lastly that the said land shall be subject to all such duties, rules and regulations as either now are or hereafter may be in force with regard, to lands granted on similar tenure.

C. VERDER ONDERHEWIG aan Onteining Kennisgewing Nr. RD 17/1904 in terme waarvan 22,5000 (Twee en twintig komma vyf nul nul nul) hektaar onteien is deur die Departement van Paaie vir paddoeleindes. Planne is geliasseer met EX 66/81.

- D. VERDER ONDERHEWIG aan 'n ewigdurende reg om elektrisiteit te gelei kragtens Notariële Akte Nr. K 54/75S ten gunste van EVKOM
- E. VERDER ONDERHEWIG aan 'n ewigdurende reg om water te vervoer en lei ten gunste van die Munisipaliteit van Kimberley kragtens Notariële Akte Nr. K 37/83 S.
- F. VERDER ONDERHEWIG aan Notariële Akte van Serwituut Nr. 16 van 1962 S waarkragtens 'n serwituut van kraglyne verleen is ten gunste van die Elektrisiteitsvoorsieningskommissie om krag oor die eiendom te lei, welke serwituut gemerk is AC en CD op Kaart Nr. 10922/60 geheg aan bogenoemde Notariële Akte van Serwituut.
- G. VERDER ONDERHEWIG aan 'n ewigdurende reg om elektrisiteit te gelei kragtens Notariële Akte Nr. K 71/74 S ten gunste van EVKOM.
3. SEKER Restant van Gedeelte 2 van die Plaas Droogfontein Nr. 62
GELEE in die distrik Kimberley, Provinsie Noord-Kaap
GROOT 868,4300 (agthonderd agt en sestig komma vier drie nul nul) Hektaar
- AANVANKLIK OORGEDRA kragtens Akte van Transport Nr. T 356/1958 met Kaart Nr. 1814/1958 wat daarop betrekking het en gehou kragtens Transportakte Nr. T 5168/1996
- A. ONDERHEWIG aan die terme en voorwaardes van die Serwituut geskep in Transportakte Nr. T 19242/1927 ten gunste van die Munisipaliteit van die Stad Kimberley, naamlik:
1. With the right to use the land formerly known as "Pipe Track" (which is more fully described in the diagram annexed to Deed of Transfer No. T 12421 in favour of the Kimberley Waterworks Company Limited) until such time as the water main between the Vaal River and Kimberley can be removed to Lot "New Pipe Track"
 2. Further with the right to lay temporary water pipelines to connect the old and new water mains over those portions of the "Droogfontein" and "Pypkaneel" Runt Estates which lie between the land formerly known as "Lot Pipe Track" and

Lot "New Pipe Track" and for the purpose of laying and maintaining the said temporary water pipe lines by its engineers, surveyors, servants and workmen to enter and make such excavations on the said land as may be necessary; provided, that all excavations so made shall be properly filled up by the said Council as soon as the necessity therefor determines.

3. And further subject to the following servitude, namely: That the Estate of the Late James Alfred Hill, or its successors in title shall have the right to pass over Lot "New Pipe Track" for the purpose of exercising their proprietary right on either side thereof at such convenient place or places as may be agreed upon between the Council and the said Estate of the late James Alfred Hill or its successors in title or if they cannot agree then at such place or places as shall be selected and pointed out as fair and reasonable by the Magistrate for the time being of Kimberley, on the condition, that in so passing over the said land, no injury to or interference with the works of the said Council shall take place, or if it shall hereafter be deemed necessary by the said Council for its objects to alter the place or places of crossing it shall be competent for it to do so, provided it shall grant some other convenient place or places of crossing in the room of the one or ones so closed the said Estate of the Late James Alfred Hill or its successors in title being liable to make good all loss or damage resulting to the said Council from their so crossing the said land.

4. And lastly subject to the conditions that the rights to all minerals and precious stones shall not pass to the said Council but shall remain vested in the Executors of the late James Alfred Hill, with the right to dig, prospect and mine on the said Lot provided that the Pipe Tract is not interfered with and that no operations are carried on which actually endanger the safety of the Council's pipes; and provided further that upon the removal of the pipes from the land presently known as Lot "Pipe Track" all excavations shall be properly filled up by the said Council Audit Folios 111 and 118.
- S

5. The terms and conditions of certain Notarial Deed of Servitude passed by Helena Stella Hampson in favour of the Kamfersdam Mines Limited before the Notary Public Arthur Solomon on the 21st April, 1903, relative to the farms Droogfontein K No. 74 (now the remaining extent of the farm Droogfontein No. 62) and Pypkaneel Punt K No. 75 (now the remaining extent of the farm Droogfontein No. 62) mentioned in Deed of Transfer No. 10888 and filed as Deed No. 5405 Public Debt Register La. H. Folio 549"

B. VERDER ONDERHEWIG aan sover dit die gedeelte gemerk M H J K L op Kaart Nr. 12844/54 geheg aan Akte van Verdelingstransport Nr. T 741/55, die voorwaardes geskep in Grondbrief (KIMBERLEY QUITRENTS VOLUME 3, FOLIO 66) en die voorwaardes geskep in Grondbrief (KIMBERLEY ERFPAGTE VOLUME 1, FOLIO 56), naamlik:

1. That this land shall be subject to a Public Outspanning and Grazing for the cattle of travellers under such conditions as are already or hereafter shall be made by Law
2. That the said land shall further be subject to all conditions and regulations as are already or shall in future be established concerning lands granted on similar tenure.,

C. VERDER ONDERHEWIG aan 'n ewigdurende reg om elektrisiteit te gelei kragtens Notariele Akte Nr. 71/74 S ten gunste van EVKOM.

For Information

WESHALWE die Komparant afstand doen van al die regte en titel wat

DIE TRUSTEES VAN DIE SUID-AFRIKAANSE !XU KHWE TRUST
Nr. T 338

voorheen op genoemde eiendom gehad het, en gevolglik ook erken dat hy geheel en al van die besit daarvan onthef en nie meer daartoe geregtig is nie, en dat kragtens hierdie akte, bogenoemde

DIE !XU & KHWE VERENIGING VIR GEMEENSKAPLIKE EIENDOM
Nr. CPA/97/0002

Hul Diensopvolgers in titel of Regverkrygendes tans en voortaan daartoe geregtig is, ooreenkomstig plaaslike gebruik, behoudens die Regte van die Staat; en ten slotte erken hy dat daar geen vergoeding betaalbaar is nie en welke hereregte uitgereik is kragtens Artikel 9(2)

TEN BEWYSE WAARVAN ek, die genoemde **REGISTRATEUR**, tesame met die Komparant, hierdie akte onderteken en dit met die ampseel bekragtig het.

ALDUS GEDOEN en GETEKEN op die Kantoor van die **REGISTRATEUR VAN AKTES**, te **KIMBERLEY** op

q. q. sy Prinsipaal/vale

In my teenwoordigheid


REGISTRATEUR VAN AKTES

1997-12-03

GEREGISTREER IN DIE REGISTER VAN

BOEKDEEL

FOLIO

KLERK IN BEVEL

Hereregtevrystellingsertifikaat uitgereik deur die Ontvanger van Inkomste, Kimberley op 25 November 1997

NAGESIEN:

1

 2 B
BELASTINGUITKLARINGSERTIFIKAAT

MUNISIPALITEIT VAN DIE STAD KIMBERLEY

?

A09357

108
18

Opgestel deur my
TRANSPORTBESORGER
ROODT C J T

PROKURASIE OM TRANSPORT UIT TE MAAK

Ons, die ondergetekendes

ROBERT DERENGE en FELICIANO MARIO MAHONGO, behoorlik daartoe gemagtig deur DIE TRUSTEES VAN DIE SUID-AFRIKAANSE !XU & KHWE TRUST Nr. T 338 kragtens 'n Magtigingsbrief uitgereik deur die Meester van die Hooggeregshof (Noord-Kaapse Provinsiale Afdeling) Kimberley op 20 Desember 1993

benoem, konstitueer en stel hiermee aan

CHRISTIAAN JOHANNES THEUNIS ROODT

met mag en substitusie om ons wettige Prokureur en Agent te wees, in ons naam en namens my te verskyn in die Kantoor van die Registrateur van Aktes te KIMBERLEY en dan en daar namens ons transport uit te maak aan

**DIE !XU & KHWE VERENIGING VIR GEMEENSKAPLIKE EIENDOM
Nr. CPA/97/0002**

die ondergemelde onroerende eiendomme, naamlik:

1. SEKER Plaas "Platfontein" Nr. 68
GELEe" in die distrik Kimberley, Provinsie Noord-Kaap
GROOT 5264.7496 (Vyfduisend Tweehonderd Vier en Sestig komma Sewe Vier Nege Ses) Hektaar
GEHOU kragtens Transportakte Nr. T 5168/1996
2. SEKER Restant van Plaas "Wildebeest Kuil" Nr. 69
GELEe" in die distrik Kimberley, Provinsie Noord-Kaap
GROOT 6719.1709 (Sesduisend Sewehonderd en Negentien komma Een Sewe Nul Nege) Hektaar
GEHOU kragtens Transportakte Nr. T 5168/1996

99
MP

3. SEKER ^{Restant van} Gedeelte 2 van die Plaas Droogfontein Nr. 62
- GELEE in die distrik Kimberley, Provinsie Noord-Kaap
- GROOT ⁴³⁰⁰ 868,8140 (Agthonderd Agt en Sestig komma ^{VIER DRIE NUL} ~~Agt Een Vier~~ Nul) Hektaar.
- GEHOU kragtens Trasportakte Nr. T 5168/1996

NADEMAAL :

- 1.1. Die TRUST gestig is ten einde na die belange van die San Gemeenskap wat woonagtig was te Schmidtsdrift om te sien;
- 1.2. Die Suid-Afrikaanse Regering ingewillig het om die San Gemeenskap finansiël by te staan in die verkryging van grond en die betaling van die koopprys van die grond;
- 1.3. Die TRUST handelende ten behoeve van die San Gemeenskap op 20 Junie 1996 'n skriftelike ooreenkoms aangegaan het om die eiendomme hierbo na verwys, aan te koop van ene JOHANNES BENJAMIN VAN DER WESTHUIZEN vir die bedrag van R7 500.000.00 (SEWEMILJOEN VYFHONDERDDUISEND RAND), welke transaksie behoorlik geregistreer was in die Aktekantoor, Kimberley kragtens Akte van Transport Nr. T 5168/1996 op 26 September 1996.
- 1.4. Die Departement van Grondsake die koopprys, hierbo na verwys, behoorlik oorbetaal het aan die gesegde JOHANNES BENJAMIN VAN DER WESTHUIZEN op datum van registrasie.
- 1.5. Die Departement van Grondsake tans vereis dat die grond hergeregistreer moet word in die naam van DIE !XU & KHWE VERENIGING VIR GEMEENSKAPLIKE EIENDOM Nr. CPA/97/0002, 'n Vereniging wat gestig is kragtens die bepalinge van Artikel 8(3) van Wet 28/1996, welke Vereniging geregistreer is op 27 Februarie 1997.
- 1.6. Die TRUST bereid is om die eiendomme te herregistreer in die naam van DIE !XU & KHWE VERENIGING VIR GEMEENSKAPLIKE EIENDOM Nr. CPA/97/0002



en in die algemeen en ten einde voorgenoemde doeleindes uit te voer, te doen of te laat doen al wat nodig is, net so volmaak en doeltreffend asof onself teenwoordig was en hierin gehandel het en hiermee word bekragtig en toegestaan en word belowe en ooreengekom om te bekragtig en toe te staan, alles en wat ook ons genoemde Prokureur en Agent kragtens hierdie Akte wettiglik doen of laat doen.

Gegee onder ons hand te KIMBERLEY op hierdie 24ste dag van NOVEMBER 1997, in die teenwoordigheid van die ondergetekende getuies.

AS GETUIES:

1. MBil

2. J Jacobs

[Signature]

[Signature]

23

Department of Land Affairs
Departement van Grondsake
Kgoro ya tša Naga
UMnyango wezoMhlaba



Ontvanger van Inkomste
Privaatsak X 6068
KIMBERLEY
8300

Privaatsak X5007
KIMBERLEY
8300

Meneer

Tel: (0531) 814090
Fax: (0531) 814095

**PLATFONTEIN: REGISTRASIE IN DIE NAAM VAN DIE SUID-AFRIKAANSE !XŪ
EN KHWE VERENIGING VIR GEMEENSKAPLIKE EIENDOM**

Die !XŪ en Khwe gemeenskap kwalifiseer in terme van die Grondhervormingsbeleid van die Regering vir bystand ooreenkomstig die Wet op die Beskikbaarstelling van Sekere Grond vir Vestiging, 1996 (Wet Nr 126 van 1996).

In terme van hierdie Wet is die gemeenskap dan ook gesubsidieer om die plaas Platfontein van mnr Johnny van der Westhuizen te koop teen 'n koopprijs van R 7 500 000-00. As voorwaarde is gestel dat die grond in die naam van 'n Vereniging vir Gemeenskaplike geregistreer moet word, ooreenkomstig die bepalinge van die Wet op Vereniging vir Gemeenskaplike Eiendom, 1996 (Wet Nr 28 van 1996).

Ten tyde van die registrasie van die grond op 26 September 1996, was so 'n vereniging egter nog nie geregistreer nie en is die grond as 'n tussentydse maatreël in die naam van die Suid-Afrikaanse !XŪ en Khwe Trust geregistreer.

Op 27 Februarie 1997 is die Suid-Afrikaanse !XŪ en Khwe Vereniging vir Gemeenskaplike Eiendom geregistreer en moet die grond dus nou in dié Vereniging se naam geregistreer word.

Hiermee word ook aansoek gedoen vir die vrystelling van Hereregte. Terselfdertyd word u versoek om asseblief hierdie aangeleentheid as 'n saak van dringendheid te hanteer.

Vriendelike groete

PROVINSIALE DIREKTEUR: NOORD-KAAP

DATUM:

27/11/21

3

AANSOEK OM BESPOEDIGING VAN AKTES
APPLICATION FOR EXPEDITION OF DEEDS

A. Hiermee word aansoek gedoen om die bespoediging van die volgende Aktes:
Application is hereby made to have the following Deeds put forward:

Aantal aktes: 7 Geskakel 1
Number of Deeds: Linked

Datum van Indiening: 27.11.97
Date of Logement:

Voorheen ingedien Ja/Nee Nee
Previously Lodged Yes/No

Transport of Verband:
Transfer of Bond:

Eerste transport vanaf dorpstiel Nee
First transfer from township

Nommer van Firma: 11
Number of Firm:

Eiendom/me: Platfontein 68
.....
.....

Datum: 27.11.97

B. Ek sertifiseer:

- (i) dat daar geen inskrywing teen bogemelde eiendom/me gemaak is ten opsigte van interdikte, caveatte, onteienings ens. of enige ander inskrywings of feite wat die registrasie van hierdie aktes raak nie.
- (ii) dat geen hangende interdikte of beslagleggings van toepassing is ten opsigte van hierdie aktes of stel nie.
- (iii) dat ek die toestemming tot hierdie aansoek van alle betrokke partye het.
- (iv) dat alle waarborge en finansiële reëlings in orde is, en dat die aktes uitgevoer sal word op die dag soos aangevra.

C. Rede vir bespoediging:

Finansies sien skye van Dept Grondsele
Gemeentekassistriet op verkeerde
naam geregister
verkeerde aktes
nietes op
koopprys =

AKTEUITMAKER

(E) (B) (A)

DATE : 1997-11-27 TIME : 11.43.48

BAT DEEDS REGISTRATION SYSTEM - KIMBERLEY

DRSP05E PROPERTY DETAILS PRINT FOR REG DIV KIMBERLEY RD
 FARM NO 0000068 ✓
 PORTION 0000
 REG DIV

PROVINCE NORTHERN CAPE
 PREV DESCRIPTION KQ1/57 ✓
 DIAGRAM NO 5264.7496H
 EXTENT
 CLEARANCE
 PREVIOUS EXTENT
 FARM NAME PLATFONTEIN

ENDORSEMENTS/INTERDICTS/PREP	AMOUNT	MICROFILM REF	MMDD
EX65/1981	0000	0000	0926
K128/1978S	0000	0000	0926
K16/1962S	0000	0000	0926
K5/1943RM	0000	0000	0926
K52/1997RM	0000	0000	0807
K71/1974S	0000	0000	0926

OWNER DETAILS	PURCH DATE	AMOUNT	IDENTITY	TITLE DEED	MMDD	MICROFILM REF
FULL NAME & SHARE	960620	R7500000	T338	T5168/1996	0926	0000 0000 0000
SUID-AFFRIKAANSE !XU KHWE TRUST						0000 0000 0000

* * * END OF REPORT * * *

BAT DEEDS REGISTRATION SYSTEM - KIMBERLEY DATE : 1997-11-27 TIME : 11.43.55

DRSP05E PROPERTY DETAILS PRINT FOR REG DIV KIMBERLEY RD
 FARM NO 0000069
 PORTION 0000 (REMAINING EXTENT)
 REG DIV

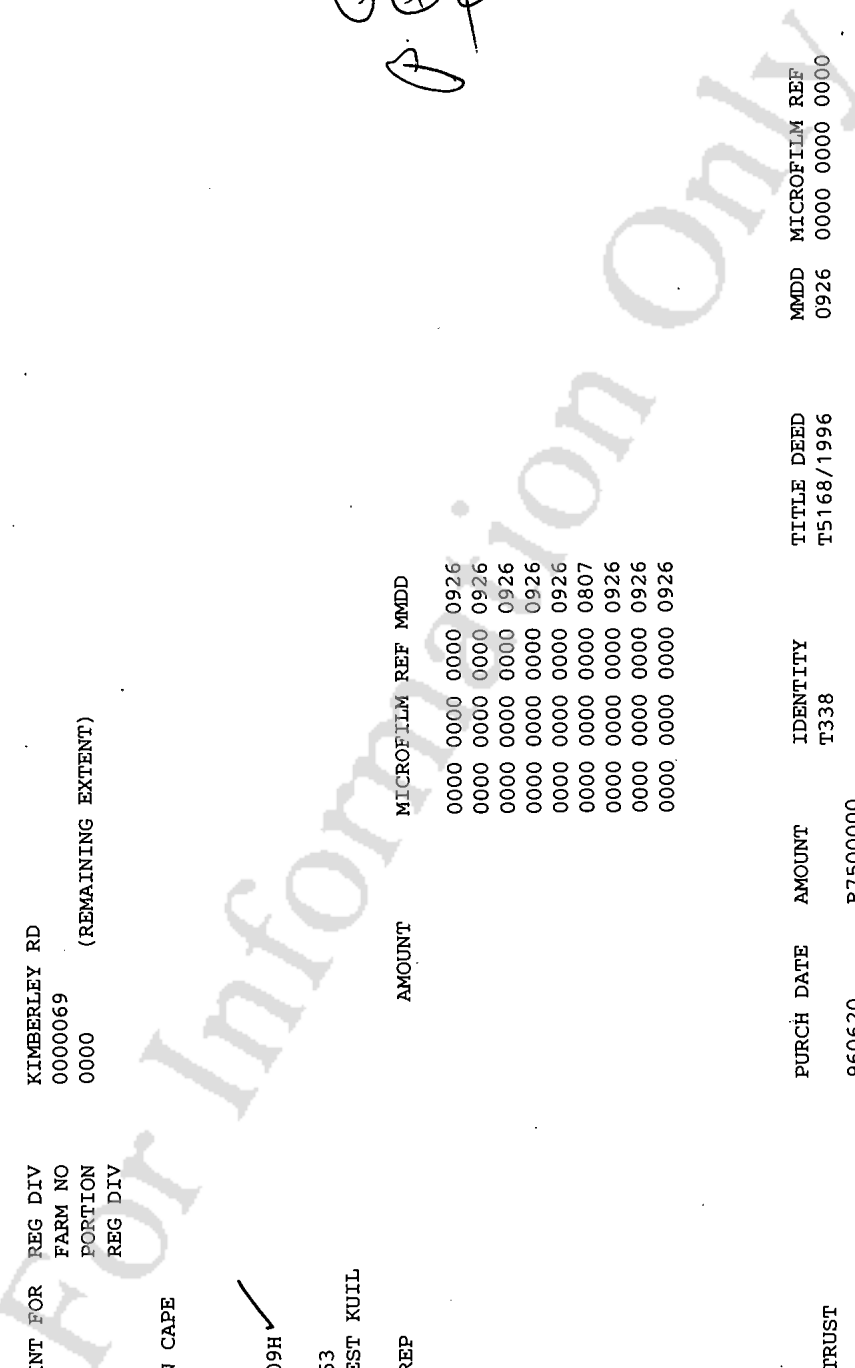
PROVINCE NORTHERN CAPE
 PREV DESCRIPTION GWQ22/9 ✓
 DIAGRAM NO 6719,1709H
 EXTENT
 CLEARANCE
 PREVIOUS EXTENT 6739,7563
 FARM NAME WILDEBEEST KUIL

ENDORSEMENTS/INTERDICTS/PREP	AMOUNT	MICROFILM REF	MMDD
EX66/1981	0000	0000	0926
K128/1978S	0000	0000	0926
K16/1962S	0000	0000	0926
K37/1983S	0000	0000	0926
K5/1943RM	0000	0000	0926
K52/1997RM	0000	0000	0807
K54/1975S	0000	0000	0926
K71/1974S	0000	0000	0926
OD60/1996	0000	0000	0926

OWNER DETAILS
 FULL NAME & SHARE
 SUID-AFFRIKAANSE !XU KHWE TRUST
 PURCH DATE 960620
 AMOUNT R7500000
 IDENTITY T338
 TITLE DEED T5168/1996
 MMDD 0926
 MICROFILM REF 0000 0000 0000

* * * END OF REPORT * * *

⑤
 ④
 ③
 ①



BAT DEEDS REGISTRATION SYSTEM - KIMBERLEY DATE : 1997-11-27 TIME : 11.43.33

DRSPOSE PROPERTY DETAILS PRINT FOR REG DIV KIMBERLEY RD
FARM NO 0000062 ✓
PORTION 0002 ✓
REG DIV

PROVINCE NORTHERN CAPE

PREV DESCRIPTION T356/1958 ✓
DIAGRAM NO 868.8140H ✓
EXTENT
CLEARANCE
PREVIOUS EXTENT
FARM NAME DROOGFONTEIN

ENDORSEMENTS/INTERDICTION/PREP

I-3415/1997C
K128/1978S
K71/1974S

OWNER DETAILS

FULL NAME & SHARE
SUID-AFRIKAANSE !XU KHWE TRUST

AMOUNT

0000 0000 0000 0909
0000 0000 0000 0926
0000 0000 0000 0926

B. (S) A

PURCH DATE AMOUNT
960620 R7500000

IDENTITY TITLE DEED
T338 T5168/1996

MMDD MICROFILM REF
0926 0000 0000 0000

* * * END OF REPORT * * *

BAT DEEDS REGISTRATION SYSTEM - KIMBERLEY
DRSP04E BLACK-BOOKING ENQUIRY ON NAME - SUID-AFRIKAANSE !XU KHWE TRUST
ID - T338

DATE : 1997-11-27 TIME : 11.40.19

MICROFILM REF

MARITAL STATUS -
MAIDEN NAME -
}

SUID-AFRIKAANSE !XU KHWE TRUST
T338 I-3415/1997C-T5168/1996

*** END OF REPORT ***

For Information Only

②
⑤
B

Q/S

T - Xukwe Trust - KimRD 68, 69, 62/2.

NOTAS VAN ONDERSOEKERS • EXAMINERS' NOTES

✓ 8. Skop ulwaards op p7. Sien end op tile! R

For Information Only

BAT DEEDS REGISTRATION SYSTEM - KIMBERLEY
DRSP04E BLACK-BOOKING ENQUIRY ON NAME - SUID-APRIKAANSE !XU KHWE TRUST
ID - T338

DATE : 1997-12-04

TIME : 07.27.38

MICROFILM REF

MARITAL STATUS -
MAIDEN NAME -

SUID-APRIKAANSE !XU KHWE TRUST
* * * END OF REPORT * * *

T338

I-3415/1997C-T5168/1996

For Information Only

BAT DEEDS REGISTRATION SYSTEM - KIMBERLEY DATE : 1997-12-04 TIME : 07.27.43

DRSP07E PERSON DETAILS PRINT FOR NAME SUID-AFRIKAANSE !XU KHWE TRUST
ID T338

MARITAL STATUS
MAIDEN NAME

CONTRACTS/INTERDICTS MICROFILM REF
I-3415/1997C-T5168/1996 0000 0000 0000

PERSON HAS NO CONTRACTS

PROPERTIES OWNED

RD / TOWNSHIP	ERF/FARM PTN	TITLE DEED / MICROFILM REF	MMDD SHARE	PURCH DATE	AMOUNT
KIMBERLEY RD	0000062	0002 T5168/1996 0000 0000 0000	0926	960620	R7500000
KIMBERLEY RD	0000068	0000 T5168/1996 0000 0000 0000	0926	960620	R7500000
KIMBERLEY RD	0000069	0000 T5168/1996 0000 0000 0000	0926	960620	R7500000

* * * END OF REPORT * * *

BAT DEEDS REGISTRATION SYSTEM - KIMBERLEY DATE : 1997-12-04 TIME : 07.27.50

DRSPO5E PROPERTY DETAILS PRINT FOR REG DIV KIMBERLEY RD
 FARM NO 0000069
 PORTION 0000 (REMAINING EXTENT)
 REG DIV

PROVINCE NORTHERN CAPE
 PREV DESCRIPTION
 DIAGRAM NO GWQ22/9
 EXTENT 6719,1709H
 CLEARANCE
 PREVIOUS EXTENT 6739,7563
 FARM NAME WILDEBEEST KULL

ENDORSEMENTS/INTERDICTS/PREP	AMOUNT	MICROFILM REF	MDD
EX66/1981	0000	0000	0926
K128/1978S	0000	0000	0926
K16/1962S	0000	0000	0926
K37/1983S	0000	0000	0926
K5/1943RM	0000	0000	0926
K52/1997RM	0000	0000	0807
K54/1975S	0000	0000	0926
K71/1974S	0000	0000	0926
OD60/1996	0000	0000	0926

OWNER DETAILS
 FULL NAME & SHARE
 SUID-AFRIKAANSE !XU KHWE TRUST
 PURCH DATE 960620
 AMOUNT R7500000
 IDENTITY T338
 TITLE DEED T5168/1996
 MDD 0926
 MICROFILM REF 0000 0000 0000

* * * END OF REPORT * * *

BAT DEEDS REGISTRATION SYSTEM - KIMBERLEY DATE : 1997-12-04 TIME : 07.27.54

DRSP05E PROPERTY DETAILS PRINT FOR REG DIV KIMBERLEY RD
FARM NO 0000062
PORTION 0002
REG DIV

PROVINCE NORTHERN CAPE

PREV DESCRIPTION T356/1958
DIAGRAM NO 868.8140H
EXTENT
CLEARANCE
PREVIOUS EXTENT
FARM NAME DROOGFONTEIN

ENDORSEMENTS/INTERDICTS/PREP

I-3415/1997C
K128/1978S
K71/1974S

AMOUNT
MICROFILM REF MMDD
0000 0000 0000 0909
0000 0000 0000 0926
0000 0000 0000 0926

OWNER DETAILS

FULL NAME & SHARE
SUID-AFRIKAANSE !XU KHWE TRUST

PURCH DATE AMOUNT
960620 R7500000

IDENTITY TITLE DEED
T338 T5168/1996

MMDD MICROFILM REF
0926 0000 0000 0000

* * * END OF REPORT * * *

BAT

DEEDS REGISTRATION SYSTEM - KIMBERLEY

DATE : 1997-12-04

TIME : 07.27.17

DRSP05E PROPERTY DETAILS PRINT FOR REG DIV KIMBERLEY RD
 FARM NO 0000068
 PORTION 0000
 REG DIV

PROVINCE NORTHERN CAPE

PREV DESCRIPTION KQ1/57
 DIAGRAM NO 5264.7496H
 EXTENT
 CLEARANCE
 PREVIOUS EXTENT
 FARM NAME PLATFONTEIN

ENDORSEMENTS/INTERDICTS/PREP	AMOUNT	MICROFILM REF	MMDD
EX65/1981	0000	0000	0926
K128/1978S	0000	0000	0926
K16/1962S	0000	0000	0926
K5/1943RM	0000	0000	0926
K52/1997RM	0000	0000	0807
K71/1974S	0000	0000	0926

OWNER DETAILS

FULL NAME & SHARE
 SUID-AFRIKAANSE !XU KHWE TRUST

PURCH DATE 960620
 AMOUNT R7500000

IDENTITY T338
 TITLE DEED T5168/1996

MMDD 0926
 MICROFILM REF 0000 0000 0000

* * * END OF REPORT * * *



ANNEXURE 5 – SG DIAGRAMS

SIDES Metres	ANGLES OF DIRECTION Constant	CO-ORDINATES Y System WG25° X	
		Y	X
AB	165.37	328 11 20	+0,00 +3 100 000.00
BC	2 826.68	330 23 36	+32 325.32 +66 267.48
CD	505.46	330 51 50	+32 238.15 +66 408.01
DE	6 155.29	332 02 29	+30 841.65 +68 865.63
EF	251.33	26 27 20	+30 595.54 +69 307.13
FG	16.00	296 27 20	+27 709.74 +74 744.02
GH	303.31	26 18 30	+27 821.71 +74 969.03
HJ	701.27	295 42 20	+27 807.39 +74 976.16
JK	7 047.13	64 08 16	+27 941.82 +75 248.04
KL	1 625.16	153 31 58	+27 309.94 +75 552.21
LM	1 030.43	290 57 50	+33 651.26 +78 626.24
MN	429.00	200 57 50	+34 375.57 +77 171.41
NP	43.00	110 57 50	+33 413.34 +77 540.08
PQ	80.00	200 57 50	+33 259.86 +77 139.48
QR	386.00	110 57 50	+33 300.01 +77 124.09
RS	7.07	155 57 50	+33 271.39 +77 049.39
ST	155.00	200 57 50	+33 631.84 +76 911.28
TU	320.00	110 57 50	+33 634.72 +76 904.82
UV	155.00	20 57 50	+33 579.26 +76 760.08
VW	7.07	65 57 50	+33 878.08 +76 645.60
WX	349.00	110 57 50	+33 933.54 +76 790.34
XY	90.00	20 57 50	+33 940.00 +76 793.21
YZ	49.00	290 57 50	+34 265.89 +76 668.36
ZA1	7.07	335 57 50	+34 298.09 +76 752.40
A1B1	392.34	20 57 50	+34 252.34 +76 769.93
B1C1	2 733.13	153 31 58	+34 249.46 +76 776.39
C1D1	6 412.30	170 02 37	+34 389.83 +77 142.76
D1A	4 873.19	244 18 20	+35 607.95 +74 696.09
			+36 716.64 +68 380.36

The figure A B C D E F G H J K L M N P Q R S T U V W X Y Z A1 B1 C1 D1 excluding the figure C2 - P2 (Erf 32505) represents 6623.6568 hectares of land, being a Mining Right to be issued in favour of Saint-Gobain Gyproc (Pty) Ltd (Reg No. 1937/010220/07) situated on the REMAINING EXTENT OF THE FARM WILDEBEEST KUIL No. 69 and in the Municipality of Sol Plaatje Administrative District Kimberley Province Northern Cape Framed by me in July - August 2009 in terms of Section 16 of the Land Survey Act No. 8 of 1997 J. Grivainis (PLS 0235) Professional Land Surveyor

FRAMED FOR PURPOSES OF A MINING RIGHT IN TERMS OF THE MINING TITLES REGISTRATION ACT No. 16 OF 1967

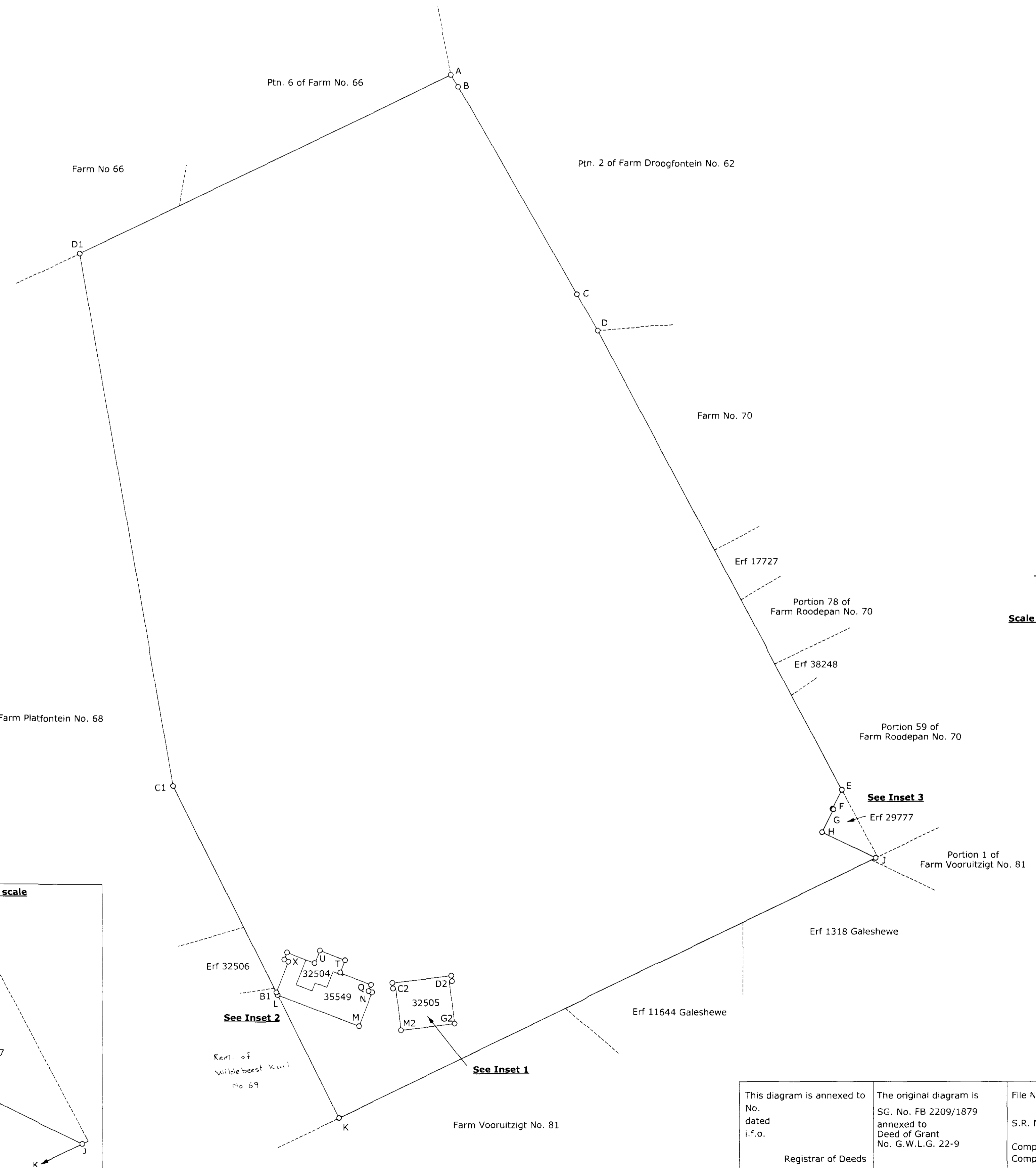
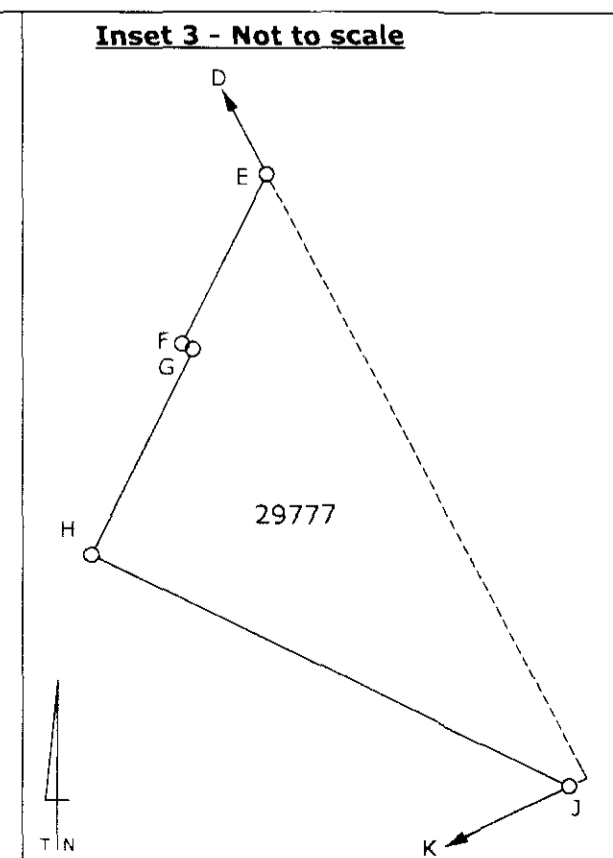
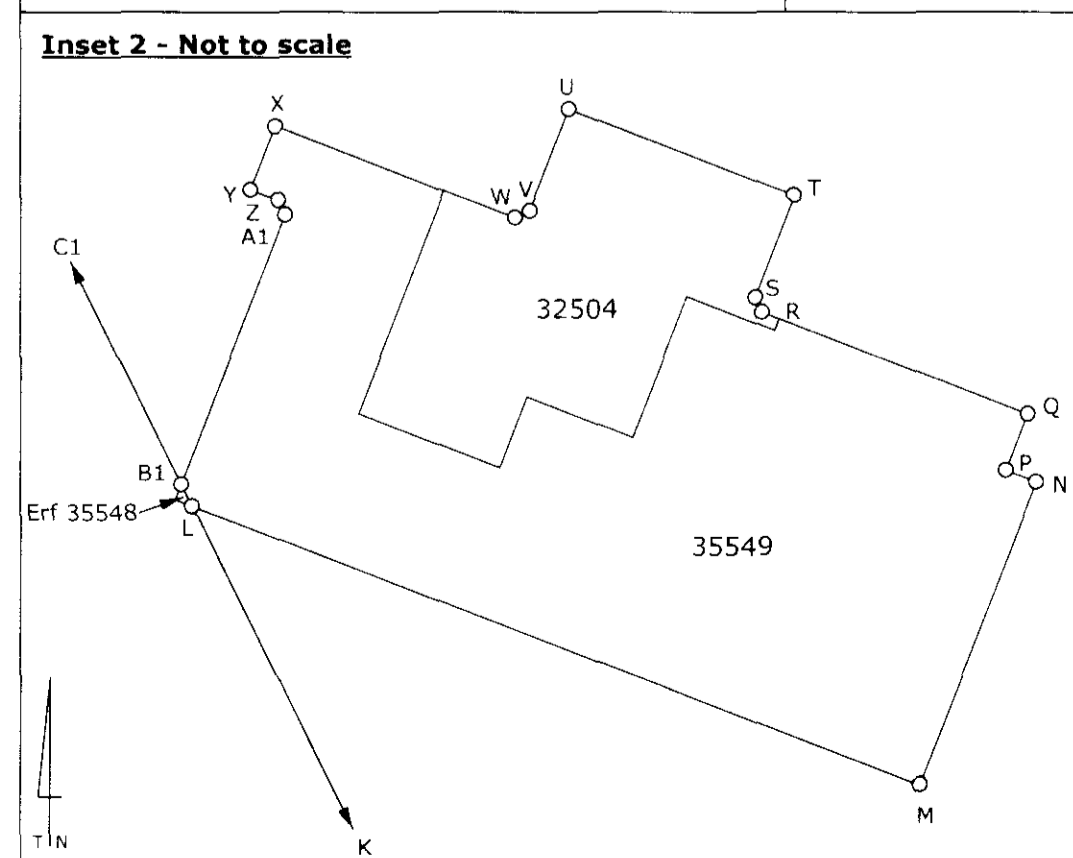
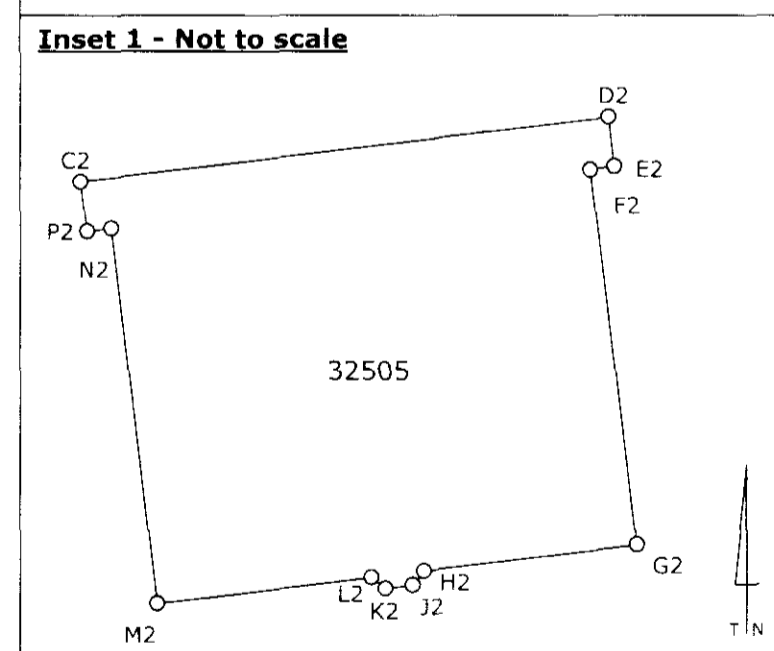
S.G. No.1344/2009

Approved
for Surveyor-General
2009-09-09

Excluded Figure Erf 32505 - Area 36.6786 hectares

C2D2	702.50	263 00 00	C2	+33 019.72	+77 029.34
D2E2	66.00	353 00 00	D2	+32 322.45	+76 943.73
E2F2	32.00	83 00 00	E2	+32 314.41	+77 009.24
F2G2	501.60	353 00 00	F2	+32 346.17	+77 013.14
G2H2	300.50	83 00 00	G2	+32 285.04	+77 511.00
H2J2	7.07	38 00 00	H2	+32 583.30	+77 547.62
J2K2	25.00	83 00 00	J2	+32 587.66	+77 553.19
K2L2	7.07	128 00 00	K2	+32 612.47	+77 556.24
L2M2	303.00	83 00 00	L2	+32 618.04	+77 551.89
M2N2	501.60	173 00 00	M2	+32 918.78	+77 588.81
N2P2	32.00	83 00 00	N2	+32 979.91	+77 090.95
P2C2	66.00	173 00 00	P2	+33 011.67	+77 094.85
(45)Wildebekstkuil (79) Kim 19			Δ	+34 845.91	+69 697.29
			Δ	+30 909.85	+73 916.41

Beacon Descriptions:
A,B,C. 12mm Iron peg under cairn next to wooden corner fence post.
D. 12mm Iron peg under cairn.
E,F,G,H. 900mm Iron standard.
J. Rail corner fence post.
K. Iron standard.
C1. Wooden corner fence post.
D1. 20mm Iron peg under cairn.
All other beacons. 12mm Iron pegs.



TIN
Scale 1: 30000

This diagram is annexed to No. dated i.f.o. Registrar of Deeds	The original diagram is SG. No. FB 2209/1879 annexed to Deed of Grant No. G.W.L.G. 22-9	File No. KIMB 69 S.R. No. 521/2009 Comp. GN-6CB (5710) Comp. GN-6CD (5711)
--	---	---



ANNEXURE 6 – ZONING CERTIFICATE



**DIRECTORATE STRATEGY,
ECONOMIC DEVELOPMENT &
PLANNING**

**DIREKTORAAT STRATEGIE,
EKONOMIESE ONTWIKKELING
EN BEPLANNING**

**MOKAEDI WA TOGAMAANO
MORUO TLHABOLOLO LE
THULAGANO**

Privaatsak/Private bag X5030,
Kimberley 8300

Tel: (053) 830 6344
Fax: 0865364762

Details of Zoning Schemes are
available at:
www.solplaatje.org.za

Ref: 15/3- Farm Wildebeest Kuil 69


**ZONING CERTIFICATE
TO WHOM IT MAY CONCERN**

I, the undersigned, **Ngoako Modiba**, in my capacity as Chief Town Planner, Sol Plaatje Municipality, hereby certify that Remaining Extent of Farm Wildebeest Kuil 69, Kimberley is zoned for **Agricultural** purposes in terms of the Sol Plaatje Land Use Management Scheme 2008

Signed this 03rd day of March 2022.


Ngoako Modiba

Chief Town Planner

1 Use Zone	2 Notation as shown on the Map	3 Primary Land Use Right May be erected and/or used	4 Secondary Land Use Rights May be erected and/or used with the Consent of the Municipality*	Prohibited Uses Buildings which may not be erected
Agricultural		Agricultural buildings	Staff accommodation, aerodrome, guest house, resort, kennels, cattery, auction of live stock, nursery and farm stall, special buildings, agricultural industry, equestrian sports centre	Buildings not under columns (3) and (4)

*No consent granted at present

Nothing contained in this Scheme shall be deemed to grant exemption from any of the Municipal by-laws or any other Act.

Where there is a conflict between this Scheme and any condition registered against any title deed, the most restrictive condition shall prevail.

All property is subject to the National Heritage Resources Act (Act 25 of 1999) if applicable



ANNEXURE 7 – PHOTOGRAPHS

PROPOSED SITE





ROAD TO PLATFONTEIN



T-JUNCTION FROM PLATFONTEIN



R31 TO KIMBERLEY



R31 TO BARKLY WEST

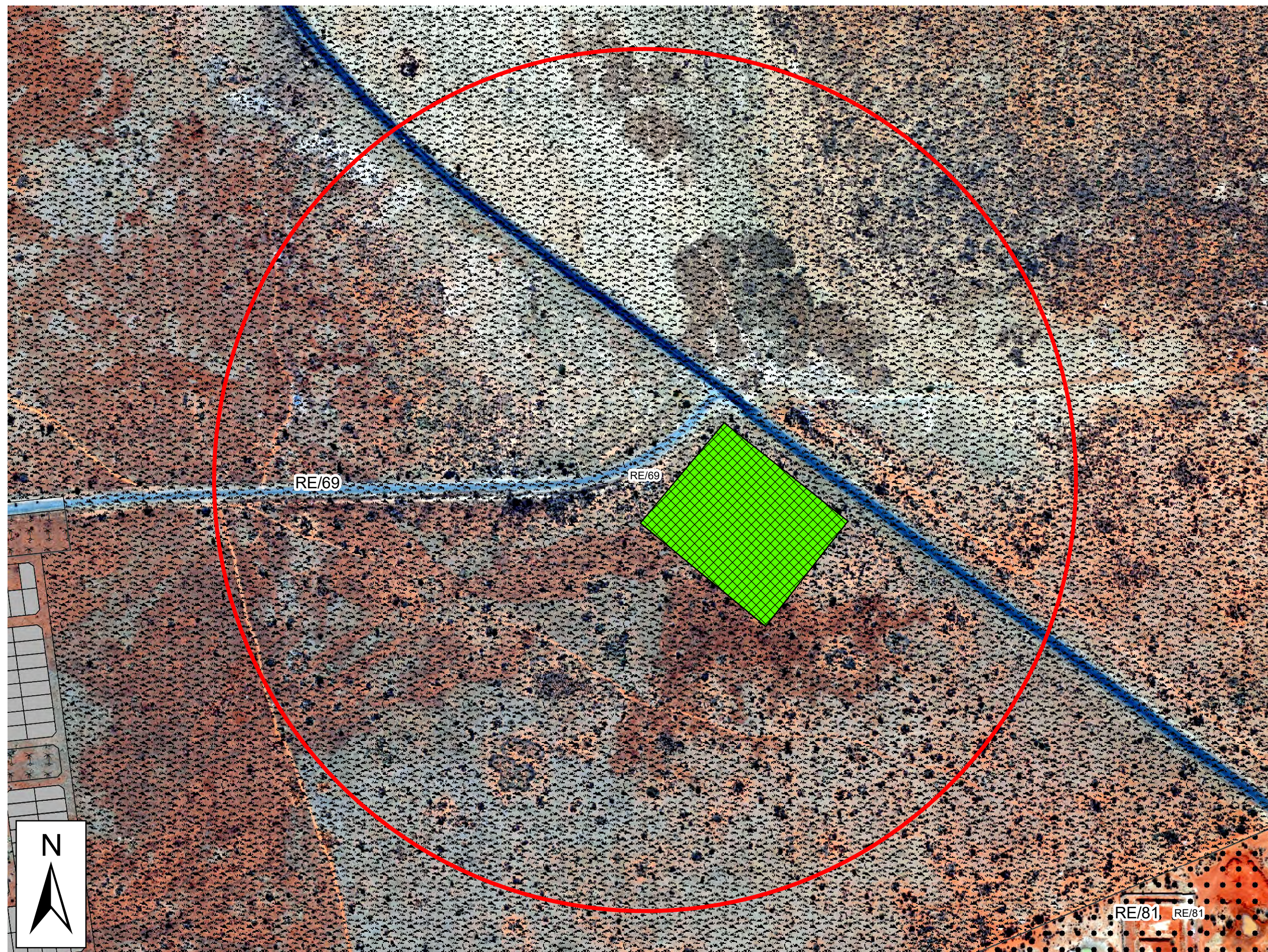
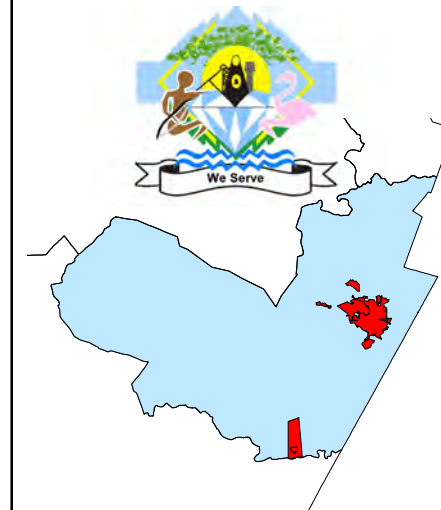




ANNEXURE 8 – SURROUNDING ZONINGS

SURROUNDING ZONING PLAN PORTION OF THE REMAINDER OF FARM WILDEBEEST KUIL NO. 69; KIMBERLEY

SOL PLAATJE LM



LEGEND

Application

 PTN. OF RE/69

ZONING

-  Public Open Space
-  Residential 1
-  Municipal

REF: 7474/002



MVD Kalahari

Stads-en Streekbeplanners & Aanverwante Dienste
Town and Regional Planners & Ancillary Services

P.O. Box 580 - 186 Du Toitspan Road
Kimberley 8300
nc@mvdkalahari.co.za
Tel: +27 53 8311 889
Cell: +27 76 4133 061

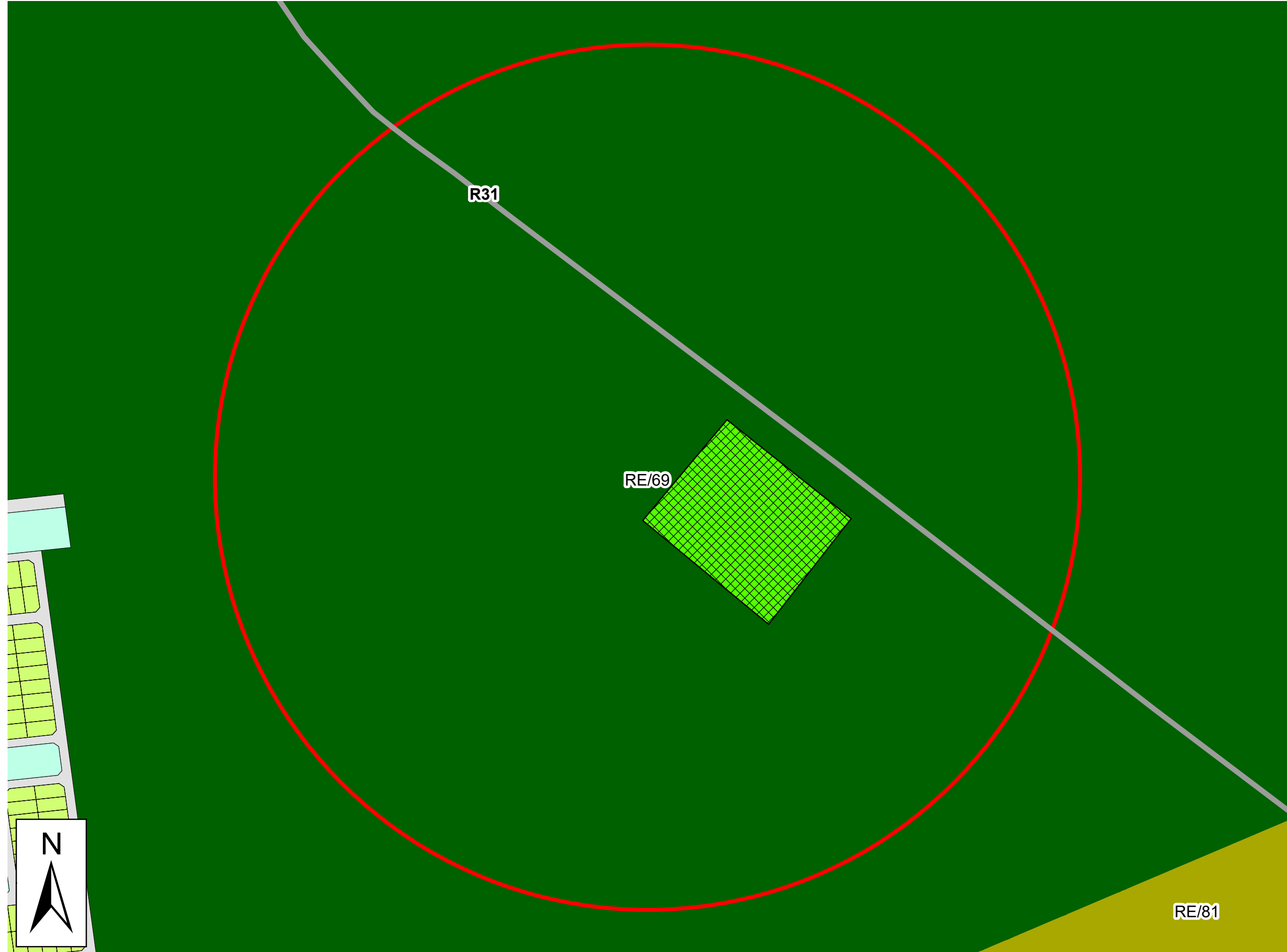




ANNEXURE 9 – SURROUNDING LAND USES

SURROUNDING LAND USE PLAN
PORTION OF THE REMAINDER OF FARM WILDEBEEST KUIL NO. 69; KIMBERLEY

SOL PLAATJE LM





LEGEND

Application

 PTN. OF RE/69

LAND USE

 Vacant land/grazing

 Game farm & Platfontein museum

REF: 7474/003



MVD Kalahari

*Stads-en Streekbeplanners & Aanverwante Dienste
Town and Regional Planners & Ancillary Services*

*P.O. Box 580 - 186 Du Toitspan Road
Kimberley 8300
nc@mvdkalahari.co.za
Tel: +27 53 8311 889
Cell: +27 76 4133 061*



ANNEXURE 10 – GEOTECHNICAL REPORT



Simlab

(EDMS) BEPERK GEOTEGNIESE DIENSTE
(PTY) LIMITED GEOTECHNICAL SERVICES

REG. No. 1987/004282/07

NLA No. 2012/187

1231, KIMBERLEY, 8300, SOUTH AFRICA. 3 Roper Street, KIMBERLEY, 8301
+27 (0) 53 832 2472 / 831 7560, +27 (0) 53 832 2472, simkby@simlab.co.za

Enquiries : KIMBERLEY

File Reference : NL/026

Your Reference : Platfontein R31 Filling Station

Document Number : 2021/K208/Doc.

Date : JUNE 2021

MVD KALAHARI CONSULTING ENGINEERS (KIMBERLEY)

REPORT ON THE GEOTECHNICAL / FOUNDING CONDITIONS FOR THE PLATFONTEIN R31 FILLING STATION, KIMBERLEY - NORTHERN CAPE PROVINCE

GEOTECHNICAL INVESTIGATION

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EXECUTIVE SUMMARY

- A geotechnical investigation was conducted on the 19th of April 2021 for the Platfontein R31 Filling Station, Kimberley - Northern Cape Province as per instruction received from the client: MVD KALAHARI CONSULTING ENGINEERS (Kimberley).
- The approximate size of the investigated site is 3.03ha.
- The sampling of the materials was done in accordance with the TMH 5:1981, Method MA2 and as specified by the client MVD KALAHARI CONSULTING ENGINEERS (Kimberley). Eight (8) test pits were excavated using a TLB (CASE). Sixteen (16) Foundation Indicator samples, six (6) Maximum Dry Density (MDD) samples and six (6) California Bearing Ratio (CBR) samples were obtained from site to determine the Engineering Properties of the materials.
- The geology in the investigated area is underlain by the Allanridge Formation (Ra - Andesite and Quartzite) and the Prince Albert Formation (Ppr - Shale), Overlain by Calcrete, calcified pandune and surface limestone and sand (Qc).
- Kimberley is in the semi-arid climatic region with Weinert's N – value of between 4 and 5.
- No ground-water seepage was encountered at the time of the investigation.
- Determining a flood line is not part of the scope of the report and therefore it was not determined. Provision should be made for drainage structures underground or at the surface where applicable.
- The materials occurring on site has a Mildly Corrosive to Corrosive nature. Full chemical testing for the presence of sulphates and chlorides have not been conducted.
- Typical materials that were found on site are: (SM) Silty SAND with gravel, (GW-GC) Well-graded GRAVEL with clay and sand, (SP-SM) Poorly graded SAND with silt and gravel, (SP-SC) Poorly graded SAND with clay and gravel.
- Refusal layers / Bedrock of hard calcrete was encountered during the investigation in seven of the eight test pits. The average depth of all the test pits is 2.152m ranging from 1.400m to 3.000m.
- The Plasticity Index (PI) of the materials ranges from Non Plastic (NP) to 5.0%, the Linear Shrinkage (LS) ranges from 0.0% to 3.0% and the percentage of Clay Fraction in the soils sample (<0.002mm) ranges from 3% to 25%.
- In general, the materials which occur on site consists of a Low (<7.5mm) potential expansiveness according to Van der Merwe's Method (1964), with a high probability of collapsing nature according to Handy (1973), a high collapse probability according to Prikionski (1952) and the settlement will be small according to Clevenger (1958).
- The general materials on site consists of a COLTO classification of G6, G7 and No Classification. G6 materials are suitable for subbase, selected layers and fill. G7 materials are suitable for selected layers and fill. No Classification materials are not suitable for any layer works.
- The site class is given as C in the area investigated, and accordingly the general foundation for construction purposes is considered to be: Normal (Strip footing or slab-on-the-ground) foundations. Foundation bearing pressure may not to exceed 50kPa.

REPORT

1. INTRODUCTION

1.1 Terms of reference

MVD KALAHARI CONSULTING ENGINEERS (Kimberley) appointed Simlab (Pty) Limited - Geotechnical Services (Kimberley) to conduct a geotechnical investigation and compile a geotechnical report for The Platfontein R31 Filling Station, Kimberley - Northern Cape Province. The scope of the investigation was to investigate the proposed area by excavating eight (8) test pits covering the area of the proposed development.

The purpose of the investigation was to determine the feasibility of the area for the proposed development as well as the founding conditions for these structures and to gain the following information:

- Determine the geological and geotechnical characteristics of the *in situ* soils / materials underlying the site.
- Determine the excavatability of the *in situ* soils / materials on site.
- Identify geotechnical constraints for the establishment of structures, services and roads.
- Determine the characteristics of the *in situ* soils / materials for the use of back filling materials and for the use of road construction.

This report contains the results and findings of the geotechnical investigation conducted by Simlab (Pty) Limited - Geotechnical Services (Kimberley). The investigation includes eight (8) test pits and laboratory testing of the *in situ* soils / materials.

Recommendations are made with regard to founding conditions for the proposed establishment for buildings, roads and other structures. Recommendations are based on the information gathered at the time of the investigation.

1.2 Location

The site is situated approximately 10.5km from the Kimberley Town Centre. Access to the site is gained via R31 road which connects to the N8. The centre co-ordinate of the investigated area is 25 Y0031575 X3176936. Refer to Figure 1. See Location Plan and Layout Plan in Appendices A & F for more detail.

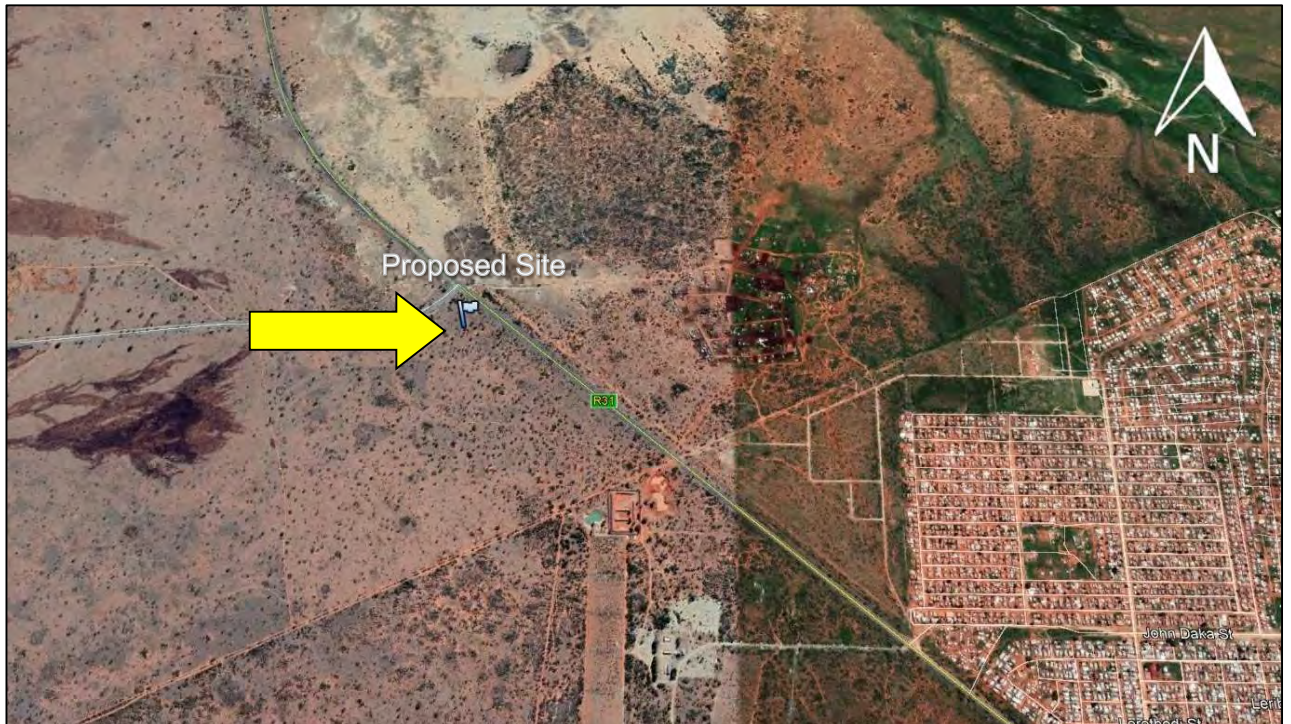


Figure 1 – Site Location (Google Earth)

1.3 Area

The size of the investigated area is approximately 3.03ha.

1.4 Available Information

At the time of the investigation the following were available:

- 1 : 50 000 Topocadastral map (2824, Kimberley)
- 1 : 250 000 Geological map (2824, Kimberley)
- Google Photo of the area / site

2. INFORMATION USED IN THE STUDY

- ABA Brink & RMH Bruin (2002), Guidelines for Soil and Rock Logging in South Africa. South Africa: Association of Engineering Geologists - South Africa Section.
- Jennings JE, Brink ABA, Williams AAB (1973), Revised guide to soil profiling for Civil Engineering purposes in Southern Africa.
- A Casagrande, ASTM International D2487-06 (2006), Standard Practice for Classification of Soils for Engineering Purposes (Unified Soil Classification System). West Conshohocken, United States of America, ASTM International.
- Committee of Land Transport Officials (1998), Standard Specifications for Road and Bridge Works for State Road Authorities. South Africa: South African Institution of Civil Engineering.
- Committee of State Road Authorities (1986), Technical Methods for Highways 1: Standard Methods of Testing Road Construction Materials. Pretoria: Department of Transport.
- National Home Builders Registration Council (1999), Home Building Manual Part 1 & 2. Revision No: 1. South Africa: National Home Builders Registration.
- National Department of Housing (2002), Geotechnical Site Investigations for Housing Developments. South Africa: Greenfield Subsidy Project Developments.
- TRH3: 2007, Figure 1-3 (1980), Macro-climatic regions of Southern Africa. South Africa: Adapted from Weinert.
- South African National Standard (2012), Geotechnical investigation for township development (SABS 634:2012)
- Cowling R M, Richardson D M and Pierce S M (2004), Vegetation of Southern Africa. South Africa: Cambridge University Press.
- Van der Merwe D H. (1964), The prediction of heave from the plasticity index and percentage clay fraction of soil. South Africa: South African Institution of Civil Engineering.
- Rational Road Drainage Design – R6990 (2015)
- Rust E, Heymann G and Jones G (2010) Collapsible soils an overview. South Africa: University of Pretoria.
- Geological Map of the South Africa and the Kingdoms of Lesotho and Swaziland (1997), Council for Geoscience.
- Naval Facilities Engineering Command (1986), Foundations and Earth Structures DM 7.1: NAVFAC Virginia.
- Testing Engineers (2015), Corrosive Soils. San Leandro.
- State-of-the-art review of Collapsible Soils, Department of Civil Engineering, College of Engineering, Sultan Qaboos, 2000.
- Clay activity index as an indicator of soil erodibility, Eurasian Journal of Soil Science, 2017
- Climate: www.saexplorer.co.za
- Software: Google Earth® 6.2.2. 6613, Google Inc. 2013, Map Source® 6.16.3, Garmin™, 2010 and dotPLOT® 2.4.0, Software Africa©, 2010.

3. PROJECT DETAIL

3.1 Client

MVD KALAHARI CONSULTING ENGINEERS (Kimberley)

3.2 Client Representative

Me. Wilma Karsten

3.3 Client Contact Details

Table 1: Client Contact Details

Street Address
186 Du Toitspan Road Belgravia KIMBERLEY 8301
Tel: 053 831 1889, Cell:065 816 9179
ray@me-solutions.co.za

3.4 Project Name

Geotechnical investigation for the 10731 Platfontein Filling Station Development, Kimberley - Northern Cape Province.

3.5 Testing Laboratory

Simlab (Pty) Limited – Geotechnical Services (Kimberley)

3.6 Laboratory Contact Details

Table 2: Laboratory Contact Details

Postal Address	Street Address
PO Box 1231 KIMBERLEY 8300	3 Roper Street Kimberley North KIMBERLEY 8301
Tel : 053 – 832 2472 / 5	
www.simlab.co.za ; simkby@simlab.co.za	

3.7 Sample Details

Sampled by:	Mr. D Motswana (Materials Tester)
Date Sampled:	19 th of April 2021
Date Tested:	20 th of April 2021 – 29 th of April 2021
Report Date:	29 th of June 2021

3.8 Sampling and Testing

Sampling was conducted according to TMH5: 1981, Method MA2 and the specifications of the client. Test pits was excavated by means of a TLB (CASE). Samples was tested according to the SANS 3001 as well as TMH1: 1986, specifications.

- SANS 3001 – GR1: 2013 – Wet preparation and particle size analysis.
- SANS 3001 – GR10: 2013 – Determination of the one-point liquid limit, plastic limit, plasticity index and linear shrinkage.
- SANS 3001 – GR20: 2010 – Determination of the moisture content by oven-drying.
- SANS 3001 – GR30: 2015 – Determination of the maximum dry density and optimum moisture content.
- SANS 3001 – GR40: 2013 – Determination of the California Bearing Ratio.
- SANS 3001 – PR5: 2011 – Computation of soil-mortar percentages and grading modulus.
- SABS 0120: Part 3 – The extent to which a particular material will compact.
- TMH1: 1986, A6 – The determination of the grain size distribution in soils by means of a hydrometer. (Particle Size Distribution of Samples)
- TMH1: 1986, A20 – The electrometric determination of the pH-value of a soil suspension.
- TMH1: 1986, A21T – Tentative method for the determination of the conductivity of a saturated soil paste and water.
- TMH6: 1984, ST6 - Dynamic Cone Penetrometer (DCP) Test
- COLTO Classification of Materials properties.
- Potential Expansiveness of the Materials – Van Der Merwe's Method (1964).
- Estimated Bearing Ratio of the Materials – Dr. B van Wyk's method.
- Classification of Site – NHBRC Home Building Manual, Part1, Section2, Table: Residential Site Class Designations.

3.9 Positions Sampled

Simlab (Pty) Limited – Geotechnical Services (Kimberley) excavated the test pits, sampled and tested at positions indicated by the Client and presented on the Layout Plan / Site Zoning Plan (Appendix F).

4. TOPOGRAPHY

The proposed site is situated on a flat plane with no observable slope. The investigated area has medium to large trees scattered on the site and area is largely covered with grass.

5. GEOLOGY

The geology in the investigated area is underlain by the Allanridge Formation (Ra - Andesite and Quartzite) and the Prince Albert Formation (Ppr - Shale), Overlain by Calcrete, calcified pandune and surface limestone and sand (Qc). Refer to Table 3 and Figure 2 for the Geology of the investigated area. A detailed Geology map of the area can be seen in Appendix G.

Table 3: Geology Formation

Symbol	Typical Materials / Rock Type	Sequence	Group	Formation	Member
Qc	Calcrete, calcified pandune and surface limestone	-	-	-	-
Ppr	Shale	Karoo	Ecce	Prince Albert	
Ra	Andesite and Quartzite		Platberg	Allanridge	-

Figure 2 is an extract of the 2824, Kimberley Geology map.

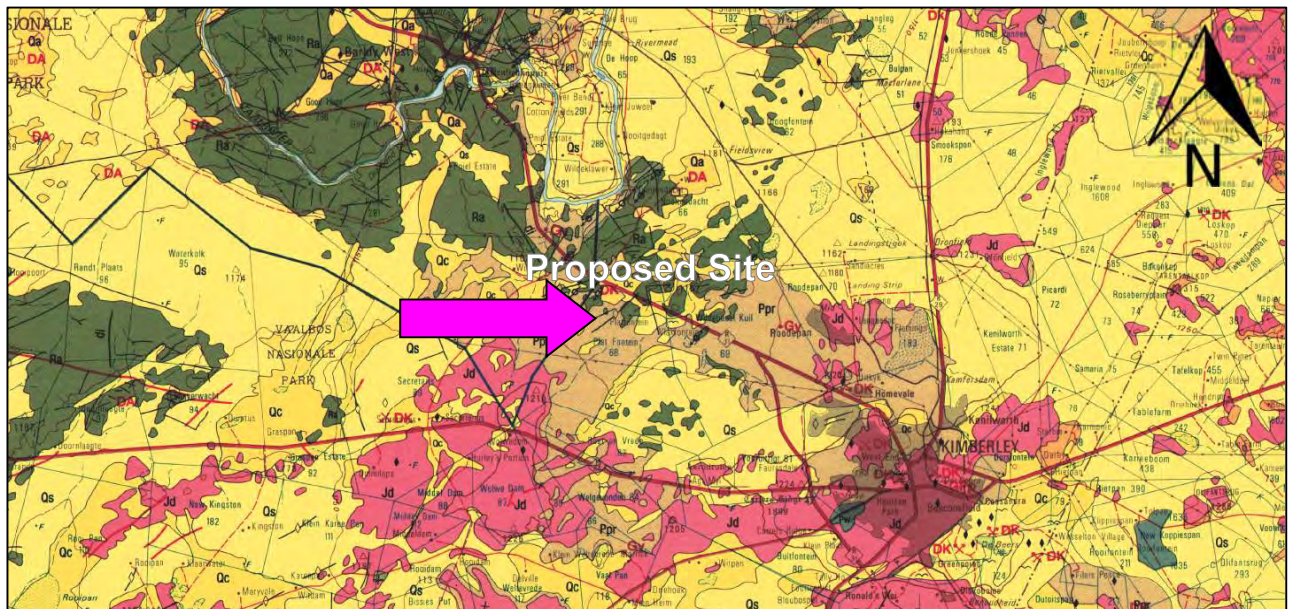


Figure 2 – Detail Geological Map (Department of Mines) Geological Detail Scale 1 : 250 000

6. CLIMATE

The Kimberley area is a moderate region with primarily summer rainfall. The rainfall is between 250mm and 500mm per year according to Vegetation of Southern Africa - By R M Cowling, D M Richardson and S M Pierce.

Kimberley normally receives about 283mm rain per year and because it receives most of its rainfall during summer it has a semi-arid climate. It receives the lowest rainfall (0mm) in July and the highest (59mm) in March.

The monthly distribution of average daily maximum temperatures shows that the average midday temperatures for Kimberley ranges from 18.0°C in June to 32.0°C in January. The region is the coldest during July when the mercury drops to 0.3°C on average during the night. (SA Explorer ©, 2013)

Table 4 is a summary of the average rainfall along with the average minimum and maximum temperatures for Kimberley.

Table 4: Average Rainfall, Average Minimum and Maximum Temperature

Month	Average Rainfall (mm)	Average Minimum Temperature (°C)	Average Maximum Temperature (°C)
January	42	16	32
February	52	16	30
March	59	14	28
April	28	9	24
May	9	5	21
June	1	1	18
July	0	0	18
August	2	3	21
September	4	7	24
October	20	11	27
November	31	13	29
December	35	15	31



Figure 3 – Precipitation Map of South Africa (BestCountryReports.com)

Table 5: South African Rainfall and Comparison of Two Climatic Indices

Colour on Figure 3	Description	Weinert N-Value	Thornthwaite Moisture Index (I _m)	Typical Mean Annual Rainfall (mm)
Lightest yellow	Arid	> 5	< - 40	< 250
Light yellow	Semi-arid	4 to 5	- 20 to - 40	250 to 500
Light blue	Semi-arid to sub-tropical	2 to 4	- 20 to + 20	500 to 1000
Dark blue	Humid tropical	< 2	+ 20 to + 100	> 1000

Kimberley is in the semi-arid climatic region with Weinert’s N – value of between 4 to 5. (Adapted from Weinert, 1980) Refer to Figure 3 and Table 5.

A climatic N-value of > 5 is associated with arid regions, where mechanical disintegration is the predominant rock weathering mode. A climatic N-value of < 5 is associated with the humid warm areas and a surplus of water, where chemical decomposition is the predominant rock weathering mode.

Environmental factors determine the mode of weathering and climate is the most important. Weathering products of rock depend mainly on the rock forming minerals (parent materials), the climatic conditions under which they had formed and the time of exposure to weathering processes. Climate does not only determine the mode of weathering which is likely to take place, but also the rate of weathering. The effect of climate on the weathering process (i.e. soils formation) is determined by the climatic N-value defined by Weinert.

7. SITE INVESTIGATION

Mr. D Motswana (Materials Tester) conducted the investigation on the 19th of April 2021. The test pits were excavated with a TLB (CASE) and profiled according to the methods stipulated by Williams, Jennings & Brink, 1973. The test pit profiles, laboratory test results and field test results are provided in Appendices B, C, & D.

Eight (8) test pits were excavated at positions indicated on the Location Plan and Layout Plan. (Appendices A & F). Sixteen (16) Foundation Indicator samples, six (6) Maximum Dry Density (MDD) samples and six (6) California Bearing Ratio (CBR) samples were obtained from site to determine the Engineering Properties of the materials. The properties of the materials were tested at Simlab (Pty) Limited – Geotechnical Services (Kimberley). Please visit the Simlab website for more information. www.simlab.co.za

The purpose of testing the Foundation Indicators was to determine the basic physical characteristics of these disturbed samples, comprising of the determination of Atterberg Limits and the Particle Size Distribution, including the determination of the percentage clay fraction. This information will be used to determine the potential expansiveness of the different materials.

The Foundation Indicators were tested according to the SANS 3001 Method GR1, GR10 and GR20 and TMH1; 1986 Method A6. The potential expansiveness of the materials was determined according to Van der Merwe's Method (1964).

Maximum Dry Density (MDD) and California Bearing Ratio (CBR) were tested according to the SANS 3001, Method GR30 and GR40. These tests were conducted to determine the quality of the materials and to determine if the materials can be used for backfilling and / or layer works. The classification of the materials tested, was done according to COLTO.

Test Pits Co-ordinates are given in Table 6.

Table 6: Test Pits Co-ordinates

Test Pit No.	Co-ordinates
TP1	25 Y0031664 X3176912
TP2	25 Y0031575 X3176936
TP3	25 Y0031545 X3176915
TP4	25 Y0031542 X3176983
TP5	25 Y0031512 X3176970
TP6	25 Y0031501 X3176961

Test Pit No.	Co-ordinates
TP7	25 Y0031515 X3176939
TP8	25 Y0031474 X3176961

Co-ordinate system – WGS 84

The depth of the test pits and type of bedrock encountered in the investigation are summarised in Table 7.

Table 7: Depth of Test Pits

Test Pit No.	Depth of Test Pit (mm)	Depth to Refusal Layer (mm)	Materials Description at Bottom of Test Pit
TP1	2400	2400	Refusal – Hard Calcrete
TP2	2120	2120	Refusal – Hard Calcrete
TP3	3000	3000	No Bedrock Encountered
TP4	2000	2000	Refusal – Hard Calcrete
TP5	1400	1400	Refusal – Hard Calcrete
TP6	2200	2200	Refusal – Hard Calcrete
TP7	2200	2200	Refusal – Hard Calcrete
TP8	1900	1900	Refusal – Hard Calcrete

Refusal layers / Bedrock of hard calcrete was encountered during the investigation in seven of the eight test pits. The average depth of all the test pits is 2.152m ranging from 1.400m to 3.000m.

Figure 4 illustrates the contours of the refusal depths encountered during the investigation. Table 8 illustrates the expected contours and their respective colours.



Figure 4 – Graphical illustration of Expected Refusal Depth

Table 8: Expected Bedrock Depth Contour Lines

Colour on Figure 4	Lower Limit of Refusal Depth (mm)	Upper Limit of Refusal Depth (mm)
	2600	3000
	2200	2600
	1800	2200
	1400	1800

8. TEST RESULTS

The profiles, laboratory test results and field test results are supplied in Appendices B, C & D. The potential expansiveness of the materials was determined according to Van der Merwe's Method (1964). The evaluation of the Swelling Potential of Materials is summarised in Table 9.

Table 9: Potential Expansiveness

Test Pit No.	Layer Thickness (mm)	Unified Soil Classification (USC)	Potential Expansiveness (mm) *Van Der Merwe
Test Pit 1	0 – 1530	SM	Low
	1530 – 2400	SM	Low
			TOTAL: LOW
Test Pit 2	0 – 1300	SM	Low
	1300 – 2120	GW-GC	Low
			TOTAL: LOW
Test Pit 3	0 – 1500	SM	Low
	1500 – 3000	SM	Low
			TOTAL: LOW

Test Pit No.	Layer Thickness (mm)	Unified Soil Classification (USC)	Potential Expansiveness (mm) *Van Der Merwe
Test Pit 4	0 – 1070 1070 – 2000	SM SP-SM	Low Low TOTAL: LOW
Test Pit 5	0 – 600 600 – 1400	SM SM	Low Low TOTAL: LOW
Test Pit 6	0 – 1900 1900 – 2200	SM SP-SC	Low Low TOTAL: LOW
Test Pit 7	0 – 1800 1800 – 2200	SM SM	Low Low TOTAL: LOW
Test Pit 8	0 – 1300 1300 – 1900	SM SM	Low Low TOTAL: LOW

Materials with a Low (<7.5mm) potential expansiveness was encountered during the investigation. The classification of the expansiveness of the materials found on site was done using the test results and determined according to Van der Merwe's Method (1964).

The materials profile of the investigation is summarised in Table 10.

Table 10: Materials Profile Summary

Materials Layer	Average Starting Depth (mm)	Average Layer Bottom (mm)	Average Layer Thickness (mm)
First Layer	Surface	1300	1300
Second Layer	1300	2153	778

The various materials that are encountered in the test pit profiles are summarised in Table 11.

Table 11: Summary of Materials encountered in Test Pit Profiles

Materials Description	First Layer Depth range (mm)	Second Layer Depth range (mm)
SM	0 – 1530 0 – 1300 0 – 1500 0 – 1070 0 – 600 0 – 1900 0 – 1800 0 – 1300	1530 – 2400 1500 – 3000 600 – 1400 1800 – 2200 1300 – 1900
GW-GC	-	1300 – 2120
SP-SM	-	1070 – 2000
SP-SC	-	1900 – 2200

The materials description is done according to the Unified Soil Classification Criteria (USC). See the descriptions of the classification abbreviations below:

- SM: - Silty SAND with gravel
- GW-GC: - Well-graded GRAVEL with clay and sand
- SP-SM: - Poorly graded SAND with silt and gravel
- SP-SC: Poorly graded SAND with clay and gravel

Dynamic Cone Penetrometer (DCP's) Tests were conducted adjacent to the excavated test pits at natural ground level (NGL) in order to determine the Estimated Bearing Ratio of the unconsolidated materials according to *Dr. B van Wyk's method. The field test results are included in Appendix D. The Estimated Bearing Ratio is summarised in Table 12.

Table 12: Estimated Bearing Ratio

Test Pit No.	Layer Thickness (mm)	Estimated Bearing Ratio (kPa)
Test Pit 1 (From Surface)	0 – 97 97 – 990	107 61
Test Pit 2 (From Surface)	0 – 980	64
Test Pit 3 (From Surface)	0 – 382 382 – 955	53 49
Test Pit 4 (From Surface)	0 – 981	56
Test Pit 5 (From Surface)	0 – 622 622 – 980	64 189
Test Pit 6 (From Surface)	0 – 995	49
Test Pit 7 (From Surface)	0 – 396 396 – 986	51 41
Test Pit 8 (From Surface)	0 – 263 263 – 978	52 48

The Estimated Bearing Ratio in Table 12 is an indication of the properties of the materials at the time of the investigation. The Dynamic Cone Penetrometer (DCP's) Tests values should only be used for comparative purposes and not as a standard since Dynamic Cone Penetrometer (DCP's) Tests values will vary with variations in moisture content. Therefore, a wet profile will have a lower Estimated Bearing Ratio value than a dry profile.

The Estimated Bearing Capacity of the materials, as determined according to *NAVFAC using the Unified Soil Classification Criteria (USC), is summarised in Table 13.

Table 13: Estimated Bearing Ratio according to NAVFAC

Test Pit No.	Layer Thickness (mm)	Unified Soil Classification (USC)	Consistency	Estimated Bearing Capacity (kPa)
Test Pit 1	0 – 1530	SM	Medium Dense	200 – 400
	1530 – 2400	SM	Medium Dense	200 – 400
Test Pit 2	0 – 1300	SM	Medium Dense	200 – 400
	1300 – 2120	GW-GC	Very Dense	800 – 1200
Test Pit 3	0 – 1500	SM	Medium Dense	200 – 400
	1500 – 3000	SM	Medium Dense	200 – 400
Test Pit 4	0 – 1070	SM	Medium Dense	200 – 400
	1070 – 2000	SP-SM	Medium Dense	400 – 700
Test Pit 5	0 – 600	SM	Medium Dense	200 – 400
	600 – 1400	SM	Medium Dense	200 – 400
Test Pit 6	0 – 1900	SM	Medium Dense	200 – 400
	1900 – 2200	SP-SC	Medium Dense	400 – 700
Test Pit 7	0 – 1800	SM	Medium Dense	200 – 400
	1800 – 2200	SM	Medium Dense	200 – 400
Test Pit 8	0 – 1300	SM	Medium Dense	200 – 400
	1300 – 1900	SM	Medium Dense	200 – 400

The Estimated Bearing Capacity of the materials, as determined according to *Dr. B van Wyk's method and according to *NAVFAC using the Unified Soil Classification (USC) Criteria, are estimates only. The consistency description is done visually during the excavation of these test pits. Plate Bearing Tests can be conducted for the actual Bearing Capacity.

The criteria used to classify the Residential Site Class Designations is summarised in Table 14 (NHBRC Home Building Manual, Part1, Section2, Table: Residential Site Class Designations).

Table 14: NHBRC Home Building Manual, Part1, Section2, Table: Residential Site Class Designations

Typical Founding Material	Character of Founding Material	Expected Range of Total Soil Movements (mm)	Assumed Differential Movement (% of Total)	Site Class
Rock (excluding mud rocks which may exhibit swelling to some depth)	Stable	Negligible	-	R
Fine grained soils with moderate to very high plasticity (clays, silty clays, clayey silts and sandy clays)	Expansive Soils	<7.5	50%	H
		7.5 – 15	50%	H1
		15 – 30	50%	H2
		>30	50%	H3
Silty sands, sands, sandy and gravelly soils	Compressible and Potentially Collapsible Soils	<5	75%	C
		5 – 10	75%	C1
		>10	75%	C2
Fine grained soils (clayey silts and clayey sands of low plasticity), sands, sandy and gravelly soils	Compressible	<10	50%	S
		10 – 20	50%	S1
		>20	50%	S2
Contaminated soils, Controlled fill, Dolomitic areas, Landslip, Landfill, Marshy areas Mine waste fill, mining subsidence Reclaimed areas, Uncontrolled fill, Very soft silts / silty clays	Variable	Variable	-	P

With reference to the results of the investigation and the assessment for potential collapsible materials with the available information and test results, the site class is given as C in the area investigated. An estimated total heave of Low (<5mm) potential expansiveness according to Van der Merwe's Method (1964), with a high probability of collapsing nature according to Handy (1973), a high collapse probability according to Prikloński (1952) and the settlement will be small according to Clevenger (1958).

The Classifications is summarised in Table 15.

Table 15: Classification of Test Pits

Test Pit No.	Depth of Test Pit (mm)	Unified Soil Classification (USC)	Potential Heave (mm)	Classification (NHBRC)
Test Pit 1	0 – 1530	SM	Low	C
	1530 – 2400	SM	Low	C
	Total:		Low	C
Test Pit 2	0 – 1300	SM	Low	C
	1300 – 2120	GW-GC	Low	C
	Total:		Low	C
Test Pit 3	0 – 1500	SM	Low	C
	1500 – 3000	SM	Low	C
	Total:		Low	C
Test Pit 4	0 – 1070	SM	Low	C
	1070 – 2000	SP-SM	Low	C
	Total:		Low	C
Test Pit 5	0 – 600	SM	Low	C
	600 - 1400	SM	Low	C
	Total:		Low	C
Test Pit 6	0 – 1900	SM	Low	C
	1900 – 2200	SP-SC	Low	C
	Total:		Low	C
Test Pit 7	0 – 1800	SM	Low	C
	1800 – 2200	SM	Low	C
	Total:		Low	C
Test Pit 8	0 – 1300	SM	Low	C
	1300 – 1900	SM	Low	C
	Total:		Low	C

The classifications are described as follows:

Classification C – Silty sands, sands, sandy and gravelly soils with potential collapsibility of less than 5.0mm. Differential settlement equals 75% of total heave.

Figure 6 and Table 16 is an illustration of the site zoning plan, for more detail see Appendix F.



Figure 6 – Site Classification (Site Zoning)

Table 16: Site Zoning (Classification) Colour Description

Colour on Figure 5	Classification (NHBRC)	Lower Limit of Total Heave / Settlement (mm)	Upper Limit of Total Heave / Settlement (mm)
1	C	0.0mm	5.0mm

Site Classification

Zone 1: C, With potential collapsibility of less than 5.0mm. Differential settlement equals 75% of total heave

(Reference: Home Building Manual, Part1, Section2, Table 5: Residential site class designations).

For a detailed description of the site class designations refer to Table 17.

Table 17: Residential Site Class Designations

Site Class	Estimated Total Heave (mm)	Construction Type	Foundation Design and Building Procedures
C	<5.0mm	Normal	<ul style="list-style-type: none"> Normal construction (Strip footing or slab-on-the-ground) foundations. Good site drainage.

9. GEOTECHNICAL EVALUATION

9.1 Potentially Collapsible Soils

Collapsible soils can be defined as soils with a high void ratio and with a low density. This can cause soils to experience sudden or rapid settlements when subjected to a combination of direct actions (loads) and an increase in moisture content. With reference to the soil profiles in Appendix B and the laboratory test results in Appendix C, the typical materials that could be found on site are: (SM) Silty SAND with gravel, (GW-GC) Well-graded GRAVEL with clay and sand, (SP-SM) Poorly graded SAND with silt and gravel and (SP-SC) Poorly graded SAND with clay and gravel.

The soil layers in the profiles can be assessed for collapsibility based, on the percentage <0.002mm fraction. The potential for the collapsibility of soils at this site is assessed by the criteria proposed by three investigators namely: Handy (1973), Clevenger (1958) and Priklonski (1952).

The following criteria by Handy (1973) (Table 18) can be followed to assess the collapsibility.

Table 18: Criteria by Handy (1973)

% Clay (<0.002mm)	Collapsibility (Probability)
≤16%	High probability of collapse
17-24%	Probability of collapse
25-32%	Less than 50% probability of collapse
>32%	Usually safe from collapse

The assessment of the profiles for all the test pits with regards to collapsibility is based on Handy's criteria and summarised in Table 19.

Table 19: Site Materials Collapsibility (Probability) (Criteria by Handy (1973))

Test Pit No.	Layer Thickness (mm)	USC	% Clay (<0.002mm)	Collapsibility (Probability)	Estimated Percentage of Clay in Total Test Pit Depth (%)
Test Pit 1	0 – 1530	SM	13	High probability of collapse	10
	1530 – 2400	SM	5	High probability of collapse	
Test Pit 2	0 – 1300	SM	15	High probability of collapse	11
	1300 – 2120	GW-GC	4	High probability of collapse	
Test Pit 3	0 – 1500	SM	19	Probability of collapse	11
	1500 – 3000	SM	3	High probability of collapse	
Test Pit 4	0 – 1070	SM	17	Probability of collapse	11
	1070 – 2000	SP-SM	4	High probability of collapse	
Test Pit 5	0 – 600	SM	11	High probability of collapse	7
	600 – 1400	SM	4	High probability of collapse	
Test Pit 6	0 – 1900	SM	19	Probability of collapse	17
	1900 – 2200	SP-SC	3	High probability of collapse	

Test Pit No.	Layer Thickness (mm)	USC	% Clay (<0.002mm)	Collapsibility (Probability)	Estimated Percentage of Clay in Total Test Pit Depth (%)
Test Pit 7	0 – 1800	SM	25	Less than 50% probability of collapse High probability of collapse	21
	1800 – 2200	SM	3		
Test Pit 8	0 – 1300	SM	17	Probability of collapse High probability of collapse	13
	1300 – 1900	SM	5		

Note: USC : Unified Soil Classification

The percentage Clay (<0.002mm) distribution over the investigated area, can be seen in Figure 7 and Table 20. The percentages and distribution are based on the test results of the materials tested from the test pits.



Figure 7 – Percentage of Clay Distribution Over Investigated Area

Table 20: Graphical Illustration of Clay Distribution Over Investigated Area Colours

Colour on Figure 6	Lower Limit of % Clay in Test Pit	Upper Limit of % Clay in Test Pit
Red	18	21
Orange	14	18
Yellow	11	14
Light Yellow	7	11

The assessment of the profiles for the test pits with regards to settlement probability is based on Clevenger (1958) criteria and summarised in Table 21. The criteria of Clevenger consist of the following:

- If the dry unit weight is less than 12.6kN/m^3 - the settlement will be large and
- If the dry unit weight is greater than 14.1kN/m^3 - the settlement will be small.

Table 21: Site Materials Settlement (Probability) (Criteria by Clevenger (1958))

Test Pit No.	Layer Thickness (mm)	Unified Soil Classification (USC)	Weight (kN/m^3)	Settlement (Probability)
Test Pit 1	0 – 1530	SM	17.57	Settlement will be small
	1530 – 2400	SM	14.98	Settlement will be small
Test Pit 3	1500 – 3000	SM	16.79	Settlement will be small
Test Pit 5	600 – 1400	SM	15.13	Settlement will be small
Test Pit 7	0 – 1800	SM	18.43	Settlement will be small
Test Pit 8	1300 – 1900	SM	16.21	Settlement will be small

The assessment of the profiles for the test pits with collapsible probability is based on Priklonski (1952) criteria and summarised in Table 22. The criteria of Priklonski consist of the following:

- $KD = (\text{natural moisture content} - \text{plastic limit}) / (\text{plasticity index})$
- $KD < 0.0$: highly collapsible soils,
- $KD > 0.5$: non- collapsible soils,
- $KD > 1.0$: swelling soils.

Table 22: Site Materials Collapsibility (Probability) (Criteria by Priklonski (1952))

Test Pit No.	Layer Thickness (mm)	Unified Soil Classification (USC)	K_D	Collapsibility (Probability)
Test Pit 1	0 – 1530	SM	0.00	Highly collapsible soils
	1530 – 2400	SM	-2.70	Highly collapsible soils
Test Pit 2	0 – 1300	SM	0.00	Highly collapsible soils
	1300 – 2120	GW-GC	0.00	Highly collapsible soils
Test Pit 3	0 – 1500	SM	0.00	Highly collapsible soils
	1500 – 3000	SM	0.00	Highly collapsible soils
Test Pit 4	0 – 1070	SM	0.00	Highly collapsible soils
	1070 – 2000	SP-SM	-2.46	Highly collapsible soils
Test Pit 5	0 – 600	SM	0.00	Highly collapsible soils
	600 – 1400	SM	-4.78	Highly collapsible soils
Test Pit 6	0 – 1900	SM	0.00	Highly collapsible soils
	1900 – 2200	SP-SC	0.00	Highly collapsible soils
Test Pit 7	0 – 1800	SM	0.00	Highly collapsible soils
	1800 – 2200	SM	0.00	Highly collapsible soils
Test Pit 8	0 – 1300	SM	0.00	Highly collapsible soils
	1300 – 1900	SM	-7.90	Highly collapsible soils

Although Handy and Prikonski models indicate that the materials at this site are most probably highly collapsible, the actual settlement due to collapse may not be that large, according to Clevenger's model.

The Kimberley area is located where some potentially expansive soils have been encountered. Refer to Figure 8. (*National Home Builders Registration Council, 1999, Part1, Section2, Figure S1, Distribution of expansive and potentially collapsible soil horizons in South Africa*).

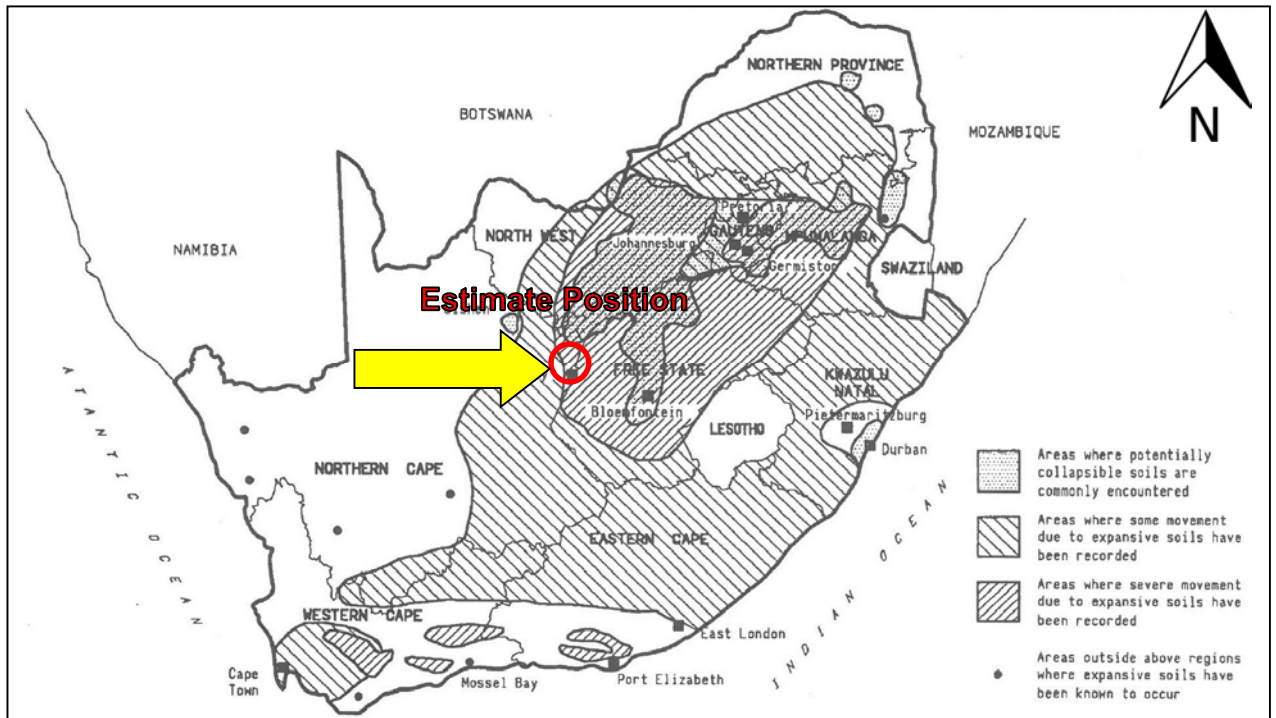


Figure 8 – Distribution of expansive and potentially collapsible soils horizons in South Africa – NHBC

9.2 Potentially Expansive Soils

Expansive soils are defined as fine-grained soils, which is prone to volume changes with the fluctuation of moisture content and the mineralogy of the clay. A summary of the potential expansiveness calculated according to Van der Merwe's Method (1964), is summarised in Table 9.

Low potentially expansive soils were encountered during the investigation, this is confirmed by the laboratory results in Appendix C. The Plasticity Index (PI) of the materials ranges from Non Plastic (N.P.) to 5.0%, the Linear Shrinkage (LS) ranges from 0.0% to 3.0% and the percentage of Clay Fraction in the soils sample (<0.002mm) ranges from 3% to 25% as summarised in Table 23.

Table 23: Summary of Plastic Index, Linear Shrinkage and % Clay Fraction

Test Pit No.	Layer Thickness (mm)	Unified Soil Classification (USC)	Plastic Index (PI) (%)	Linear Shrinkage (LS) (%)	% Clay Fraction (<0.002mm) (%)
Test Pit 1	0 – 1530	SM	N.P.	0.0	13
	1530 – 2400	SM	4	2.5	5
Test Pit 2	0 – 1300	SM	S.P.	0.5	15
	1300 – 2120	GW-GC	S.P.	0.5	4
Test Pit 3	0 – 1500	SM	S.P.	1.0	19
	1500 – 3000	SM	N.P.	0.0	3
Test Pit 4	0 – 1070	SM	S.P.	0.5	17
	1070 – 2000	SP-SM	5	2.0	4
Test Pit 5	0 – 600	SM	N.P.	0.0	11
	600 – 1400	SM	5	3.0	4
Test Pit 6	0 – 1900	SM	N.P.	0.0	19
	1900 – 2200	SP-SC	N.P.	0.0	3
Test Pit 7	0 – 1800	SM	N.P.	0.0	25
	1800 – 2200	SM	S.P.	0.5	3
Test Pit 8	0 – 1300	SM	N.P.	0.0	17
	1300 – 1900	SM	2	1.0	5

Note: * SP – Slightly Plastic, NP. – Non-Plastic

The particle size distribution of the materials found on site is summarised in Table 24.

Table 24: Particle Size Distribution of Samples

Test Pit No.	Layer Thickness (mm)	USC	Clay (< 0.002mm) (%)	Silt (> 0.002 - 0.075mm) (%)	Sand (> 0.075 - 2.000mm) (%)	Gravel (> 2.000mm) (%)	Grading Modulus (GM)
Test Pit 1	0 – 1530	SM	13	19	67	1	0.74
	1530 – 2400	SM	5	8	25	62	2.23
Test Pit 2	0 – 1300	SM	15	20	65	0	0.69
	1300 – 2120	GW-GC	4	6	23	67	2.32
Test Pit 3	0 – 1500	SM	19	12	69	0	0.73
	1500 – 3000	SM	3	23	45	29	1.39
Test Pit 4	0 – 1070	SM	17	13	70	0	0.75
	1070 – 2000	SP-SM	4	8	25	63	2.24
Test Pit 5	0 – 600	SM	11	24	62	3	0.76
	600 – 1400	SM	4	9	23	64	2.29
Test Pit 6	0 – 1900	SM	19	17	64	0	0.70
	1900 – 2200	SP-SC	3	8	29	60	2.16
Test Pit 7	0 – 1800	SM	25	12	63	0	0.68
	1800 – 2200	SM	3	12	36	36	1.92
Test Pit 8	0 – 1300	SM	17	18	65	8	0.72
	1300 – 1900	SM	5	9	30	56	2.07

Note: * USC : Unified Soil Classification

9.3 Potentially Compressible Soils

Compressible soils can be defined as materials that, when subjected to direct actions (loads), undergoes a gradual settlement as volume changes occur. Given ideal conditions such as saturated moisture content and applied loads, the materials will be compressible to a certain degree. Potentially compressible soils were encountered during the investigation. The compactability of materials found on site are summarised in Table 25.

Table 25: In Situ Materials Compactability

Test Pit No.	Layer Thickness (mm)	Unified Soil Classification (USC)	Compactability (Ratio)	Compactability (%)
Test Pit 1	0 – 1530	SM	0.69	69
	1530 – 2400	SM	0.69	69
Test Pit 3	1500 – 3000	SM	0.79	79
Test Pit 5	600 – 1400	SM	0.69	69
Test Pit 7	0 – 1800	SM	0.59	59
Test Pit 8	1300 – 1900	SM	0.75	75

The compacted strength of the *in situ* materials as measured by Maximum Dry Density (MDD) and California Bearing Ratio (CBR) values are summarised in Table 26.

Table 26: In Situ Materials Compacted Strength (CBR Values)

Test Pit No.	Layer Thickness (mm)	USC	MDD (kg/m ³) / OMC (%)	California Bearing Ratio (CBR Values)			Classification of the Materials (COLTO)
				100%	95%	93%	
Test Pit 1	0 – 1530	SM	1990 / 5.5	24	13	11	*N/C
	1530 – 2400	SM	1697 / 18.4	31	21	18	*G7
Test Pit 3	1500 – 3000	SM	1902 / 10.1	45	25	20	*G6
Test Pit 5	600 – 1400	SM	1714 / 17.4	37	23	19	*G7
Test Pit 7	0 – 1800	SM	2088 / 7.8	17	13	11	*N/C
Test Pit 8	1300 – 1900	SM	1836 / 14.0	39	29	26	*G6

Note: * MDD – Maximum Dry Density, OMC – Optimum Moisture Content, USC : Unified Soil Classification

9.4 Shallow Seepage / Ground-Water Level / Area Subject to Flooding

No ground-water seepage was encountered at the time of the investigation. A shallow water-table can be expected from time to time during the rainy season.

The natural slope of the investigated area may not be steep enough to provide adequate drainage of rainwater. Rainwater may collect and form ponds until it has seeped into the *in situ* materials. The area can be subjected to surface flooding during abnormal rainfall. It is recommended that the surface drainage of the site should be improved.

The determination of a flood line is not part of the scope of this report and therefore, no flood line of any kind was determined. Provision should be made for subsoil drainage structures or surface drainage where applicable.

9.5 Slope Stability (Steep Slopes & Unstable Natural Slopes)

The investigated site is located on a relatively flat plain with no immediate observable slope.

9.6 Erodibility of the Soils Profile

Erodibility of soils can be defined as is the intrinsic susceptibility of a soil to erode by the effects of water runoff and raindrop impact. An indicator of soil erodibility can be determined by the relationship between the Activity Index (Baumgartl, 2002) and the K factor of erodible soils (Nutullah Özdemir and Coşkun Gülser (2017)). The topsoil erodibility assessment of the investigated test pits is based on the criteria by The Revised Universal Soil Loss Equation (RUSLE) and summarised in Table 27.

- Activity Index - $AI = (LL - PL) / \%Clay$
- 0.02 – Lowest Erodibility / 0.69 – Highest Erodibility

Table 27: Soil Erodibility Indication ((Nutullah Özdemir and Coşkun Gülser (2017))

Test Pit No.	Layer Thickness (mm)	Unified Soil Classification (USC)	Activity Index (AI)	K Factor (Erodibility)
Test Pit 1	0 – 1530	SM	0.08	0.48
Test Pit 2	0 – 1300	SM	0.13	0.45
Test Pit 3	0 – 1500	SM	0.11	0.47
Test Pit 4	0 – 1070	SM	0.12	0.46
Test Pit 5	0 – 600	SM	0.09	0.48
Test Pit 6	0 – 1900	SM	0.05	0.50
Test Pit 7	0 – 1800	SM	0.04	0.51
Test Pit 8	0 – 1300	SM	0.06	0.49

The indication of soil erodibility determined by Nutullah Özdemir and Coşkun Gülser (2017) of the investigated test pits indicates that the potential for erodibility is of definite concern. The removal of topsoil cover (grass and trees) must be done with careful consideration to prevent soil erosion of the investigated area.

9.7 Excavatibility

The average depth of excavation is 2.152m ranging from 1.400m to 3.000m. Excavation in the area of the proposed site should generally be feasible with normal TLB (4x4, 8Ton) to large (Excavator) equipment, although shallow bedrock or boulders may occur. The restricted excavation class for the investigated area, to an average depth of 2.152m, is Soft Rock. Soft Rock are materials that can be removed by excavator with flywheel power >0.10kW for every tined bucket width or with the use of pneumatic tools according to SANS 634:2012 Edition 1 which is summarised in Table 28.

The materials found at the bottom of the test pits are: Hard Calcrete ROCK and is classified as Intermediate Rock. Intermediate Rock are materials that can be removed by excavator with flywheel power >0.10 kW for every tined bucket width or with the use of pneumatic tools according to SANS 634:2012 Edition 1 which is summarised in Table 28. This will have an effect on the excavation of deep trenches for the installation of services.

Table 28: Classification of Materials for Machine Excavation (SANS 634:2012 Edition 1)

Excavation	Classification	Description
Restricted	Soft Rock	Materials can be efficiently removed by back-acting excavator (TLB) with flywheel power >0.10 kW for every tined bucket width
	Intermediate Rock	Materials can be removed by excavator with flywheel power >0.10 kW for every tined bucket width or with the use of pneumatic tools
	Hard Rock	Materials that cannot be removed without blasting or wedging and splitting

9.8 Relationship between pH-Value, Conductivity and Corrosiveness of Soils

The following criteria in Table 29 and Table 30 can be used to assess the corrosiveness of the materials found on site.

Table 29: Range of Corrosiveness

Lower Limit (Sm ⁻¹)	Upper Limit (Sm ⁻¹)	Corrosiveness
> 0.2000	-	Very Corrosive
0.1000	0.2000	Corrosive
0.0500	0.1000	Moderately Corrosive
0.0100	0.0500	Mildly Corrosive
-	< 0.0100	Progressively Less (Decreasingly) Corrosive

The results of Conductivity tests (TMH1: 1986, method A21), pH-Value (TMH1: 1986, method A20) and Corrosiveness are summarised in Table 30.

Table 30: pH-Value, Conductivity of Materials on Site

Test Pit No.	Layer Thickness (mm)	USC	pH-Value	Conductivity (Sm ⁻¹)	Corrosiveness
Test Pit 1	0 – 1530	SM	7.51	0.0504	Moderately Corrosive
	1530 – 2400	SM	7.56	0.0706	
Test Pit 2	0 – 1300	SM	7.37	0.1009	Corrosive
	1300 – 2120	GW-GC	7.50	0.0807	
Test Pit 3	0 – 1500	SM	7.41	0.0958	Moderately Corrosive
	1500 – 3000	SM	7.63	0.0757	
Test Pit 4	0 – 1070	SM	7.66	0.0474	Mildly Corrosive
	1070 – 2000	SP-SM	7.67	0.0858	
Test Pit 5	0 – 600	SM	7.48	0.0656	Moderately Corrosive
	600 – 1400	SM	7.65	0.0555	
Test Pit 6	0 – 1900	SM	7.08	0.0858	Moderately Corrosive
	1900 – 2200	SP-SC	7.47	0.0757	
Test Pit 7	0 – 1800	SM	7.24	0.0605	Moderately Corrosive
	1800 – 2200	SM	7.58	0.0958	
Test Pit 8	0 – 1300	SM	7.44	0.0656	Moderately Corrosive
	1300 – 1900	SM	7.52	0.0605	

Note : USC : Unified Soil Classification

The soil profiles have a Mildly Corrosive to Corrosive nature therefore caution should be exercised when selecting materials used for the installation of services and other facilities.

9.9 Seismic Evaluation

Table 31 can be used to assess the Peak Ground Acceleration (PGA) in correlation to the Mercalli scale.

Table 31: Peak Ground Acceleration (PGA) in correlation to Mercalli scale

Peak Ground Acceleration (g)	Peak Ground Velocity (cm/s)	Perceived Shaking	Potential Damage
< 0.0017	< 0.1	Not felt	None
0.0017 – 0.014	0.1 – 1.1	Weak	None
0.014 – 0.039	1.1 – 3.4	Light	None
0.039 – 0.092	3.4 – 8.1	Moderate	Very light
0.092 – 0.180	8.1 – 16	Strong	Light
0.180 – 0.340	16 – 31	Very Strong	Moderate
0.340 – 0.650	31 – 60	Severe	Moderate to heavy
0.650 – 1.240	60 – 116	Violent	Heavy
> 1.240	> 116	Extreme	Very heavy

According to the data received from the Council of Geoscience (2003), the expected gravity acceleration with 10% probability of exceedance in 50 years, is between 0.075g and 0.125g for

the area investigated, Refer to Figure 9 (SANS 1016-4: 2010 Ed1, Figure C.1). According to the Mercalli scale, the perceived shaking will be “Moderate” and the potential damage being “Very Light”.

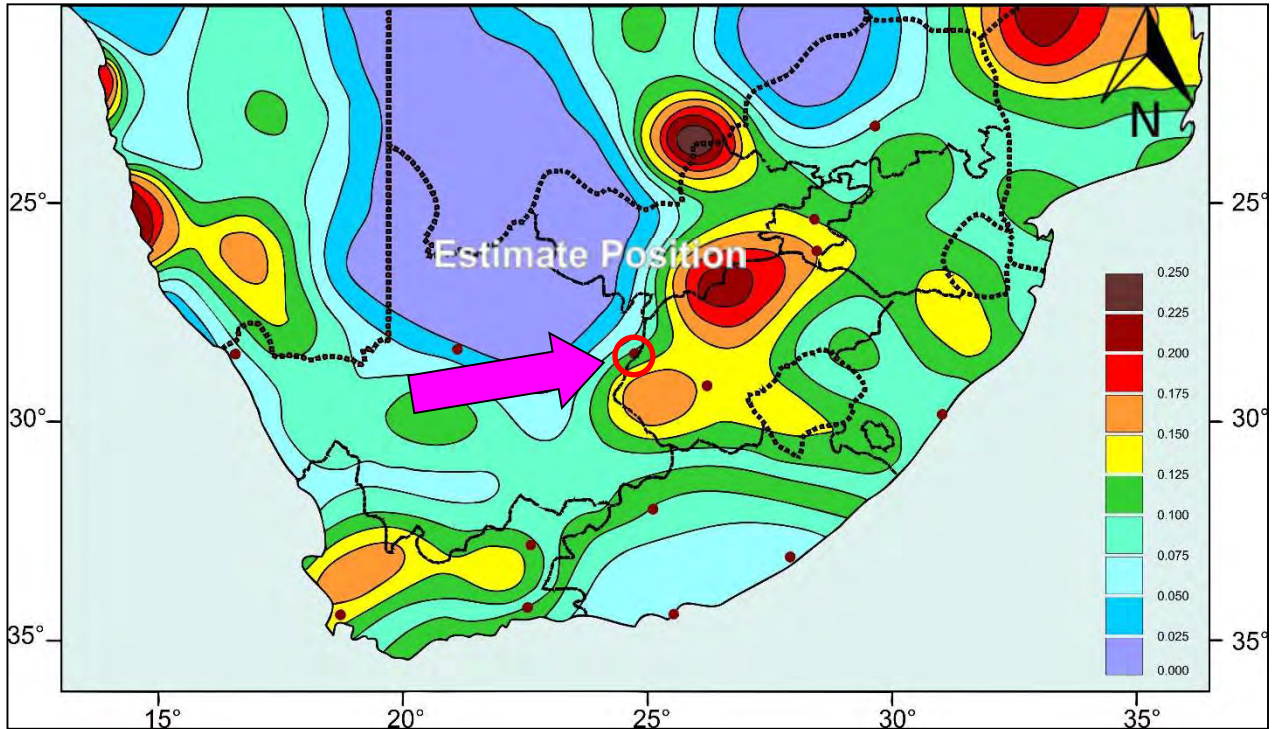


Figure 9 – Seismic hazard map from Council of Geoscience (2003)

9.10 Other Considerations

The following items are applicable to the area investigated:

- Undermined Ground – The area investigated has not been subjected to underground mining activity.
- Dolomite and Limestone Stability – According to NHBRC, Part 1, Section 2 (Figure S2), the investigated area is not part of the distribution of major dolomitic groups.
- Cemetery Sites – No indication of any graves was visible during the investigation.
- Historic Monuments – No indication of any historic monuments was visible during the investigation.

10. SITE CLASSIFICATION

For urban planning purposes the site is classified according to the classification system described in the * NHBRC's Home Building Manual, Part 1 & 2 using Van Der Merwe's Method (1964) and based on the SANS 634 : 2012 Edition 1, Table 1 – Geotechnical constraints in urban development.

10.1 Classification of Site and Soils Conditions

The site classification is based on the assumption that the site will mainly be utilised for single storey masonry structures. Based on the laboratory test results and observations the general soils conditions can be classified according to Table 32.

Table 32: Geotechnical constraints in urban development (SANS 634:2012 Edition 1, Table 1)

Constraint		Descriptor			Class
Letter	Description	1 (most favourable)	2 (intermediate)	3 (least favourable)	
A	Collapsible soil	Any collapsible horizon or consecutive horizons totalling a depth of less than 750mm in thickness	Any collapsible horizon or consecutive horizons with a depth of more than 750mm in thickness	A "least favourable" situation for this constraint does not occur	2
B	Seepage	Permanent or perched water table more than 1.5m below ground surface	Permanent or perched water table less than 1.5m below ground surface	Swamps and marshes	1
C	Active soil	Low soil-heave potential anticipated	Moderate soil-heave potential anticipated	High soil-heave potential anticipated	1
D	Highly compressible soil	Low soil compressibility anticipated	Moderate soil compressibility anticipated	High soil compressibility anticipated	1
E	Erodibility of soil	Low	Intermediate	High	3
F	Difficulty of excavation to 1.5m depth	Scattered or occasional boulders less than 10% of the total volume	Rock or hardpan pedocretes between 10% and 40% of the total volume	Rock or hardpan pedocretes more than 40% of the volume	1
G	Undermined ground	Undermining at a depth greater than 200m below surface (except where total extraction mining has not occurred)	Old undermined areas to a depth of 200m below surface where stope closure has ceased	Mining within less than 200m of surface or where total extraction mining has taken place	1
H	Stability (dolomite land)	Possibly stable. Areas of dolomite overlain by Karoo rocks or intruded by sills. Areas of Back Reef rocks. Anticipated inherent hazard class 1 (see SANS 1936-2)	Potentially characterized by instability. Anticipated inherent hazard classes 2 to 5 (see SANS 1936-2)	Known sinkholes and dolines. Anticipated inherent hazard classes 2 to 5 (see SANS 1936-2)	N/a
I	Steep slopes	Between 2° and 6°	Slope between 2° and 12° or less than 2°	More than 12°	1
J	Areas of unstable natural slopes	Low risk	Intermediate risk	High risk (especially in areas subject to seismic activity)	1
K	Areas subject to seismic activity	10% probability of an event less than 100 cm/s ² within 50 years	Mining-induced seismic activity more than 100 cm/s ²	Natural seismic activity more than 100 cm/s ²	1

Constraint		Descriptor			Class
Letter	Description	1 (most favourable)	2 (intermediate)	3 (least favourable)	
L	Areas subject to flooding	A "most favourable" situation for this constraint does not occur	Areas adjacent to a known drainage channel or floodplain with slope less than 1%	Areas within a known drainage channel or floodplain	1

The site Class Designation according to Table 33 is 2A2E. Classification 2A is for any collapsible horizon or consecutive horizons with a depth of more than 750mm in thickness. 3E is for High erodibility of soil.

Recommended Foundation Option for Site Class C:

The general foundation for construction purposes is considered to be:

- Normal
- (Strip footing or slab-on-the-ground) foundations.
- Good site drainage.

Note: Foundation bearing pressure may not to exceed 50kPa

11. RECOMMENDATIONS

11.1 In general, the materials which occur on site consists of a Low (<7.5mm) potential expansiveness according to Van der Merwe's Method (1964), with a high probability of collapsing nature according to Handy (1973), a high collapse probability according to Prikloński (1952) and the settlement will be small according to Clevenger (1958). The materials on site are in general classified as C (NHBRC, Part1, Section2, Table 1: Residential site class designations).

11.2 The general foundation for construction purposes is considered to be: Normal (Strip footing or slab-on-the-ground) foundations. Foundation bearing pressure may not to exceed 50kPa.

Note: The final decision on the type of foundation used for the applicable structure should be made and designed by a Structural Engineer.

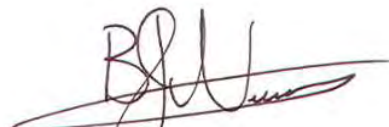
11.3 It is recommended that the site drainage should be improved to prevent surface flooding. Drainage canals can be constructed to channel the water from structures after construction.

11.4 The general materials on site consists of a COLTO classification of G6, G7 and No Classification. G6 materials are suitable for subbase, selected layers and fill. G7 materials are suitable for selected layers and fill. No Classification materials are not suitable for any layer works. The classifications of the materials must be confirmed by testing the stockpiled materials before use.

11.5 Conditions can vary on site. Recommendations should be re-evaluated if this becomes apparent during the excavation.



J.P. DU PLESSIS (Laboratory Manager)



BJ VAN VUUREN (Technologist / CEO)
(N Dip Eng.: Civil (General), B Tech Eng.: Geotechnical, BSc (Hons) Eng.: Transportation Planning)
(Technical Signatory)



PW VAN HEERDEN (Technologist)
(B Tech Eng.: Transportation)

For: **SIMLAB (PTY) LIMITED – GEOTECHNICAL SERVICES**
KIMBERLEY

APPENDIX A

LOCATION PLAN



Simlab

(EDMS) BEPERK GEOTEGNIESE DIENSTE
(PTY) LIMITED GEOTECHNICAL SERVICES

REG. No. 1987/004282/07

NLA No. 2012/187

1231, KIMBERLEY, 8300, SOUTH AFRICA, 3 Roper Street, KIMBERLEY, 8301
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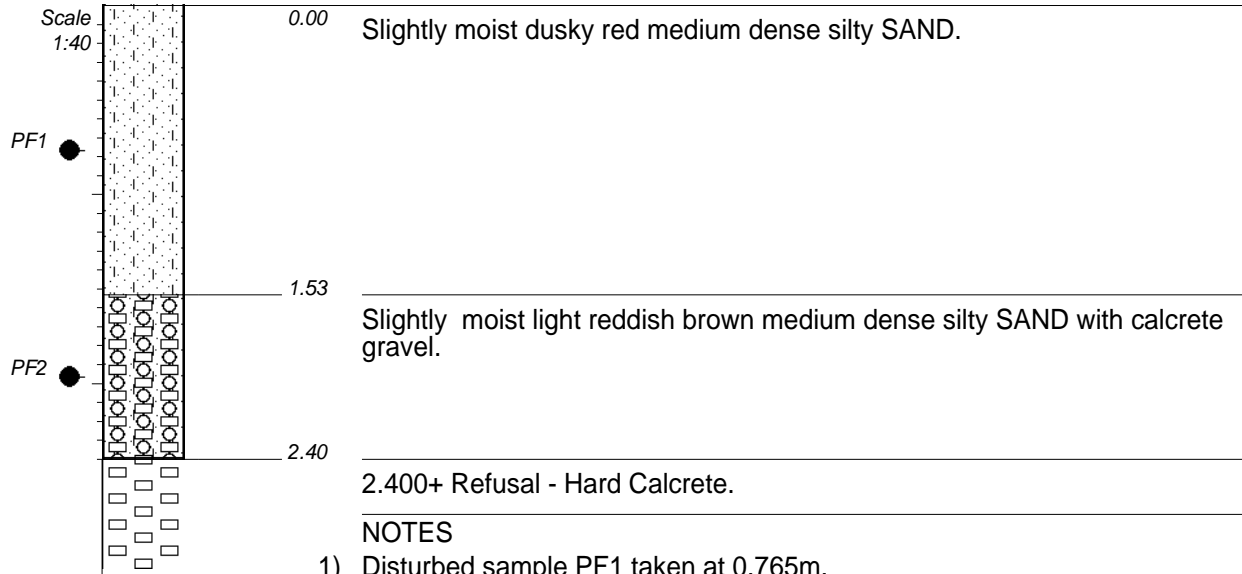
LOCATION PLAN



APPENDIX B

*IN SITU MATERIAL PROFILES

(Test Pits & Materials Photos)



NOTES

- 1) Disturbed sample PF1 taken at 0.765m.
- 2) Disturbed sample PF2 taken at 1.965m.
- 3) No groundwater encountered in test pit.
- 4) SOUTH AFRICAN - WGS84 CO-ORDINATE SYSTEM USED.



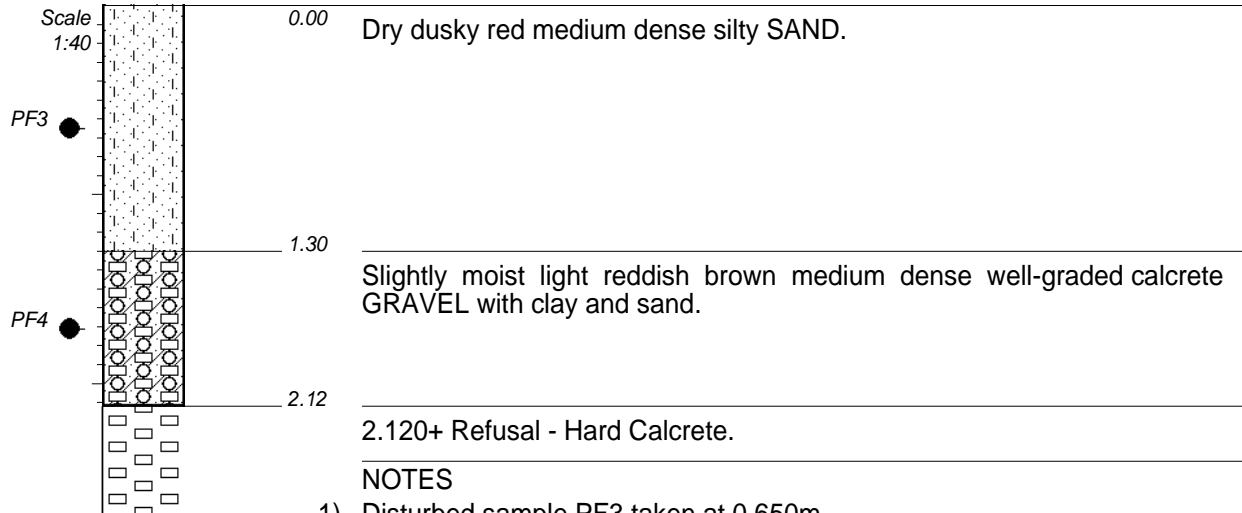
CONTRACTOR : SIMLAB (PTY) LIMITED
MACHINE : TLB (CASE)
DRILLED BY : Mr. PW van Heerden
PROFILED BY : SIMLAB (PTY) LIMITED

INCLINATION : VERTICAL
DIAM : 600mm
DATE : 19/05/2021
DATE : 30/06/2021

ELEVATION : -
X-COORD : X3176912
Y-COORD : 25 Y0031664

TYPE SET BY : Mr. PW van Heerden
SETUP FILE : STANDARD.SET

DATE : 30/06/2021 16:10
TEXT : ..SituProfile(DotPlot).txt



NOTES

- 1) Disturbed sample PF3 taken at 0.650m.
- 2) Disturbed sample PF4 taken at 1.710m.
- 3) No groundwater encountered in test pit.
- 4) SOUTH AFRICAN - WGS84 CO-ORDINATE SYSTEM USED.



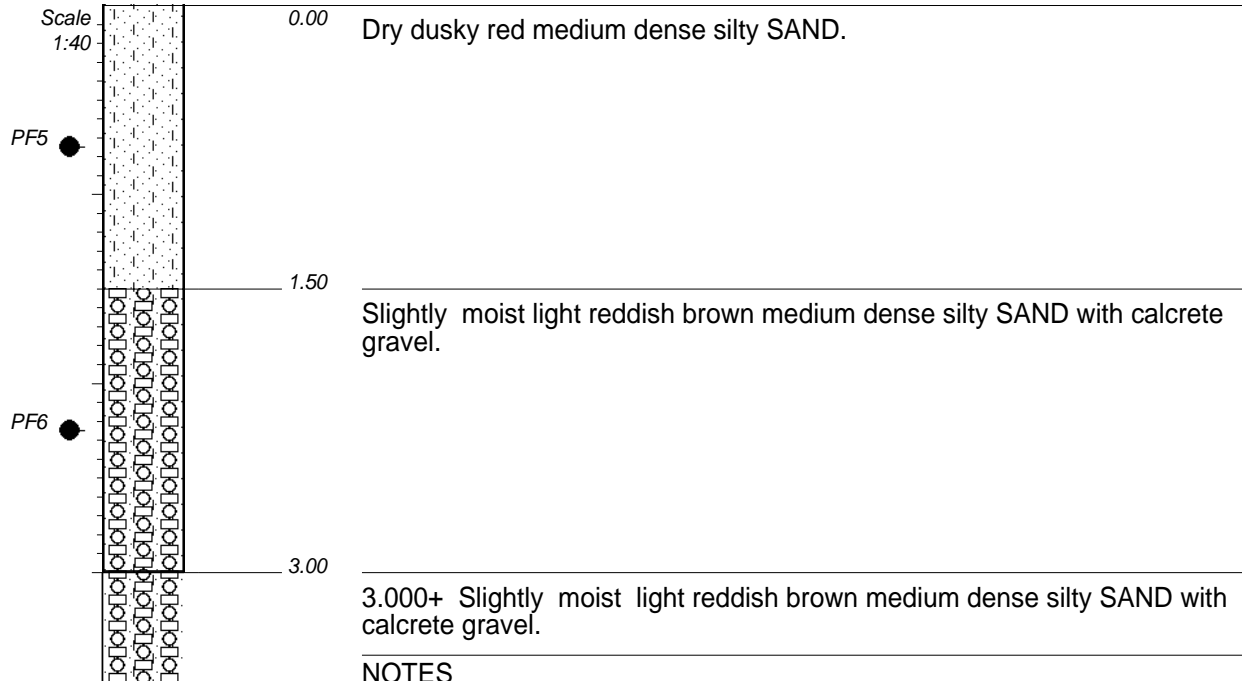
CONTRACTOR : SIMLAB (PTY) LIMITED
MACHINE : TLB (CASE)
DRILLED BY : Mr. PW van Heerden
PROFILED BY : SIMLAB (PTY) LIMITED

INCLINATION : VERTICAL
DIAM : 600mm
DATE : 19/05/2021
DATE : 30/06/2021

ELEVATION : -
X-COORD : X3176936
Y-COORD : 25 Y0031575

TYPE SET BY : Mr. PW van Heerden
SETUP FILE : STANDARD.SET

DATE : 30/06/2021 16:10
TEXT : ..SituProfile(DotPlot).txt



NOTES

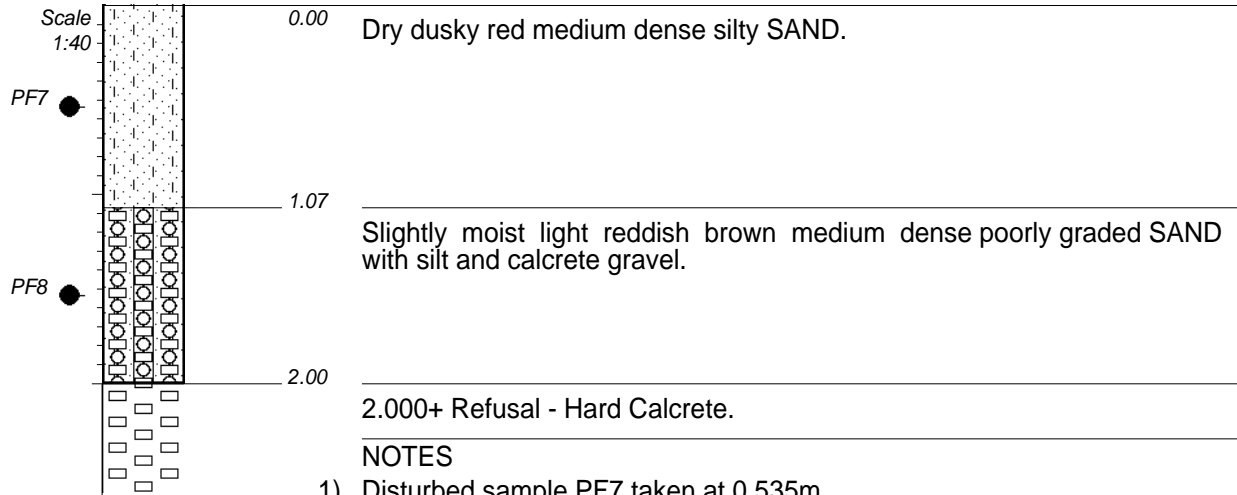
- 1) Disturbed sample PF5 taken at 0.750m.
- 2) Disturbed sample PF6 taken at 2.250m.
- 3) No groundwater encountered in test pit.
- 4) SOUTH AFRICAN - WGS84 CO-ORDINATE SYSTEM USED.



CONTRACTOR : SIMLAB (PTY) LIMITED
MACHINE : TLB (CASE)
DRILLED BY : Mr. PW van Heerden
PROFILED BY : SIMLAB (PTY) LIMITED
TYPE SET BY : Mr. PW van Heerden
SETUP FILE : STANDARD.SET

INCLINATION : VERTICAL
DIAM : 600mm
DATE : 19/05/2021
DATE : 30/06/2021

ELEVATION : -
X-COORD : X3176915
Y-COORD : 25 Y0031545



NOTES

- 1) Disturbed sample PF7 taken at 0.535m.
- 2) Disturbed sample PF8 taken at 1.535m.
- 3) No groundwater encountered in test pit.
- 4) SOUTH AFRICAN - WGS84 CO-ORDINATE SYSTEM USED.



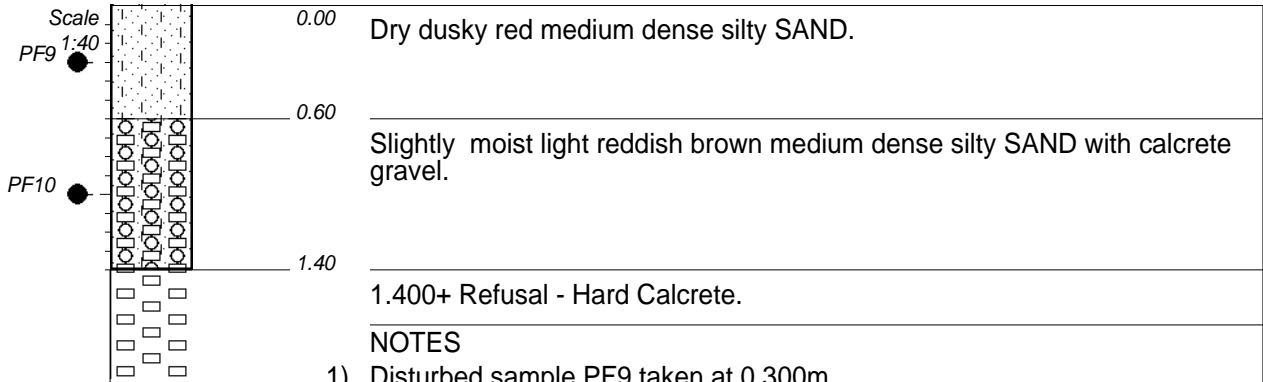
CONTRACTOR : SIMLAB (PTY) LIMITED
MACHINE : TLB (CASE)
DRILLED BY : Mr. PW van Heerden
PROFILED BY : SIMLAB (PTY) LIMITED

INCLINATION : VERTICAL
DIAM : 600mm
DATE : 19/05/2021
DATE : 30/06/2021

ELEVATION : -
X-COORD : X3176983
Y-COORD : 25 Y0031542

TYPE SET BY : Mr. PW van Heerden
SETUP FILE : STANDARD.SET

DATE : 30/06/2021 16:10
TEXT : ..SituProfile(DotPlot).txt



NOTES

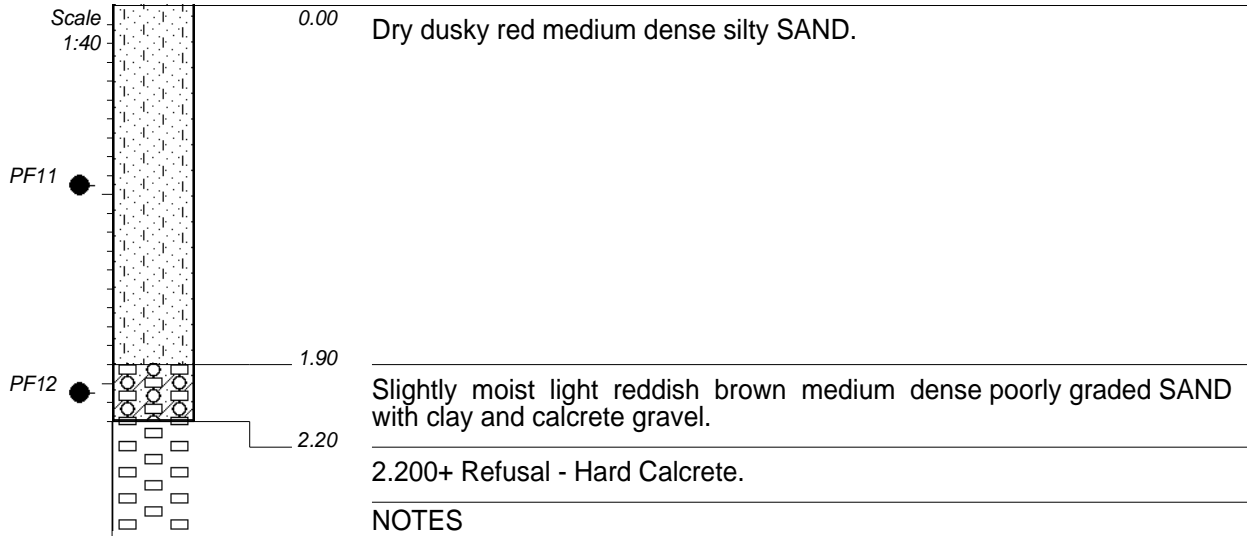
- 1) Disturbed sample PF9 taken at 0.300m.
- 2) Disturbed sample PF10 taken at 1.000m.
- 3) No groundwater encountered in test pit.
- 4) SOUTH AFRICAN - WGS84 CO-ORDINATE SYSTEM USED.



CONTRACTOR : SIMLAB (PTY) LIMITED
 MACHINE : TLB (CASE)
 DRILLED BY : Mr. PW van Heerden
 PROFILED BY : SIMLAB (PTY) LIMITED
 TYPE SET BY : Mr. PW van Heerden
 SETUP FILE : STANDARD.SET

INCLINATION : VERTICAL
 DIAM : 600mm
 DATE : 19/05/2021
 DATE : 30/06/2021

ELEVATION : -
 X-COORD : X3176970
 Y-COORD : 25 Y0031512



NOTES

- 1) Disturbed sample PF11 taken at 0.950m.
- 2) Disturbed sample PF12 taken at 2.050m.
- 3) No groundwater encountered in test pit.
- 4) SOUTH AFRICAN - WGS84 CO-ORDINATE SYSTEM USED.



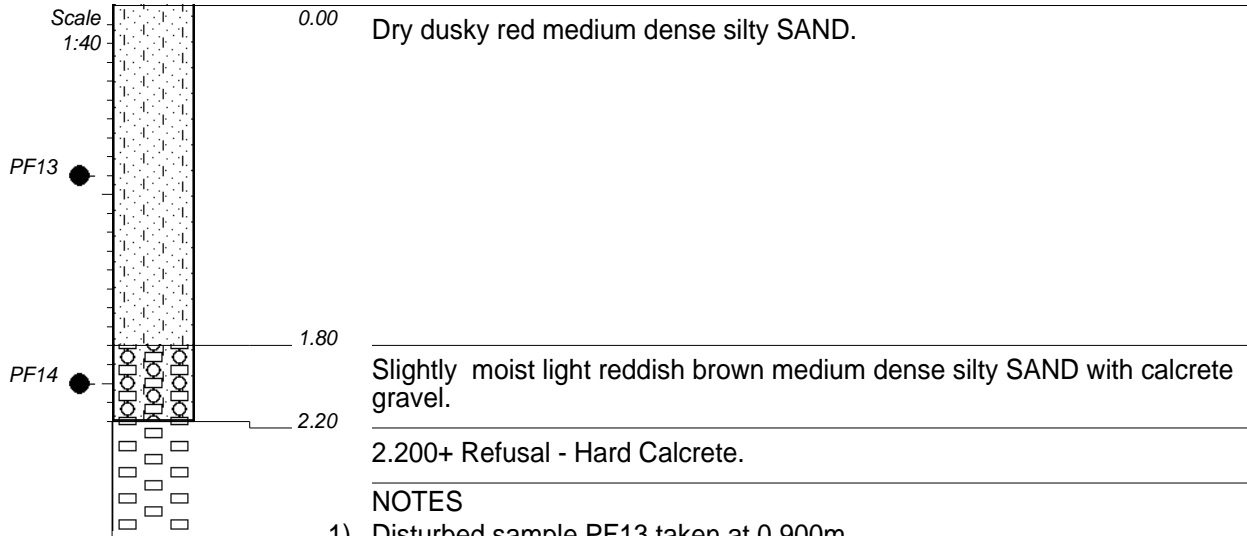
CONTRACTOR : SIMLAB (PTY) LIMITED
MACHINE : TLB (CASE)
DRILLED BY : Mr. PW van Heerden
PROFILED BY : SIMLAB (PTY) LIMITED

INCLINATION : VERTICAL
DIAM : 600mm
DATE : 19/05/2021
DATE : 30/06/2021

ELEVATION : -
X-COORD : X3176961
Y-COORD : 25 Y0031501

TYPE SET BY : Mr. PW van Heerden
SETUP FILE : STANDARD.SET

DATE : 30/06/2021 16:10
TEXT : ..SituProfile(DotPlot).txt



NOTES

- 1) Disturbed sample PF13 taken at 0.900m.
- 2) Disturbed sample PF14 taken at 2.000m.
- 3) No groundwater encountered in test pit.
- 4) SOUTH AFRICAN - WGS84 CO-ORDINATE SYSTEM USED.



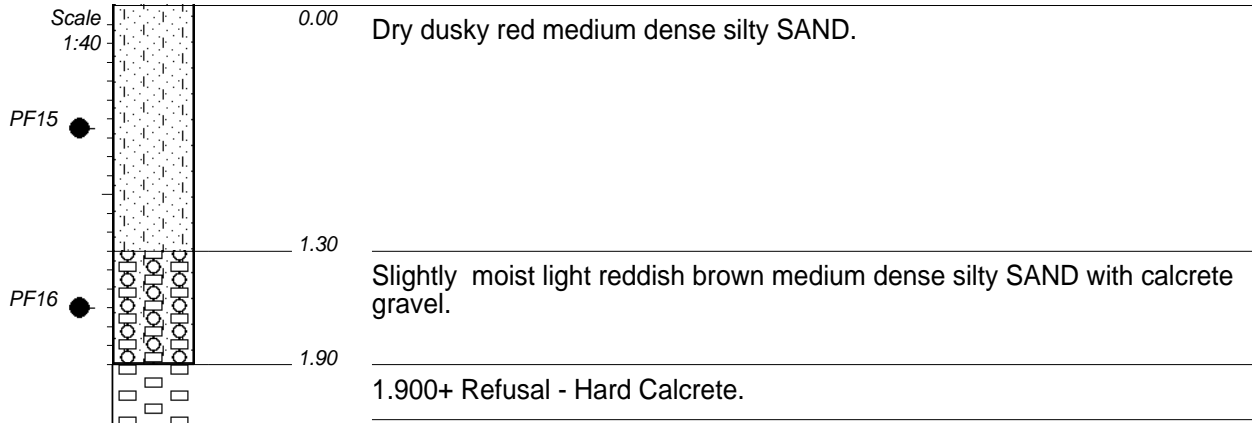
CONTRACTOR : SIMLAB (PTY) LIMITED
MACHINE : TLB (CASE)
DRILLED BY : Mr. PW van Heerden
PROFILED BY : SIMLAB (PTY) LIMITED

INCLINATION : VERTICAL
DIAM : 600mm
DATE : 19/05/2021
DATE : 30/06/2021

ELEVATION : -
X-COORD : X3176939
Y-COORD : 25 Y0031515

TYPE SET BY : Mr. PW van Heerden
SETUP FILE : STANDARD.SET

DATE : 30/06/2021 16:10
TEXT : ..SituProfile(DotPlot).txt



NOTES

- 1) Disturbed sample PF15 taken at 0.650m.
- 2) Disturbed sample PF16 taken at 1.600m.
- 3) No groundwater encountered in test pit.
- 4) SOUTH AFRICAN - WGS84 CO-ORDINATE SYSTEM USED.










CONTRACTOR : SIMLAB (PTY) LIMITED
MACHINE : TLB (CASE)
DRILLED BY : Mr. PW van Heerden
PROFILED BY : SIMLAB (PTY) LIMITED

INCLINATION : VERTICAL
DIAM : 600mm
DATE : 19/05/2021
DATE : 30/06/2021

ELEVATION : -
X-COORD : X3176961
Y-COORD : 25 Y0031474

TYPE SET BY : Mr. PW van Heerden
SETUP FILE : STANDARD.SET

DATE : 30/06/2021 16:10
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	SAND	{SA04}
	SILT	{SA06}
	SILTY	{SA07}
	CLAY	{SA08}
	CALCRETE	{SA26}
	DISTURBED SAMPLE	{SA38}

Name ●



CONTRACTOR :
MACHINE :
DRILLED BY :
PROFILED BY :

INCLINATION :
DIAM :
DATE :
DATE :

ELEVATION :
X-COORD :
Y-COORD :

TYPE SET BY : Mr. PW van Heerden
SETUP FILE : STANDARD.SET

DATE : 30/06/2021 16:10
TEXT : ..SituProfile(DotPlot).txt

APPENDIX C

LABORATORY TEST RESULTS

(Particle Size Distribution) (Material Classification)



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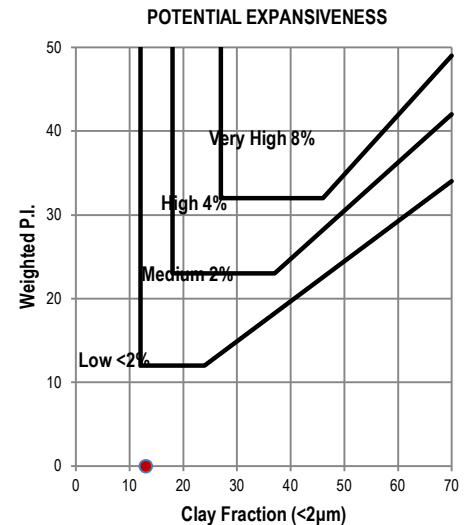
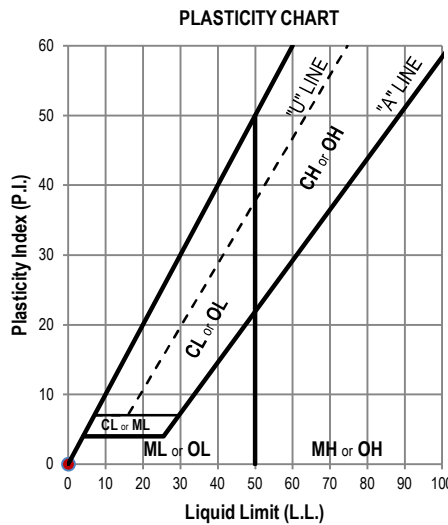
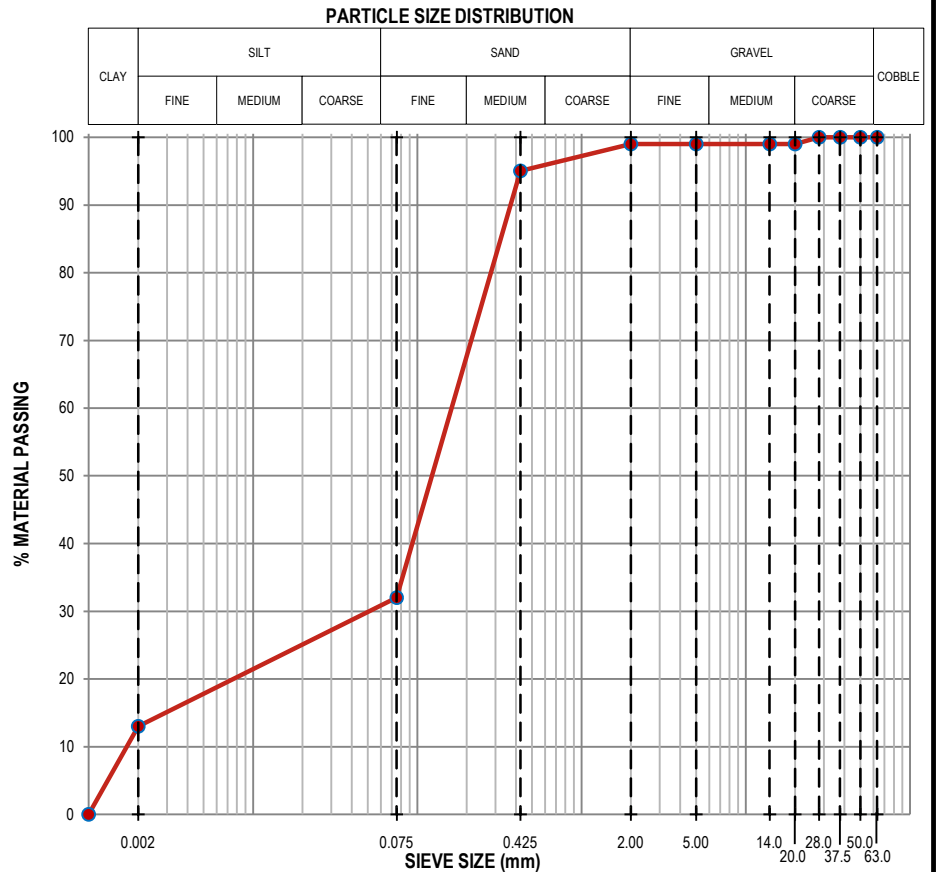
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MATERIAL CLASSIFICATION TEST RESULTS

TEST PIT / HOLE No.:	Test Pit 1	MATERIAL DEPTH (mm) :	0 - 1530	SAMPLE No / LABORATORY No.:	PF01 / 021/0518
MATERIAL DESCRIPTION :		Slightly moist dusky red medium dense silty SAND			

IN SITU MOISTURE CONTENT (GR20) (%)		6.5
SIEVE ANALYSIS SANS 3001 - GR1 : 2013	SIEVE SIZE	% PASSING
	63.0 mm	100
	50.0 mm	100
	37.5 mm	100
	28.0 mm	100
	20.0 mm	99
	14.0 mm	99
	5.00 mm	99
	2.00 mm	99
	0.425 mm	95
0.075 mm	32	
*TMH1: METHOD A6	0.002 mm	13
*SANS 3001 PR6: 2011 SOIL MORTAR	GRADING MODULUS (GM)	0.74
	COARSE SAND	4
	FINE SAND (Course)	14
	FINE SAND (Medium)	24
	FINE SAND (Fine)	25
SILT AND CLAY (<0.075mm)		33
ATTERBERG LIMITS MATERIAL PASSING 0.425mm SANS 3001 - GR10: 2011	L.L. (%)	-
	P.I. (%)	Non Plastic
	L.S. (%)	0.0
*MEASURES OF GRADATIONS	C _U (ASTM D2487)	161.5
	C _C (ASTM D2487)	4.0
	% Clay (>0.002mm)	13
	% Silt (0.075 - 0.002mm)	19
	% Sand (0.075 - 2.0mm)	67
	% Gravel (>2.0mm)	1
CBR DETERMINATION SANS 3001 - GR 40: 2013	MAX. DRY DENSITY (kg/m ³)	1990
	OPTIMUM MOISTURE (%)	5.5
	SWELL (%)	0.0
	CBR @ 100% (%)	24
	CBR @ 98% (%)	19
	CBR @ 95% (%)	13
	CBR @ 93% (%)	11
CBR @ 90% (%)	7	
PROCTOR MAX. DRY DENSITY (kg/m ³)	1792	
*COMPACTIBILITY (Ratio) (SABS 1200 LB)	0.69	
*CONDUCTIVITY (S/m ⁻¹) (TMH1: Method A20)	0.0504	
*pH VALUE (TMH1: Method A21)	7.51	
*POTENTIAL EXPANSIVENESS	Low - 0.0mm	
*AASHTO SOIL CLASSIFICATION	A-3a (0)	
*UNIFIED SOIL CLASSIFICATION	SM	
*COLTO CLASSIFICATION	*N/C	



REMARKS.:

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- * The AASHTO Classification, UNIFIED SOIL Classification and COLTO Classification is not included in the SANAS Accreditation for this laboratory.



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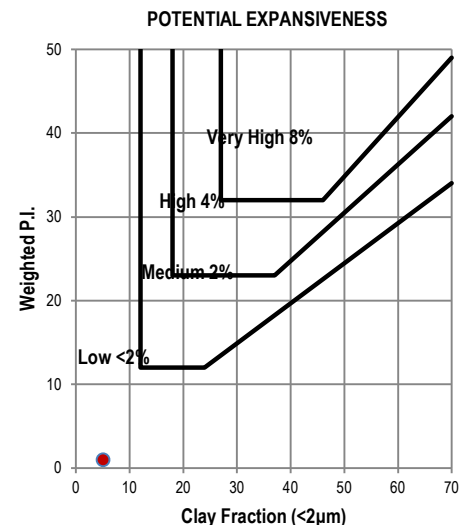
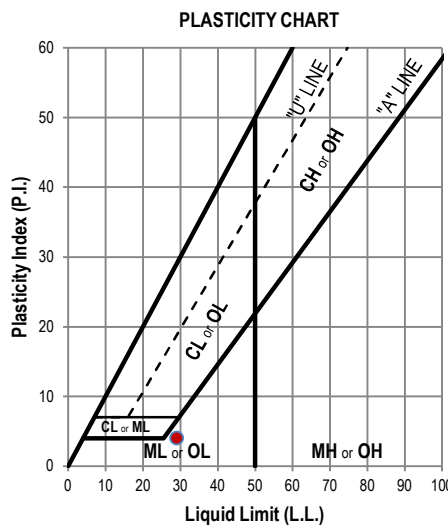
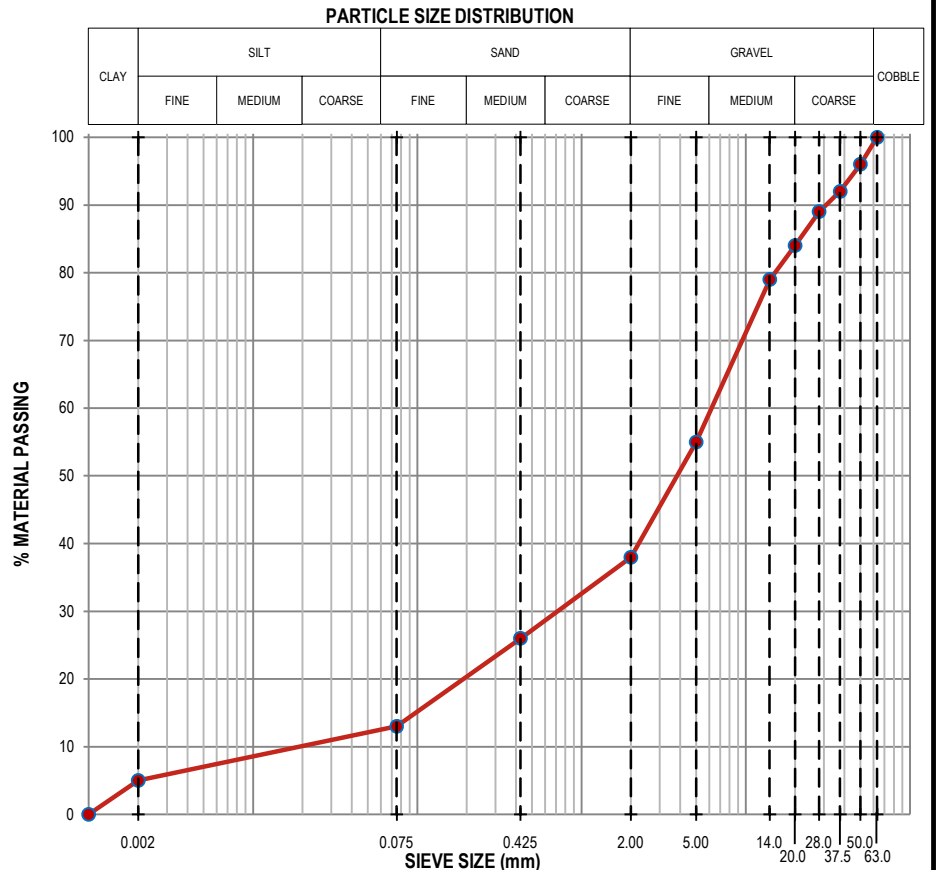
NLA No. 2012/187

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MATERIAL CLASSIFICATION TEST RESULTS

TEST PIT / HOLE No.:	Test Pit 1	MATERIAL DEPTH (mm) :	1530 - 2400	SAMPLE No / LABORATORY No.:	PF02 / 021/0519
MATERIAL DESCRIPTION :		Slightly moist light reddish brown medium dense silty SAND with calcrete gravel			

IN SITU MOISTURE CONTENT (GR20) (%)		14.2
SIEVE ANALYSIS SANS 3001 - GR1 : 2013	SIEVE SIZE	% PASSING
	63.0 mm	100
	50.0 mm	96
	37.5 mm	92
	28.0 mm	89
	20.0 mm	84
	14.0 mm	79
	5.00 mm	55
	2.00 mm	38
	0.425 mm	26
0.075 mm	13	
*TMH1: METHOD A6	0.002 mm	5
*SANS 3001 PR5: 2011 SOIL MORTAR	GRADING MODULUS (GM)	2.23
	COARSE SAND	32
	FINE SAND (Course)	12
	FINE SAND (Medium)	11
	FINE SAND (Fine)	10
SILT AND CLAY (<0.075mm)	36	
ATTERBERG LIMITS MATERIAL PASSING 0.425mm SANS 3001 - GR10: 2011	L.L. (%)	29
	P.I. (%)	4
	L.S. (%)	2.5
*MEASURES OF GRADATIONS	C _u (ASTM D2487)	51.6
	C _c (ASTM D2487)	27.2
	% Clay (>0.002mm)	5
	% Silt (0.075 - 0.002mm)	8
	% Sand (0.075 - 2.0mm)	25
	% Gravel (>2.0mm)	62
CBR DETERMINATION SANS 3001 - GR 40: 2013	MAX. DRY DENSITY (kg/m ³)	1697
	OPTIMUM MOISTURE (%)	18.4
	SWELL (%)	0.0
	CBR @ 100% (%)	31
	CBR @ 98% (%)	26
	CBR @ 95% (%)	21
	CBR @ 93% (%)	18
CBR @ 90% (%)	14	
PROCTOR MAX. DRY DENSITY (kg/m ³)	1527	
*COMPACTIBILITY (Ratio) (SABS 1200 LB)	0.69	
*CONDUCTIVITY (S/m ²) (TMH1: Method A20)	0.0706	
*pH VALUE (TMH1: Method A21)	7.56	
*POTENTIAL EXPANSIVENESS	Low - 0.0mm	
*AASHTO SOIL CLASSIFICATION	A-1-a (0)	
*UNIFIED SOIL CLASSIFICATION	SM	
*COLTO CLASSIFICATION	*G7	



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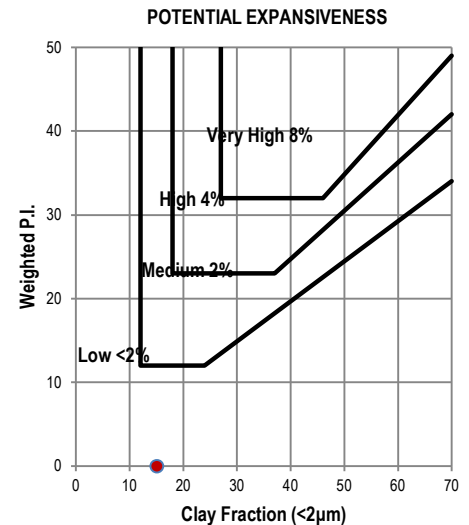
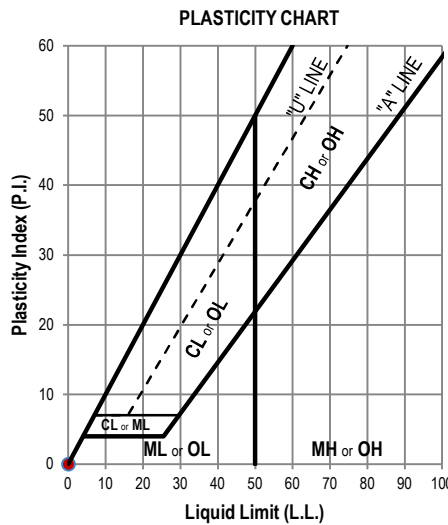
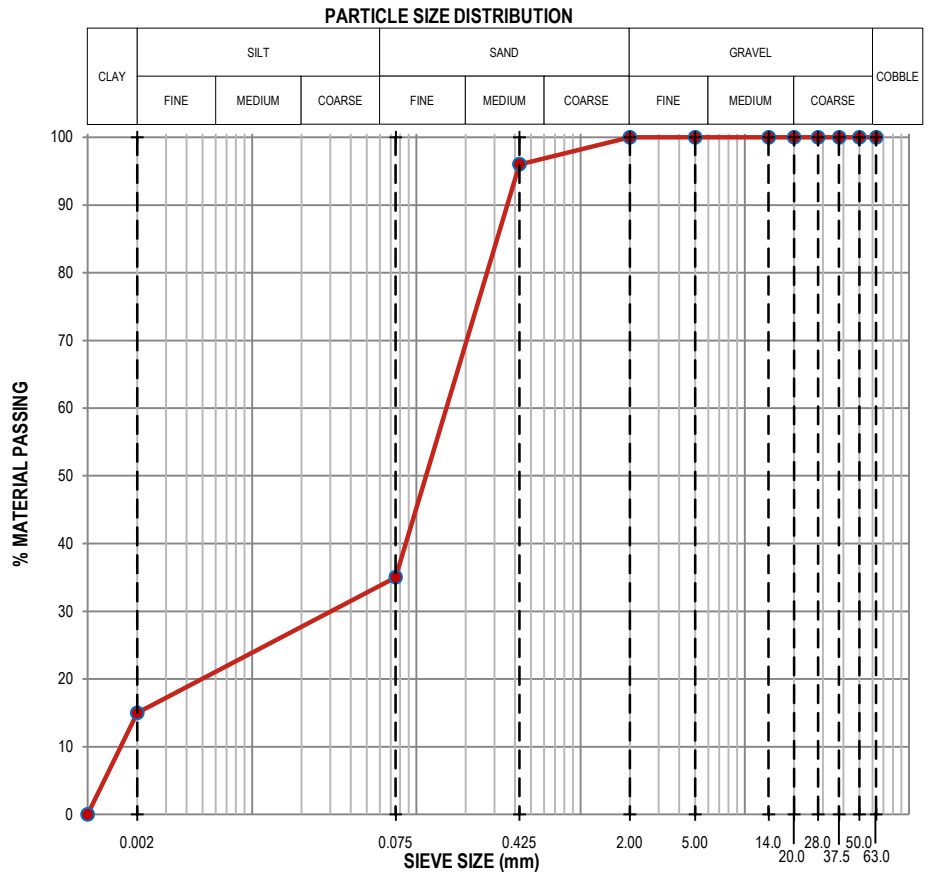
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MATERIAL CLASSIFICATION TEST RESULTS

TEST PIT / HOLE No.:	Test Pit 2	MATERIAL DEPTH (mm) :	0 - 1300	SAMPLE No / LABORATORY No.:	PF03 / 021/0520
MATERIAL DESCRIPTION :		Dry dusky red medium dense silty SAND			

IN SITU MOISTURE CONTENT (GR20) (%)		2.8
SIEVE ANALYSIS SANS 3001 - GR1 : 2013	SIEVE SIZE	% PASSING
	63.0 mm	100
	50.0 mm	100
	37.5 mm	100
	28.0 mm	100
	20.0 mm	100
	14.0 mm	100
	5.00 mm	100
	2.00 mm	100
	0.425 mm	96
	0.075 mm	35
*TMH1: METHOD A6	0.002 mm	15
*SANS 3001 PR6: 2011 SOIL MORTAR	GRADING MODULUS (GM)	0.69
	COARSE SAND	4
	FINE SAND (Course)	15
	FINE SAND (Medium)	23
	FINE SAND (Fine)	23
	SILT AND CLAY (<0.075mm)	36
ATTERBERG LIMITS MATERIAL PASSING 0.425mm SANS 3001 - GR10: 2011	L.L. (%)	-
	P.I. (%)	Slightly Plastic
	L.S. (%)	0.5
*MEASURES OF GRADATIONS	C _U (ASTM D2487)	144.0
	C _C (ASTM D2487)	1.6
	% Clay (>0.002mm)	15
	% Silt (0.075 - 0.002mm)	20
	% Sand (0.075 - 2.0mm)	65
	% Gravel (>2.0mm)	0
CBR DETERMINATION SANS 3001 - GR 40: 2013	MAX. DRY DENSITY (kg/m ³)	-
	OPTIMUM MOISTURE (%)	-
	SWELL (%)	-
	CBR @ 100% (%)	-
	CBR @ 98% (%)	-
	CBR @ 95% (%)	-
	CBR @ 93% (%)	-
CBR @ 90% (%)	-	
PROCTOR MAX. DRY DENSITY (kg/m ³)		-
*COMPACTIBILITY (Ratio) (SABS 1200 LB)		-
*CONDUCTIVITY (S/m ²) (TMH1: Method A20)		0.1009
*pH VALUE (TMH1: Method A21)		7.37
*POTENTIAL EXPANSIVENESS		Low - 0.0mm
*AASHTO SOIL CLASSIFICATION		A-3a (0)
*UNIFIED SOIL CLASSIFICATION		SM
*COLTO CLASSIFICATION		-



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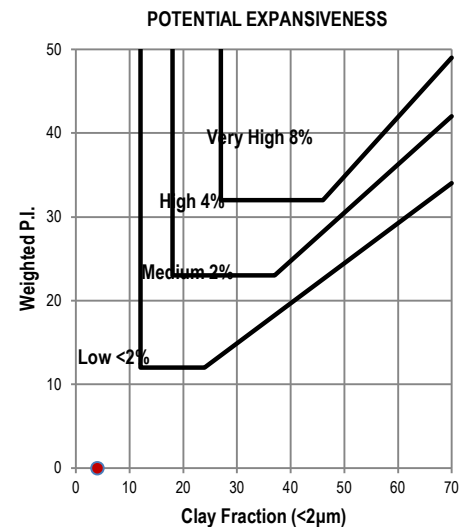
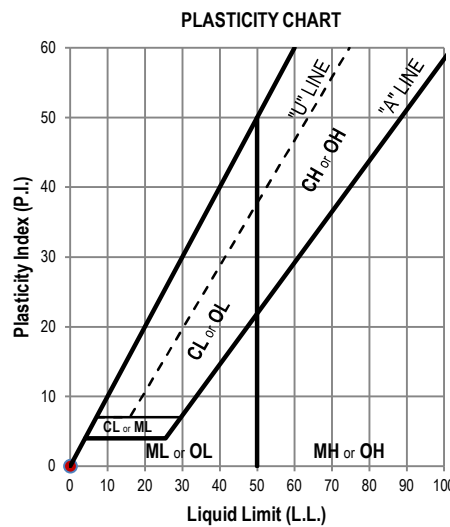
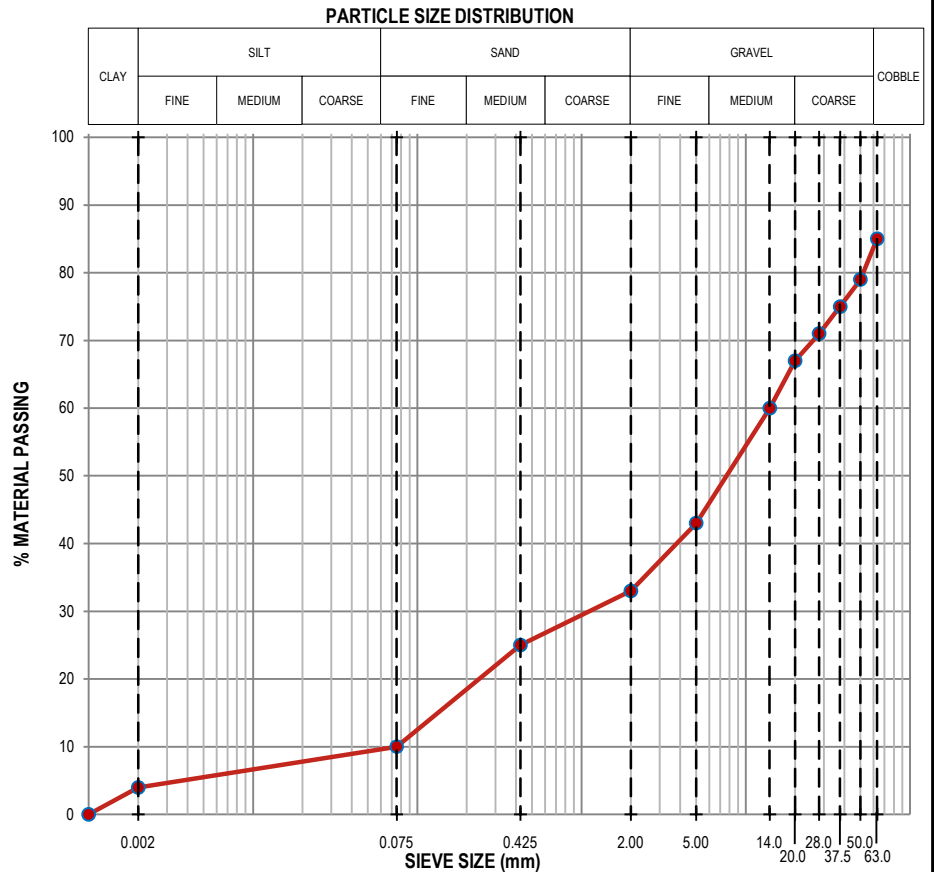
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MATERIAL CLASSIFICATION TEST RESULTS

TEST PIT / HOLE No.:	Test Pit 2	MATERIAL DEPTH (mm) :	1300 - 2120	SAMPLE No / LABORATORY No.:	PF04 / 021/0521
MATERIAL DESCRIPTION :		Slightly moist light reddish brown medium dense well-graded calcrete GRAVEL with clay and sand			

IN SITU MOISTURE CONTENT (GR20) (%)		8.1
SIEVE ANALYSIS SANS 3001 - GR1 : 2013	SIEVE SIZE	% PASSING
	63.0 mm	85
	50.0 mm	79
	37.5 mm	75
	28.0 mm	71
	20.0 mm	67
	14.0 mm	60
	5.00 mm	43
	2.00 mm	33
	0.425 mm	25
	0.075 mm	10
*TMH1: METHOD A6	0.002 mm	4
*SANS 3001 PR5: 2011 SOIL MORTAR	GRADING MODULUS (GM)	2.32
	COARSE SAND	25
	FINE SAND (Course)	14
	FINE SAND (Medium)	17
	FINE SAND (Fine)	15
	SILT AND CLAY (<0.075mm)	29
ATTERBERG LIMITS MATERIAL PASSING 0.425mm SANS 3001 - GR10: 2011	L.L. (%)	-
	P.I. (%)	Slightly Plastic
	L.S. (%)	0.5
*MEASURES OF GRADATIONS	C _u (ASTM D2487)	186.7
	C _c (ASTM D2487)	1.2
	% Clay (>0.002mm)	4
	% Silt (0.075 - 0.002mm)	6
	% Sand (0.075 - 2.0mm)	23
	% Gravel (>2.0mm)	67
CBR DETERMINATION SANS 3001 - GR 40: 2013	MAX. DRY DENSITY (kg/m ³)	-
	OPTIMUM MOISTURE (%)	-
	SWELL (%)	-
	CBR @ 100% (%)	-
	CBR @ 98% (%)	-
	CBR @ 95% (%)	-
	CBR @ 93% (%)	-
CBR @ 90% (%)	-	
PROCTOR MAX. DRY DENSITY (kg/m ³)		-
*COMPACTIBILITY (Ratio) (SABS 1200 LB)		-
*CONDUCTIVITY (S/m ²) (TMH1: Method A20)		0.0807
*pH VALUE (TMH1: Method A21)		7.50
*POTENTIAL EXPANSIVENESS		Low - 0.0mm
*AASHTO SOIL CLASSIFICATION		A-1-a (1)
*UNIFIED SOIL CLASSIFICATION		GW-GC
*COLTO CLASSIFICATION		-



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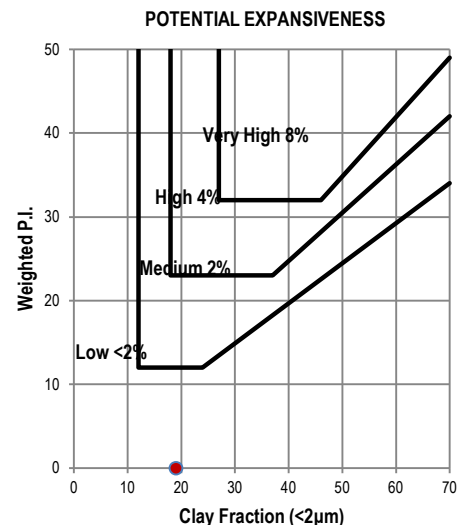
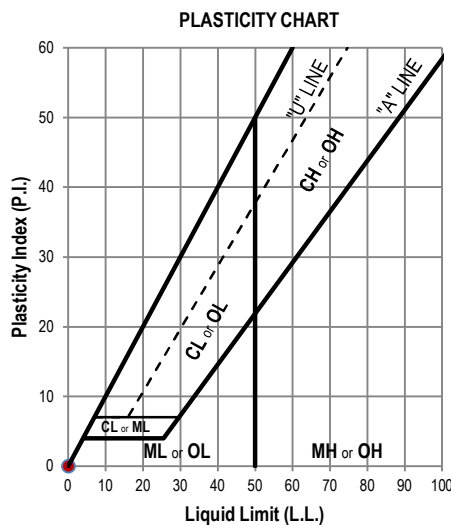
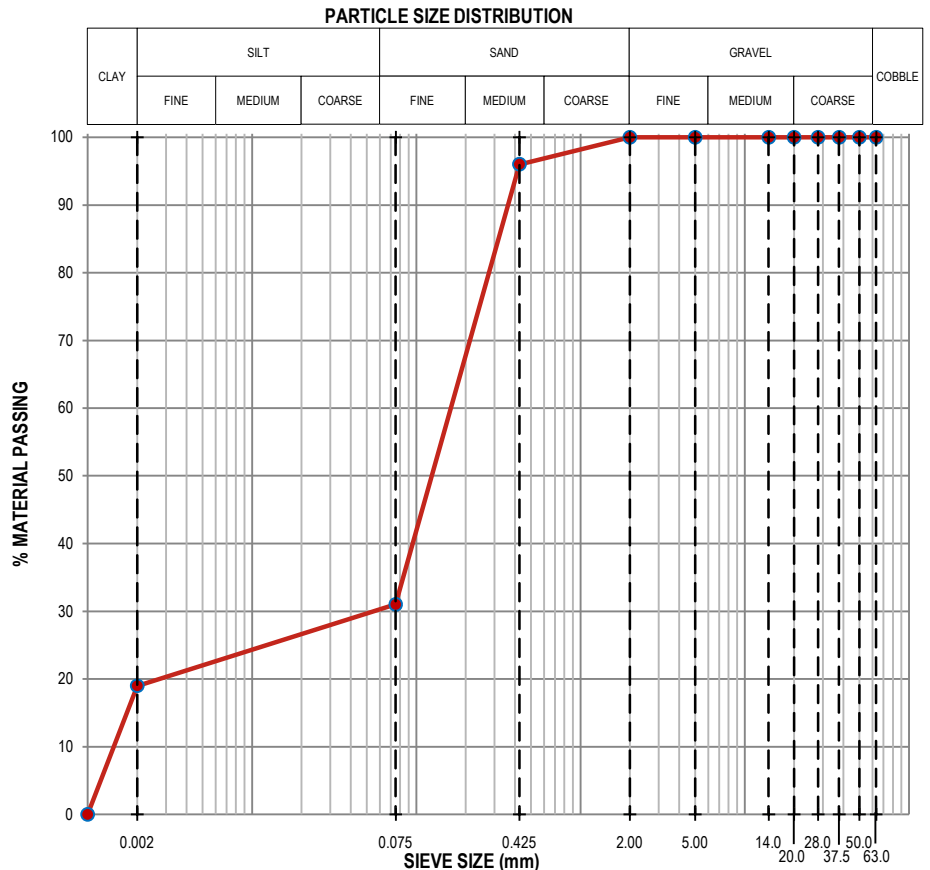
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MATERIAL CLASSIFICATION TEST RESULTS

TEST PIT / HOLE No.:	Test Pit 3	MATERIAL DEPTH (mm) :	0 - 1500	SAMPLE No / LABORATORY No.:	PF05 / 021/0522
MATERIAL DESCRIPTION :		Dry dusky red medium dense silty SAND			

IN SITU MOISTURE CONTENT (GR20) (%)		3.5	
SIEVE ANALYSIS SANS 3001 - GR1 : 2013	SIEVE SIZE	% PASSING	
	63.0 mm	100	
	50.0 mm	100	
	37.5 mm	100	
	28.0 mm	100	
	20.0 mm	100	
	14.0 mm	100	
	5.00 mm	100	
	2.00 mm	100	
	0.425 mm	96	
0.075 mm	31		
*TMH1: METHOD A6 0.002 mm		19	
*SANS 3001 PR5: 2011 SOIL MORTAR	GRADING MODULUS (GM)		0.73
	COARSE SAND		4
	FINE SAND (Course)		16
	FINE SAND (Medium)		4
	FINE SAND (Fine)		25
SILT AND CLAY (<0.075mm)		31	
ATTERBERG LIMITS MATERIAL PASSING 0.425mm SANS 3001 - GR10: 2011	L.L. (%)		-
	P.I. (%)		0
	L.S. (%)		1.0
*MEASURES OF GRADATIONS	C _u (ASTM D2487)		325.0
	C _c (ASTM D2487)		9.3
	% Clay (>0.002mm)		19
	% Silt (0.075 - 0.002mm)		12
	% Sand (0.075 - 2.0mm)		69
	% Gravel (>2.0mm)		0
CBR DETERMINATION SANS 3001 - GR 40: 2013	MAX. DRY DENSITY (kg/m ³)		-
	OPTIMUM MOISTURE (%)		-
	SWELL (%)		-
	CBR @ 100% (%)		-
	CBR @ 98% (%)		-
	CBR @ 95% (%)		-
	CBR @ 93% (%)		-
	CBR @ 90% (%)		-
PROCTOR MAX. DRY DENSITY (kg/m ³)			-
*COMPACTIBILITY (Ratio) (SABS 1200 LB)			-
*CONDUCTIVITY (S/m ²) (TMH1: Method A20)			0.0958
*pH VALUE (TMH1: Method A21)			7.41
*POTENTIAL EXPANSIVENESS			Low - 0.0mm
*AASHTO SOIL CLASSIFICATION			A-3a (0)
*UNIFIED SOIL CLASSIFICATION			SM
*COLTO CLASSIFICATION			-



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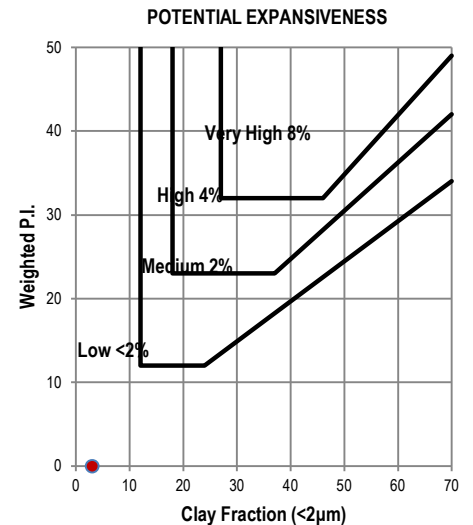
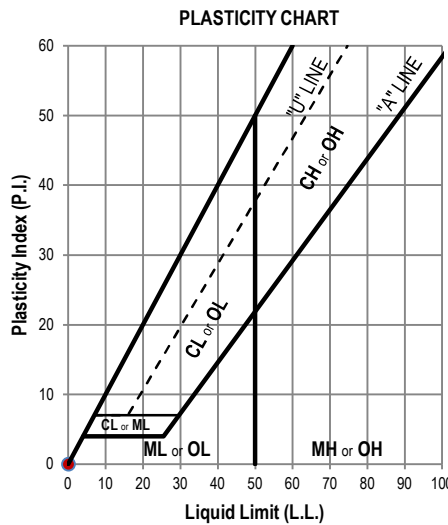
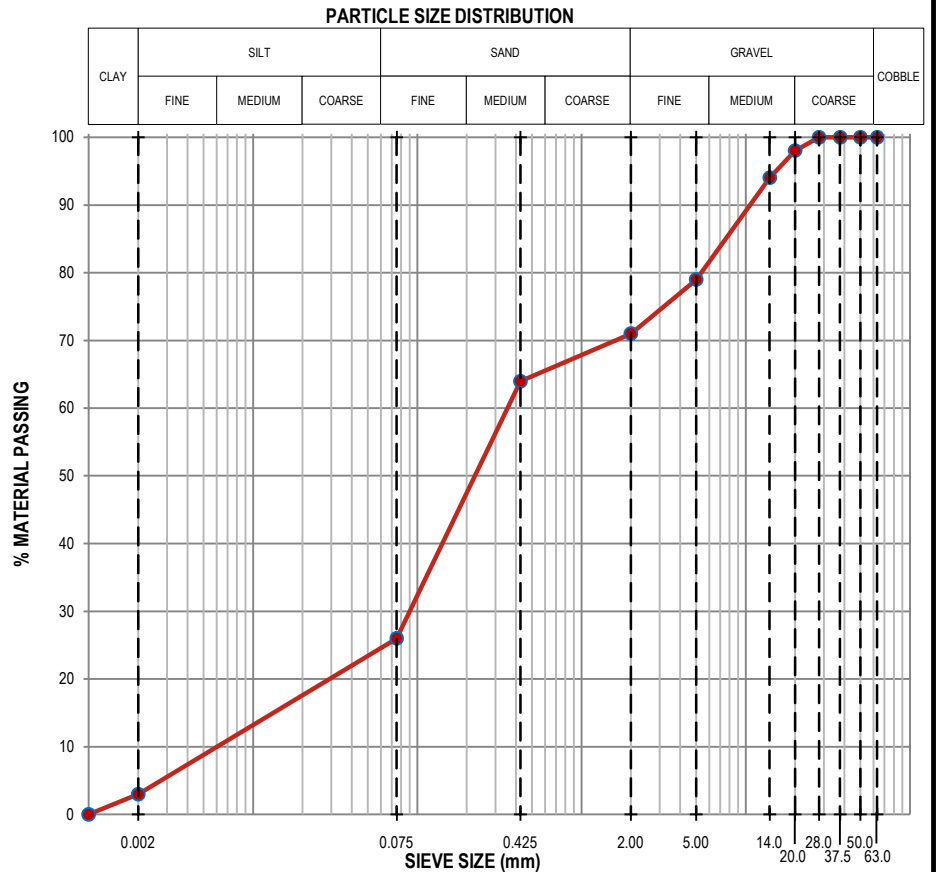
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MATERIAL CLASSIFICATION TEST RESULTS

TEST PIT / HOLE No.:	Test Pit 3	MATERIAL DEPTH (mm) :	1500 - 3000	SAMPLE No / LABORATORY No.:	PF06 / 021/0523
MATERIAL DESCRIPTION :		Slightly moist light reddish brown medium dense silty SAND with calcrete gravel			

IN SITU MOISTURE CONTENT (GR20) (%)		7.4
SIEVE ANALYSIS SANS 3001 - GR1 : 2013	SIEVE SIZE	% PASSING
	63.0 mm	100
	50.0 mm	100
	37.5 mm	100
	28.0 mm	100
	20.0 mm	98
	14.0 mm	94
	5.00 mm	79
	2.00 mm	71
	0.425 mm	64
0.075 mm	26	
*TMH1: METHOD A6	0.002 mm	3
*SANS 3001 PR5: 2011 SOIL MORTAR	GRADING MODULUS (GM)	1.39
	COARSE SAND	9
	FINE SAND (Course)	15
	FINE SAND (Medium)	20
	FINE SAND (Fine)	20
SILT AND CLAY (<0.075mm)		37
ATTERBERG LIMITS MATERIAL PASSING 0.425mm SANS 3001 - GR10: 2011	L.L. (%)	-
	P.I. (%)	Non Plastic
	L.S. (%)	0.0
*MEASURES OF GRADATIONS	C _U (ASTM D2487)	236.0
	C _C (ASTM D2487)	1.0
	% Clay (>0.002mm)	3
	% Silt (0.075 - 0.002mm)	23
	% Sand (0.075 - 2.0mm)	45
	% Gravel (>2.0mm)	29
CBR DETERMINATION SANS 3001 - GR 40: 2013	MAX. DRY DENSITY (kg/m ³)	1902
	OPTIMUM MOISTURE (%)	10.1
	SWELL (%)	0.0
	CBR @ 100% (%)	45
	CBR @ 98% (%)	35
	CBR @ 95% (%)	25
	CBR @ 93% (%)	20
CBR @ 90% (%)	14	
PROCTOR MAX. DRY DENSITY (kg/m ³)	1712	
*COMPACTIBILITY (Ratio) (SABS 1200 LB)	0.79	
*CONDUCTIVITY (S/m ²) (TMH1: Method A20)	0.0757	
*pH VALUE (TMH1: Method A21)	7.63	
*POTENTIAL EXPANSIVENESS	Low - 0.0mm	
*AASHTO SOIL CLASSIFICATION	A-2-4 (0)	
*UNIFIED SOIL CLASSIFICATION	SM	
*COLTO CLASSIFICATION	*G6	



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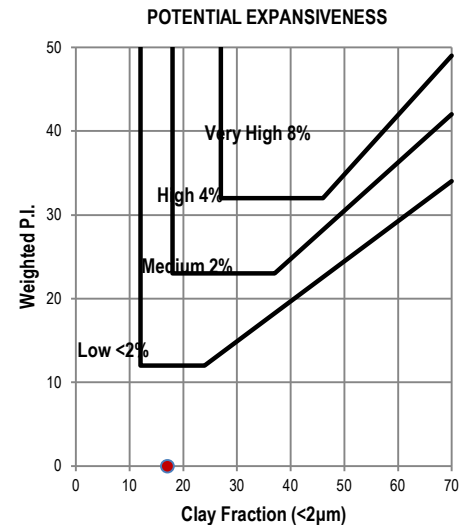
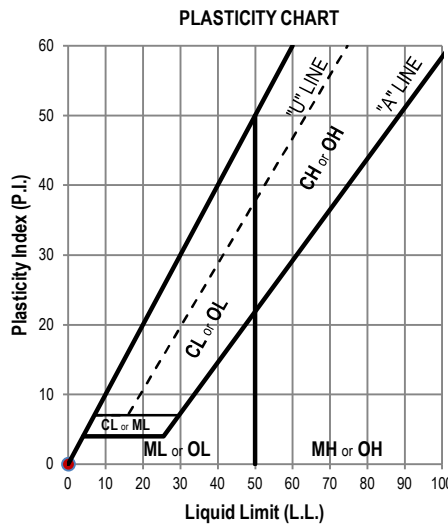
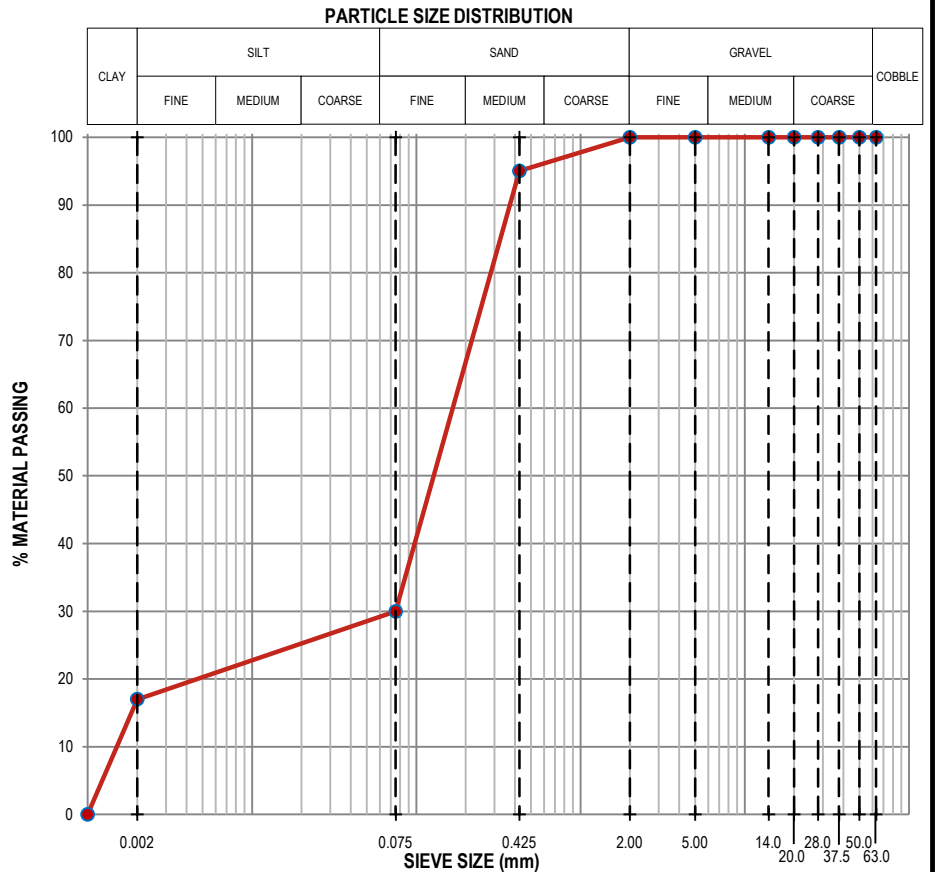
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MATERIAL CLASSIFICATION TEST RESULTS

TEST PIT / HOLE No.:	Test Pit 4	MATERIAL DEPTH (mm) :	0 - 1070	SAMPLE No / LABORATORY No.:	PF07 / 021/0524
MATERIAL DESCRIPTION :		Dry dusky red medium dense silty SAND			

IN SITU MOISTURE CONTENT (GR20) (%)		1.0
SIEVE ANALYSIS SANS 3001 - GR1 : 2013	SIEVE SIZE	% PASSING
	63.0 mm	100
	50.0 mm	100
	37.5 mm	100
	28.0 mm	100
	20.0 mm	100
	14.0 mm	100
	5.00 mm	100
	2.00 mm	100
	0.425 mm	95
0.075 mm	30	
*TMH1: METHOD A6 0.002 mm		17
*SANS 3001 PR6: 2011 SOIL MORTAR	GRADING MODULUS (GM)	0.75
	COARSE SAND	5
	FINE SAND (Course)	16
	FINE SAND (Medium)	23
	FINE SAND (Fine)	25
SILT AND CLAY (<0.075mm)		30
ATTERBERG LIMITS MATERIAL PASSING 0.425mm SANS 3001 - GR10: 2011	L.L. (%)	-
	P.I. (%)	Slightly Plastic
	L.S. (%)	0.5
* MEASURES OF GRADATIONS	C _u (ASTM D2487)	170.5
	C _c (ASTM D2487)	8.2
	% Clay (>0.002mm)	17
	% Silt (0.075 - 0.002mm)	13
	% Sand (0.075 - 2.0mm)	70
	% Gravel (>2.0mm)	0
CBR DETERMINATION SANS 3001 - GR 40: 2013	MAX. DRY DENSITY (kg/m ³)	-
	OPTIMUM MOISTURE (%)	-
	SWELL (%)	-
	CBR @ 100% (%)	-
	CBR @ 98% (%)	-
	CBR @ 95% (%)	-
	CBR @ 93% (%)	-
CBR @ 90% (%)	-	
PROCTOR MAX. DRY DENSITY (kg/m ³)		-
*COMPACTIBILITY (Ratio) (SABS 1200 LB)		-
*CONDUCTIVITY (S/m ²) (TMH1: Method A20)		0.0474
*pH VALUE (TMH1: Method A21)		7.66
*POTENTIAL EXPANSIVENESS		Low - 0.0mm
*AASHTO SOIL CLASSIFICATION		A-3a (0)
*UNIFIED SOIL CLASSIFICATION		SM
*COLTO CLASSIFICATION		-



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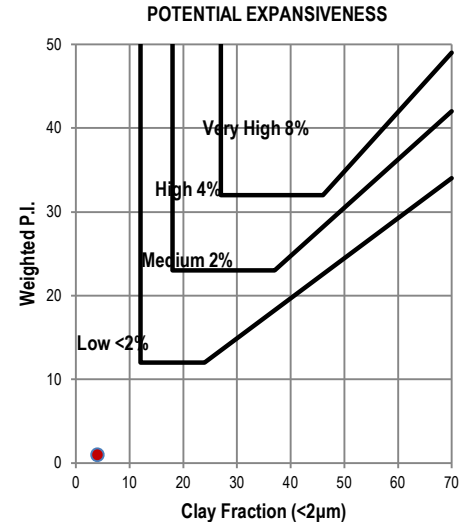
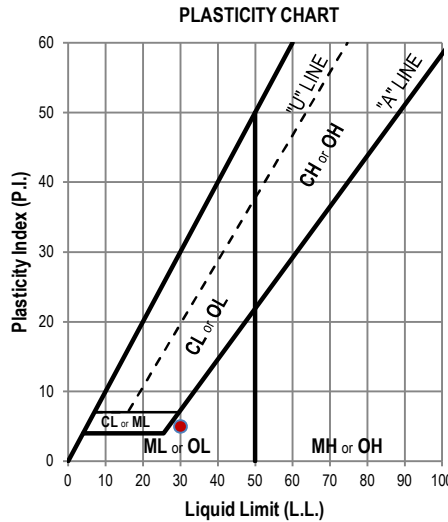
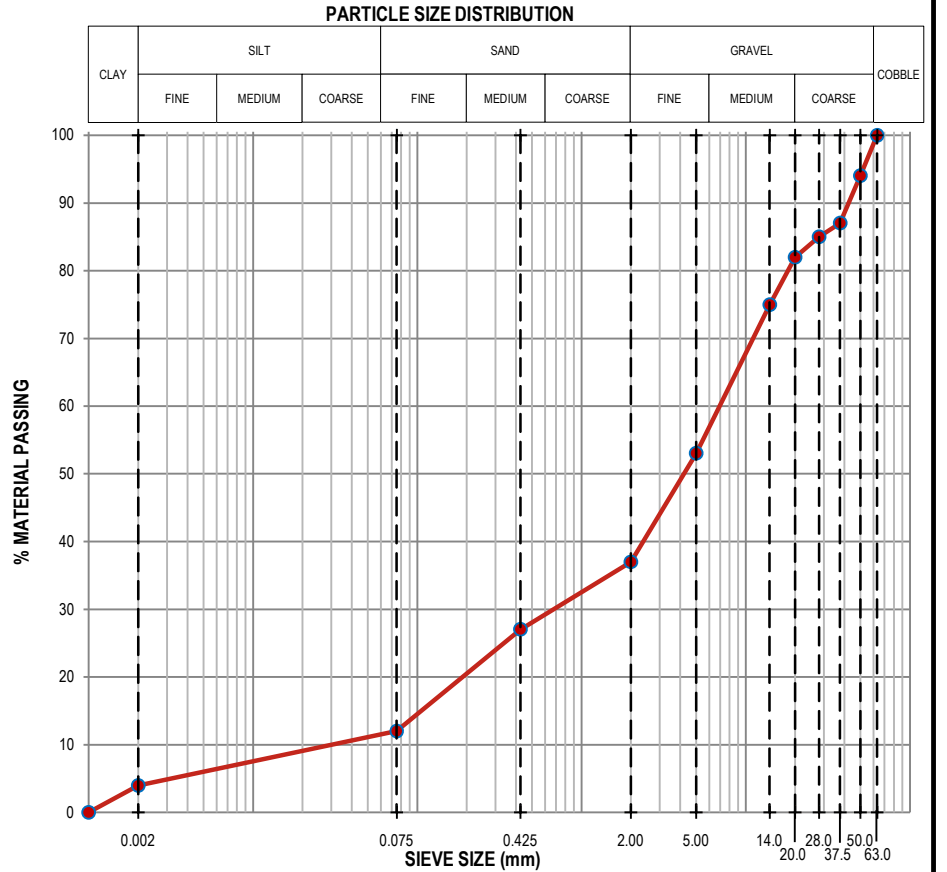
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MATERIAL CLASSIFICATION TEST RESULTS

TEST PIT / HOLE No.:	Test Pit 4	MATERIAL DEPTH (mm) :	1070 - 2000	SAMPLE No / LABORATORY No.:	PF08 / 021/0525
MATERIAL DESCRIPTION :		Slightly moist light reddish brown medium dense poorly graded SAND with silt and calcrete gravel			

IN SITU MOISTURE CONTENT (GR20) (%)		12.7
SIEVE ANALYSIS SANS 3001 - GR1 : 2013	SIEVE SIZE	% PASSING
	63.0 mm	100
	50.0 mm	94
	37.5 mm	87
	28.0 mm	85
	20.0 mm	82
	14.0 mm	75
	5.00 mm	53
	2.00 mm	37
	0.425 mm	27
	0.075 mm	12
*TMH1: METHOD A6	0.002 mm	4
*SANS 3001 PR5: 2011 SOIL MORTAR	GRADING MODULUS (GM)	2.24
	COARSE SAND	29
	FINE SAND (Course)	12
	FINE SAND (Medium)	15
	FINE SAND (Fine)	13
	SILT AND CLAY (<0.075mm)	31
ATTERBERG LIMITS MATERIAL PASSING 0.425mm SANS 3001 - GR10: 2011	L.L. (%)	30
	P.I. (%)	5
	L.S. (%)	2.0
* MEASURES OF GRADATIONS	C _u (ASTM D2487)	13.8
	C _c (ASTM D2487)	36.7
	% Clay (>0.002mm)	4
	% Silt (0.075 - 0.002mm)	8
	% Sand (0.075 - 2.0mm)	25
	% Gravel (>2.0mm)	63
CBR DETERMINATION SANS 3001 - GR 40: 2013	MAX. DRY DENSITY (kg/m ³)	-
	OPTIMUM MOISTURE (%)	-
	SWELL (%)	-
	CBR @ 100% (%)	-
	CBR @ 98% (%)	-
	CBR @ 95% (%)	-
	CBR @ 93% (%)	-
CBR @ 90% (%)	-	
PROCTOR MAX. DRY DENSITY (kg/m ³)		-
*COMPACTIBILITY (Ratio) (SABS 1200 LB)		-
*CONDUCTIVITY (S/m ²) (TMH1: Method A20)		0.0858
*pH VALUE (TMH1: Method A21)		7.67
*POTENTIAL EXPANSIVENESS		Low - 0.0mm
*AASHTO SOIL CLASSIFICATION		A-1-a (0)
*UNIFIED SOIL CLASSIFICATION		SP-SM
*COLTO CLASSIFICATION		-



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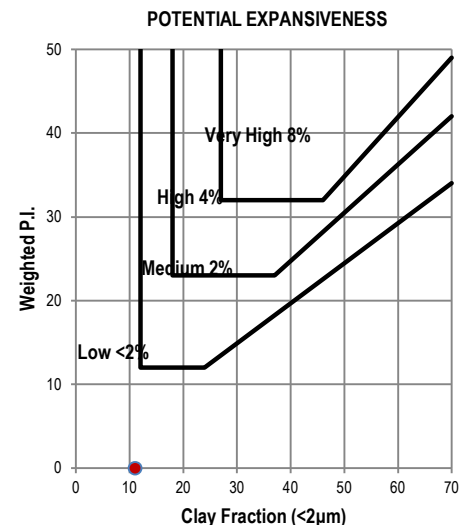
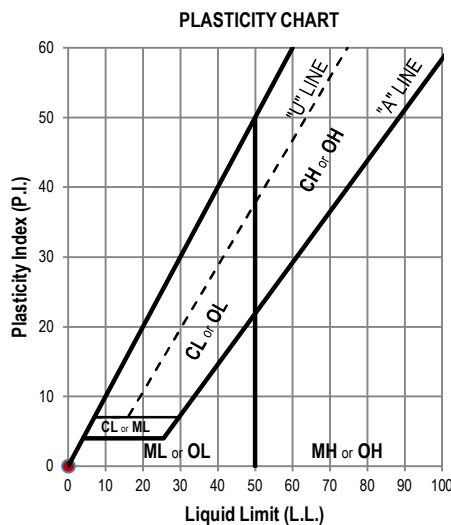
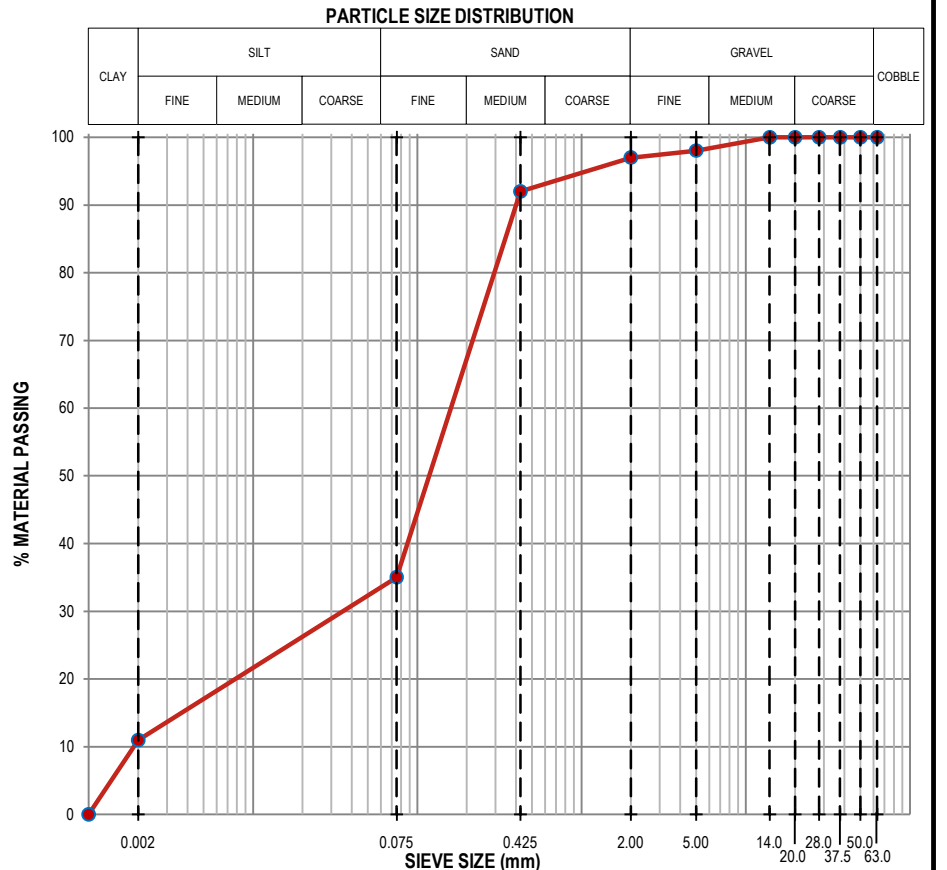
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MATERIAL CLASSIFICATION TEST RESULTS

TEST PIT / HOLE No.:	Test Pit 5	MATERIAL DEPTH (mm) :	0 - 600	SAMPLE No / LABORATORY No.:	PF09 / 021/0526
MATERIAL DESCRIPTION :		Dry dusky red medium dense silty SAND			

IN SITU MOISTURE CONTENT (GR20) (%)		1.0
SIEVE ANALYSIS SANS 3001 - GR1 : 2013	SIEVE SIZE	% PASSING
	63.0 mm	100
	50.0 mm	100
	37.5 mm	100
	28.0 mm	100
	20.0 mm	100
	14.0 mm	100
	5.00 mm	98
	2.00 mm	97
	0.425 mm	92
0.075 mm	35	
*TMH1: METHOD A6 0.002 mm		11
*SANS 3001 PR6: 2011 SOIL MORTAR	GRADING MODULUS (GM)	0.76
	COARSE SAND	6
	FINE SAND (Course)	17
	FINE SAND (Medium)	21
	FINE SAND (Fine)	21
SILT AND CLAY (<0.075mm)		36
ATTERBERG LIMITS MATERIAL PASSING 0.425mm SANS 3001 - GR10: 2011	L.L. (%)	-
	P.I. (%)	Non Plastic
	L.S. (%)	0.0
* MEASURES OF GRADATIONS	C _U (ASTM D2487)	158.5
	C _C (ASTM D2487)	1.9
	% Clay (>0.002mm)	11
	% Silt (0.075 - 0.002mm)	24
	% Sand (0.075 - 2.0mm)	62
	% Gravel (>2.0mm)	3
CBR DETERMINATION SANS 3001 - GR 40: 2013	MAX. DRY DENSITY (kg/m ³)	-
	OPTIMUM MOISTURE (%)	-
	SWELL (%)	-
	CBR @ 100% (%)	-
	CBR @ 98% (%)	-
	CBR @ 95% (%)	-
	CBR @ 93% (%)	-
	CBR @ 90% (%)	-
PROCTOR MAX. DRY DENSITY (kg/m ³)		-
*COMPACTIBILITY (Ratio) (SABS 1200 LB)		-
*CONDUCTIVITY (S/m ²) (TMH1: Method A20)		0.0656
*pH VALUE (TMH1: Method A21)		7.48
*POTENTIAL EXPANSIVENESS		Low - 0.0mm
*AASHTO SOIL CLASSIFICATION		A-3a (0)
*UNIFIED SOIL CLASSIFICATION		SM
*COLTO CLASSIFICATION		-



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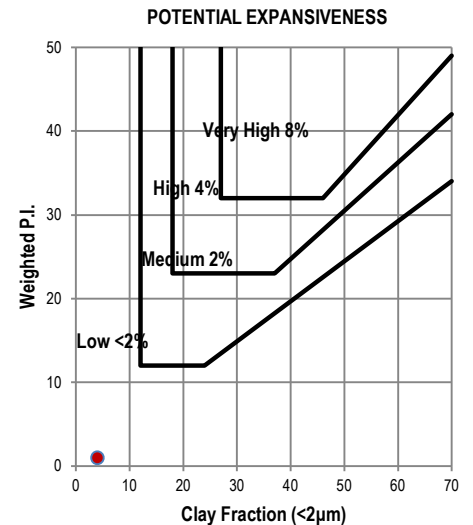
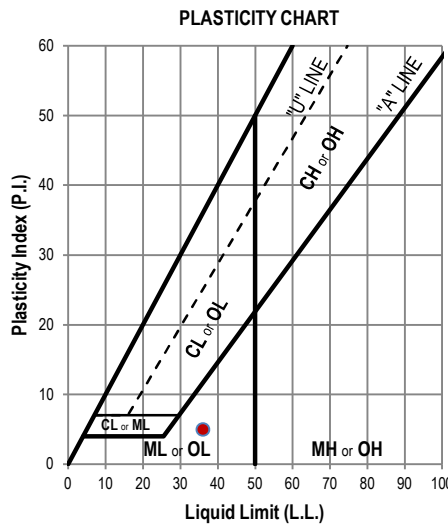
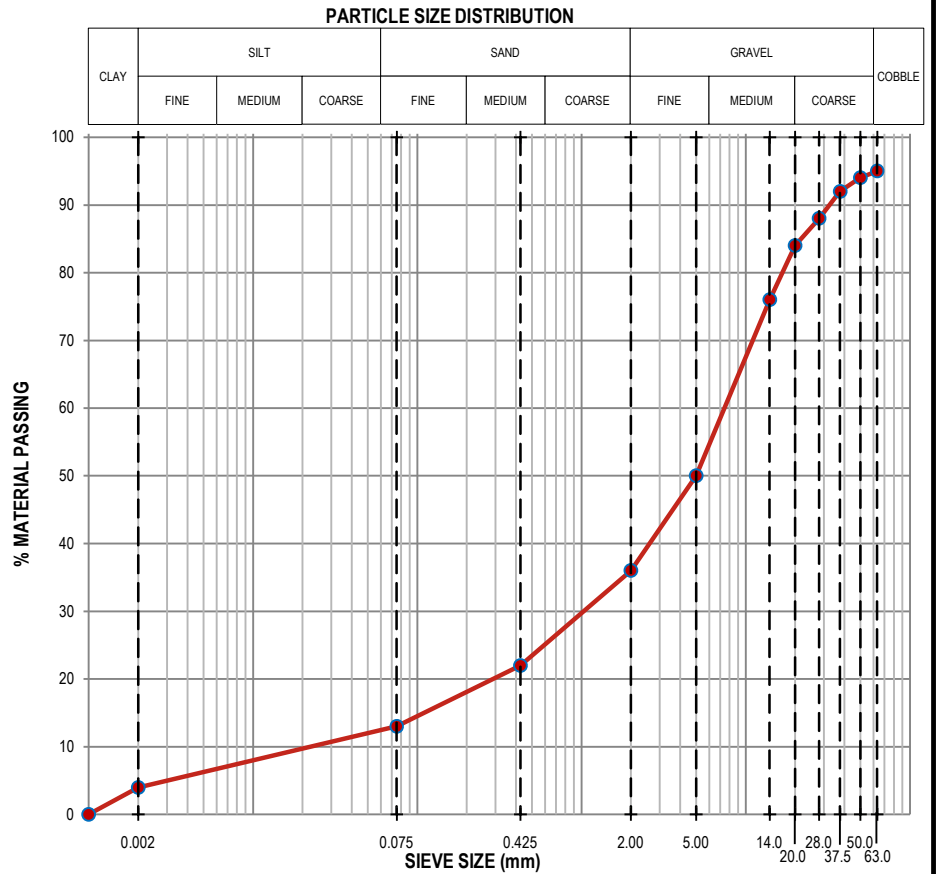
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MATERIAL CLASSIFICATION TEST RESULTS

TEST PIT / HOLE No.:	Test Pit 5	MATERIAL DEPTH (mm) :	600 - 1400	SAMPLE No / LABORATORY No.:	PF10 / 021/0527
MATERIAL DESCRIPTION :		Slightly moist light reddish brown medium dense silty SAND with calcrete gravel			

IN SITU MOISTURE CONTENT (GR20) (%)		7.1
SIEVE ANALYSIS SANS 3001 - GR1 : 2013	SIEVE SIZE	% PASSING
	63.0 mm	95
	50.0 mm	94
	37.5 mm	92
	28.0 mm	88
	20.0 mm	84
	14.0 mm	76
	5.00 mm	50
	2.00 mm	36
	0.425 mm	22
0.075 mm	13	
*TMH1: METHOD A6 0.002 mm		4
*SANS 3001 PR5: 2011 SOIL MORTAR	GRADING MODULUS (GM)	2.29
	COARSE SAND	38
	FINE SAND (Course)	9
	FINE SAND (Medium)	8
	FINE SAND (Fine)	8
SILT AND CLAY (<0.075mm)		37
ATTERBERG LIMITS MATERIAL PASSING 0.425mm SANS 3001 - GR10: 2011	L.L. (%)	36
	P.I. (%)	5
	L.S. (%)	3.0
*MEASURES OF GRADATIONS	C _u (ASTM D2487)	11.2
	C _c (ASTM D2487)	195.2
	% Clay (>0.002mm)	4
	% Silt (0.075 - 0.002mm)	9
	% Sand (0.075 - 2.0mm)	23
	% Gravel (>2.0mm)	64
CBR DETERMINATION SANS 3001 - GR 40: 2013	MAX. DRY DENSITY (kg/m ³)	1714
	OPTIMUM MOISTURE (%)	17.4
	SWELL (%)	0.0
	CBR @ 100% (%)	37
	CBR @ 98% (%)	30
	CBR @ 95% (%)	23
	CBR @ 93% (%)	19
CBR @ 90% (%)	14	
PROCTOR MAX. DRY DENSITY (kg/m ³)		1530
*COMPACTIBILITY (Ratio) (SABS 1200 LB)		0.69
*CONDUCTIVITY (S/m ²) (TMH1: Method A20)		0.0555
*pH VALUE (TMH1: Method A21)		7.65
*POTENTIAL EXPANSIVENESS		Low - 0.0mm
*AASHTO SOIL CLASSIFICATION		A-1-a (0)
*UNIFIED SOIL CLASSIFICATION		SM
*COLTO CLASSIFICATION		*G7



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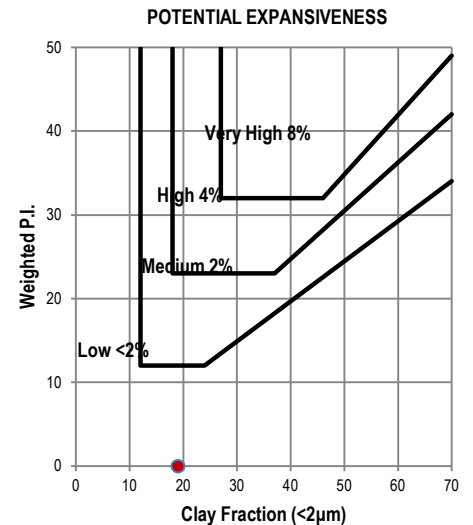
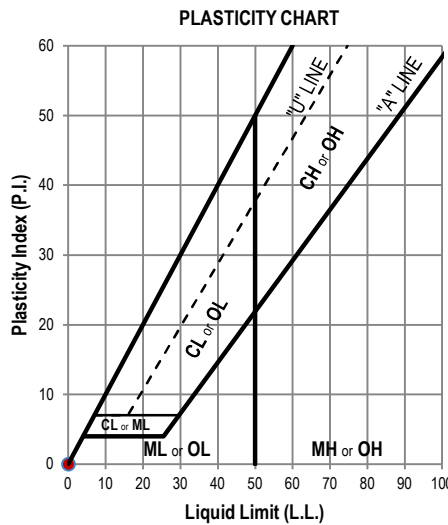
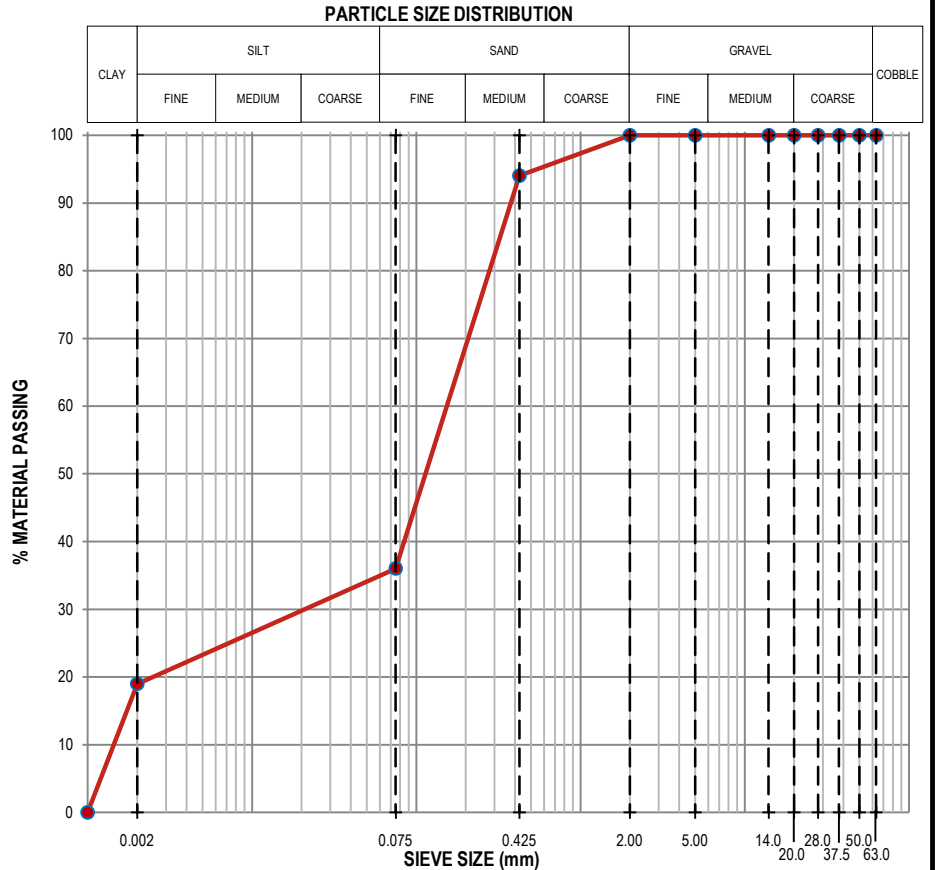
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MATERIAL CLASSIFICATION TEST RESULTS

TEST PIT / HOLE No.:	Test Pit 6	MATERIAL DEPTH (mm) :	0 - 1900	SAMPLE No / LABORATORY No.:	PF11 / 021/0528
MATERIAL DESCRIPTION :		Dry dusky red medium dense silty SAND			

IN SITU MOISTURE CONTENT (GR20) (%)		4.2
SIEVE ANALYSIS SANS 3001 - GR1 : 2013	SIEVE SIZE	% PASSING
	63.0 mm	100
	50.0 mm	100
	37.5 mm	100
	28.0 mm	100
	20.0 mm	100
	14.0 mm	100
	5.00 mm	100
	2.00 mm	100
	0.425 mm	94
	0.075 mm	36
*TMH1: METHOD A6	0.002 mm	19
*SANS 3001 PR6: 2011 SOIL MORTAR	GRADING MODULUS (GM)	0.70
	COARSE SAND	6
	FINE SAND (Course)	16
	FINE SAND (Medium)	22
	FINE SAND (Fine)	21
	SILT AND CLAY (<0.075mm)	36
ATTERBERG LIMITS MATERIAL PASSING 0.425mm SANS 3001 - GR10: 2011	L.L. (%)	-
	P.I. (%)	Non Plastic
	L.S. (%)	0.0
*MEASURES OF GRADATIONS	C _U (ASTM D2487)	292.0
	C _C (ASTM D2487)	1.5
	% Clay (>0.002mm)	19
	% Silt (0.075 - 0.002mm)	17
	% Sand (0.075 - 2.0mm)	64
	% Gravel (>2.0mm)	0
CBR DETERMINATION SANS 3001 - GR 40: 2013	MAX. DRY DENSITY (kg/m ³)	-
	OPTIMUM MOISTURE (%)	-
	SWELL (%)	-
	CBR @ 100% (%)	-
	CBR @ 98% (%)	-
	CBR @ 95% (%)	-
	CBR @ 93% (%)	-
	CBR @ 90% (%)	-
PROCTOR MAX. DRY DENSITY (kg/m ³)		-
*COMPACTIBILITY (Ratio) (SABS 1200 LB)		-
*CONDUCTIVITY (S/m ²) (TMH1: Method A20)		0.0858
*pH VALUE (TMH1: Method A21)		7.08
*POTENTIAL EXPANSIVENESS		Low - 0.0mm
*AASHTO SOIL CLASSIFICATION		A-4a (0)
*UNIFIED SOIL CLASSIFICATION		SM
*COLTO CLASSIFICATION		-



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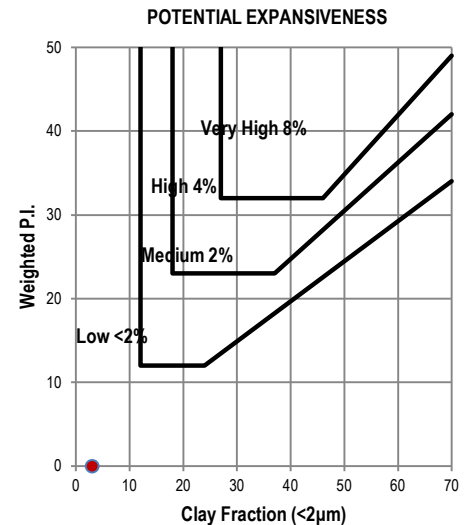
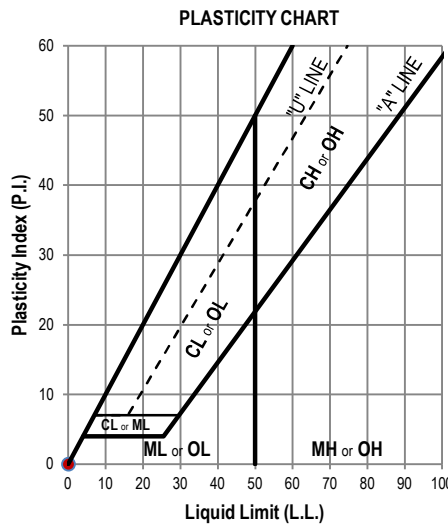
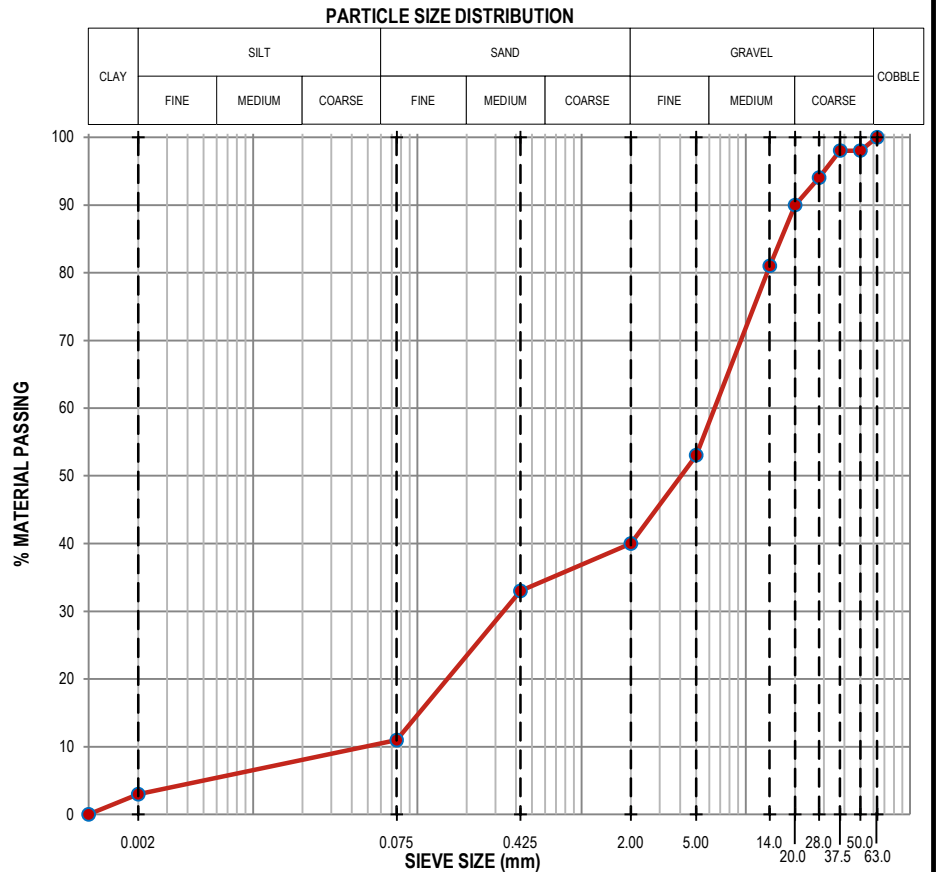
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MATERIAL CLASSIFICATION TEST RESULTS

TEST PIT / HOLE No.:	Test Pit 6	MATERIAL DEPTH (mm) :	1900 - 2200	SAMPLE No / LABORATORY No.:	PF12 / 021/0529
MATERIAL DESCRIPTION :		Slightly moist light reddish brown medium dense poorly graded SAND with clay and calcrete gravel			

IN SITU MOISTURE CONTENT (GR20) (%)		7.0
SIEVE ANALYSIS SANS 3001 - GR1 : 2013	SIEVE SIZE	% PASSING
	63.0 mm	100
	50.0 mm	98
	37.5 mm	98
	28.0 mm	94
	20.0 mm	90
	14.0 mm	81
	5.00 mm	53
	2.00 mm	40
	0.425 mm	33
0.075 mm	11	
*TMH1: METHOD A6	0.002 mm	3
*SANS 3001 PR5: 2011 SOIL MORTAR	GRADING MODULUS (GM)	2.16
	COARSE SAND	18
	FINE SAND (Course)	13
	FINE SAND (Medium)	20
	FINE SAND (Fine)	20
SILT AND CLAY (<0.075mm)	28	
ATTERBERG LIMITS MATERIAL PASSING 0.425mm SANS 3001 - GR10: 2011	L.L. (%)	-
	P.I. (%)	Non Plastic
	L.S. (%)	0.0
*MEASURES OF GRADATIONS	C _u (ASTM D2487)	14.7
	C _c (ASTM D2487)	3.3
	% Clay (>0.002mm)	3
	% Silt (0.075 - 0.002mm)	8
	% Sand (0.075 - 2.0mm)	29
	% Gravel (>2.0mm)	60
CBR DETERMINATION SANS 3001 - GR 40: 2013	MAX. DRY DENSITY (kg/m ³)	-
	OPTIMUM MOISTURE (%)	-
	SWELL (%)	-
	CBR @ 100% (%)	-
	CBR @ 98% (%)	-
	CBR @ 95% (%)	-
	CBR @ 93% (%)	-
CBR @ 90% (%)	-	
PROCTOR MAX. DRY DENSITY (kg/m ³)	-	
*COMPACTIBILITY (Ratio) (SABS 1200 LB)	-	
*CONDUCTIVITY (S/m ⁻¹) (TMH1: Method A20)	0.0757	
*pH VALUE (TMH1: Method A21)	7.47	
*POTENTIAL EXPANSIVENESS	Low - 0.0mm	
*AASHTO SOIL CLASSIFICATION	A-1-b (0)	
*UNIFIED SOIL CLASSIFICATION	SP-SC	
*COLTO CLASSIFICATION	-	



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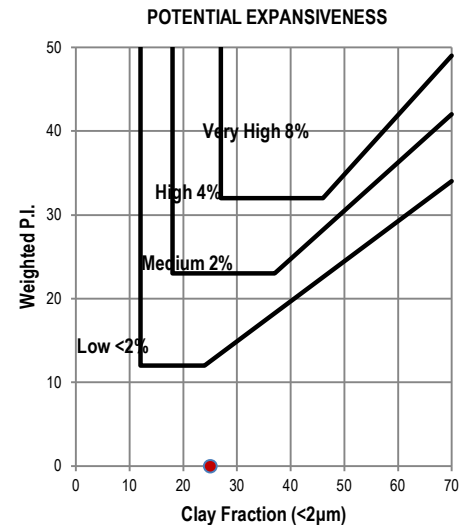
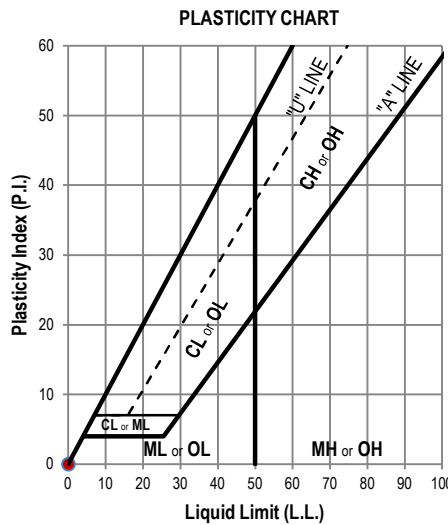
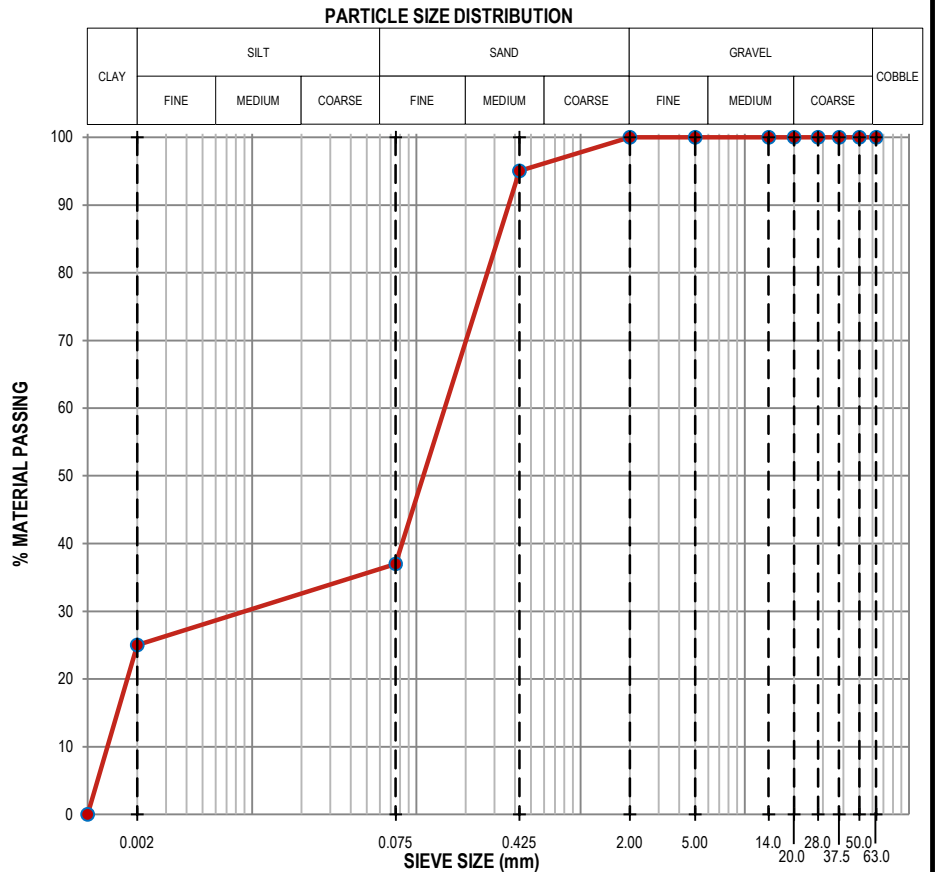
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MATERIAL CLASSIFICATION TEST RESULTS

TEST PIT / HOLE No.:	Test Pit 7	MATERIAL DEPTH (mm) :	0 - 1800	SAMPLE No / LABORATORY No.:	PF13 / 021/0530
MATERIAL DESCRIPTION :		Dry dusky red medium dense silty SAND			

IN SITU MOISTURE CONTENT (GR20) (%)		2.6
SIEVE ANALYSIS SANS 3001 - GR1 : 2013	SIEVE SIZE	% PASSING
	63.0 mm	100
	50.0 mm	100
	37.5 mm	100
	28.0 mm	100
	20.0 mm	100
	14.0 mm	100
	5.00 mm	100
	2.00 mm	100
	0.425 mm	95
	0.075 mm	37
*TMH1: METHOD A6	0.002 mm	25
*SANS 3001 PR6: 2011 SOIL MORTAR	GRADING MODULUS (GM)	0.68
	COARSE SAND	5
	FINE SAND (Course)	15
	FINE SAND (Medium)	21
	FINE SAND (Fine)	22
	SILT AND CLAY (<0.075mm)	37
ATTERBERG LIMITS MATERIAL PASSING 0.425mm SANS 3001 - GR10: 2011	L.L. (%)	-
	P.I. (%)	Non Plastic
	L.S. (%)	0.0
*MEASURES OF GRADATIONS	C _u (ASTM D2487)	276.0
	C _c (ASTM D2487)	0.3
	% Clay (>0.002mm)	25
	% Silt (0.075 - 0.002mm)	12
	% Sand (0.075 - 2.0mm)	63
	% Gravel (>2.0mm)	0
CBR DETERMINATION SANS 3001 - GR 40: 2013	MAX. DRY DENSITY (kg/m ³)	2088
	OPTIMUM MOISTURE (%)	7.8
	SWELL (%)	0.0
	CBR @ 100% (%)	17
	CBR @ 98% (%)	15
	CBR @ 95% (%)	13
	CBR @ 93% (%)	11
CBR @ 90% (%)	10	
PROCTOR MAX. DRY DENSITY (kg/m ³)	1879	
*COMPACTIBILITY (Ratio) (SABS 1200 LB)	0.59	
*CONDUCTIVITY (S/m ²) (TMH1: Method A20)	0.0605	
*pH VALUE (TMH1: Method A21)	7.24	
*POTENTIAL EXPANSIVENESS	Low - 0.0mm	
*AASHTO SOIL CLASSIFICATION	A-4a (0)	
*UNIFIED SOIL CLASSIFICATION	SM	
*COLTO CLASSIFICATION	*N/C	



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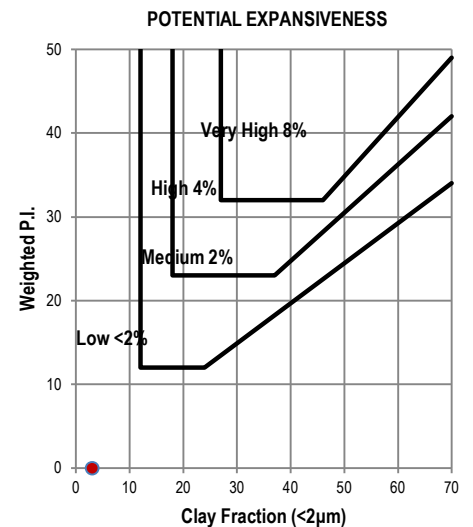
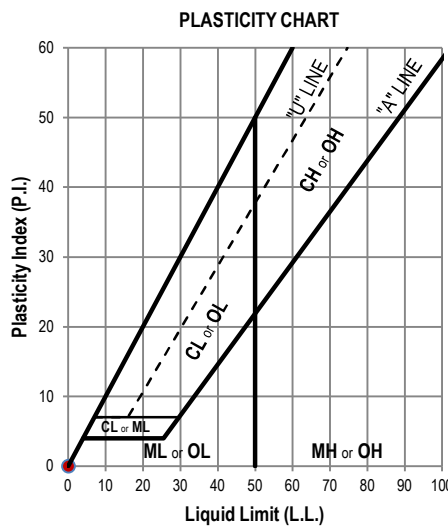
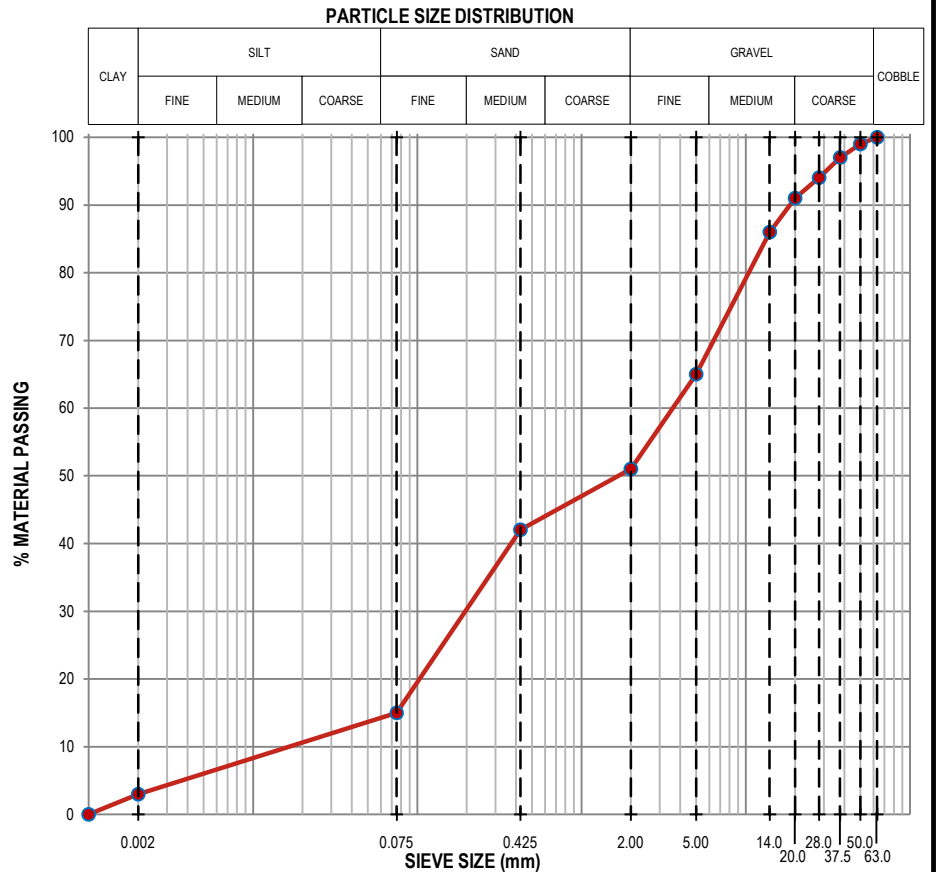
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MATERIAL CLASSIFICATION TEST RESULTS

TEST PIT / HOLE No.:	Test Pit 7	MATERIAL DEPTH (mm) :	1800 - 2200	SAMPLE No / LABORATORY No.:	PF14 / 021/0531
MATERIAL DESCRIPTION :		Slightly moist light reddish brown medium dense silty SAND with calcrete gravel			

IN SITU MOISTURE CONTENT (GR20) (%)		6.1
SIEVE ANALYSIS SANS 3001 - GR1 : 2013	SIEVE SIZE	% PASSING
	63.0 mm	100
	50.0 mm	99
	37.5 mm	97
	28.0 mm	94
	20.0 mm	91
	14.0 mm	86
	5.00 mm	65
	2.00 mm	51
	0.425 mm	42
	0.075 mm	15
*TMH1: METHOD A6	0.002 mm	3
*SANS 3001 PR6: 2011 SOIL MORTAR	GRADING MODULUS (GM)	1.92
	COARSE SAND	18
	FINE SAND (Course)	15
	FINE SAND (Medium)	20
	FINE SAND (Fine)	19
	SILT AND CLAY (<0.075mm)	29
ATTERBERG LIMITS MATERIAL PASSING 0.425mm SANS 3001 - GR10: 2011	L.L. (%)	-
	P.I. (%)	Slightly Plastic
	L.S. (%)	0.5
*MEASURES OF GRADATIONS	C _u (ASTM D2487)	411.0
	C _c (ASTM D2487)	0.3
	% Clay (>0.002mm)	3
	% Silt (0.075 - 0.002mm)	12
	% Sand (0.075 - 2.0mm)	36
	% Gravel (>2.0mm)	49
CBR DETERMINATION SANS 3001 - GR 40: 2013	MAX. DRY DENSITY (kg/m ³)	-
	OPTIMUM MOISTURE (%)	-
	SWELL (%)	-
	CBR @ 100% (%)	-
	CBR @ 98% (%)	-
	CBR @ 95% (%)	-
	CBR @ 93% (%)	-
	CBR @ 90% (%)	-
PROCTOR MAX. DRY DENSITY (kg/m ³)		-
*COMPACTIBILITY (Ratio) (SABS 1200 LB)		-
*CONDUCTIVITY (S/m ⁻¹) (TMH1: Method A20)		0.0958
*pH VALUE (TMH1: Method A21)		7.58
*POTENTIAL EXPANSIVENESS		Low - 0.0mm
*AASHTO SOIL CLASSIFICATION		A-1-b (0)
*UNIFIED SOIL CLASSIFICATION		SM
*COLTO CLASSIFICATION		-



REMARKS.:

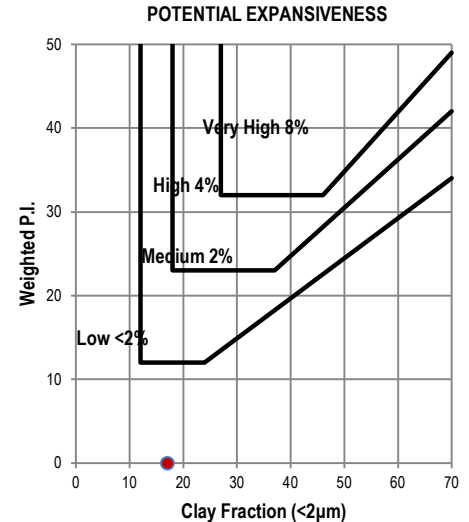
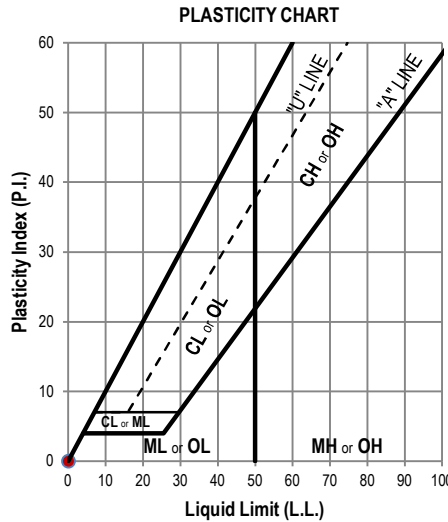
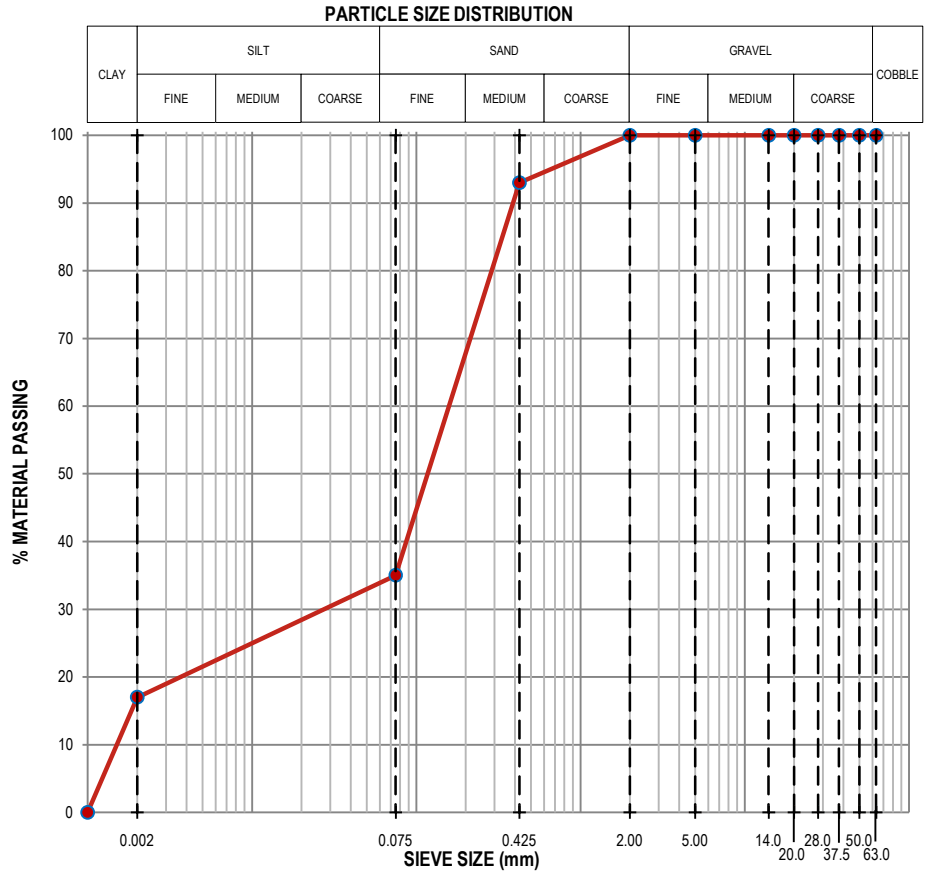
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MATERIAL CLASSIFICATION TEST RESULTS

TEST PIT / HOLE No.:	Test Pit 8	MATERIAL DEPTH (mm) :	0 - 1300	SAMPLE No / LABORATORY No.:	PF15 / 021/0532
MATERIAL DESCRIPTION :		Dry dusky red medium dense silty SAND			

IN SITU MOISTURE CONTENT (GR20) (%)		3.3	
SIEVE ANALYSIS SANS 3001 - GR1 : 2013	SIEVE SIZE	% PASSING	
	63.0 mm	100	
	50.0 mm	100	
	37.5 mm	100	
	28.0 mm	100	
	20.0 mm	100	
	14.0 mm	100	
	5.00 mm	100	
	2.00 mm	100	
	0.425 mm	93	
0.075 mm	35		
*TMH1: METHOD A6 0.002 mm		17	
*SANS 3001 PR6: 2011 SOIL MORTAR	GRADING MODULUS (GM)		0.72
	COARSE SAND		7
	FINE SAND (Course)		17
	FINE SAND (Medium)		21
	FINE SAND (Fine)		21
SILT AND CLAY (<0.075mm)		35	
ATTERBERG LIMITS MATERIAL PASSING 0.425mm SANS 3001 - GR10: 2011	L.L. (%)		-
	P.I. (%)		Non Plastic
	L.S. (%)		0.0
* MEASURES OF GRADATIONS	C _u (ASTM D2487)		154.5
	C _c (ASTM D2487)		1.2
	% Clay (>0.002mm)		17
	% Silt (0.075 - 0.002mm)		18
	% Sand (0.075 - 2.0mm)		65
	% Gravel (>2.0mm)		0
CBR DETERMINATION SANS 3001 - GR 40: 2013	MAX. DRY DENSITY (kg/m ³)		-
	OPTIMUM MOISTURE (%)		-
	SWELL (%)		-
	CBR @ 100% (%)		-
	CBR @ 98% (%)		-
	CBR @ 95% (%)		-
	CBR @ 93% (%)		-
	CBR @ 90% (%)		-
PROCTOR MAX. DRY DENSITY (kg/m ³)			-
*COMPACTIBILITY (Ratio) (SABS 1200 LB)			-
*CONDUCTIVITY (S/m ²) (TMH1: Method A20)			0.0656
*pH VALUE (TMH1: Method A21)			7.44
*POTENTIAL EXPANSIVENESS			Low - 0.0mm
*AASHTO SOIL CLASSIFICATION			A-3a (0)
*UNIFIED SOIL CLASSIFICATION			SM
*COLTO CLASSIFICATION			-



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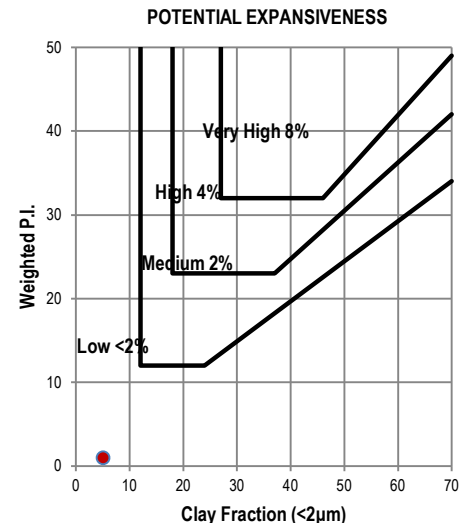
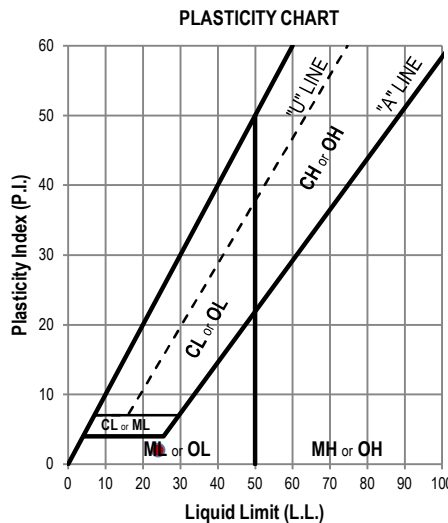
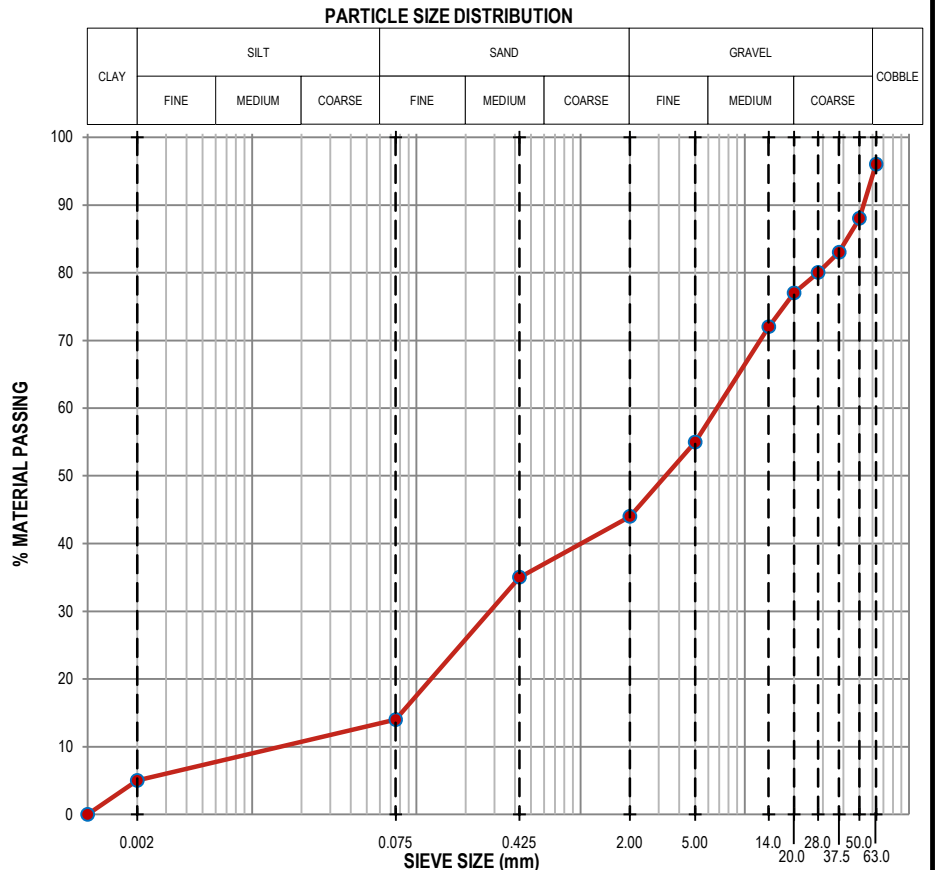
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MATERIAL CLASSIFICATION TEST RESULTS

TEST PIT / HOLE No.:	Test Pit 8	MATERIAL DEPTH (mm) :	1300 - 1900	SAMPLE No / LABORATORY No.:	PF16 / 021/0533
MATERIAL DESCRIPTION :		Slightly moist light reddish brown medium dense silty SAND with calcrete gravel			

IN SITU MOISTURE CONTENT (GR20) (%)		6.2
SIEVE ANALYSIS SANS 3001 - GR1 : 2013	SIEVE SIZE	% PASSING
	63.0 mm	96
	50.0 mm	88
	37.5 mm	83
	28.0 mm	80
	20.0 mm	77
	14.0 mm	72
	5.00 mm	55
	2.00 mm	44
	0.425 mm	35
	0.075 mm	14
*TMH1: METHOD A6	0.002 mm	5
*SANS 3001 PR5: 2011 SOIL MORTAR	GRADING MODULUS (GM)	2.07
	COARSE SAND	20
	FINE SAND (Course)	15
	FINE SAND (Medium)	17
	FINE SAND (Fine)	17
	SILT AND CLAY (<0.075mm)	32
ATTERBERG LIMITS MATERIAL PASSING 0.425mm SANS 3001 - GR10: 2011	L.L. (%)	24
	P.I. (%)	2
	L.S. (%)	1.0
*MEASURES OF GRADATIONS	C _u (ASTM D2487)	33.4
	C _c (ASTM D2487)	10.5
	% Clay (>0.002mm)	5
	% Silt (0.075 - 0.002mm)	9
	% Sand (0.075 - 2.0mm)	30
	% Gravel (>2.0mm)	56
CBR DETERMINATION SANS 3001 - GR 40: 2013	MAX. DRY DENSITY (kg/m ³)	1836
	OPTIMUM MOISTURE (%)	14.0
	SWELL (%)	0.0
	CBR @ 100% (%)	39
	CBR @ 98% (%)	34
	CBR @ 95% (%)	29
	CBR @ 93% (%)	26
CBR @ 90% (%)	21	
PROCTOR MAX. DRY DENSITY (kg/m ³)	1652	
*COMPACTIBILITY (Ratio) (SABS 1200 LB)	0.75	
*CONDUCTIVITY (S/m ²) (TMH1: Method A20)	0.0605	
*pH VALUE (TMH1: Method A21)	7.52	
*POTENTIAL EXPANSIVENESS	Low - 0.0mm	
*AASHTO SOIL CLASSIFICATION	A-1-b (0)	
*UNIFIED SOIL CLASSIFICATION	SM	
*COLTO CLASSIFICATION	*G6	



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APPENDIX D

**DYNAMIC CONE PENETROMETER (DCP'S) TESTS*



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DYNAMIC CONE PENETROMETER (DCP) TEST

POSITION: Test Pit 1

DEPTH BELOW NGL:

0.000m

DYNAMIC CONE PENETROMETER TEST RESULT SUMMARY (TMH 6: 1984, METHOD ST6)

No of Blows	Depth (mm)	Corrected Depth (mm)	Penetration Tempo	dn (mm/blow)	Consistency	**Estimated Bearing Ratio (kPa)	In Situ CBR
0	10	0	-	-	-	-	-
5	56	46	46	9.2	Dense	111	25
10	107	97	51	10.2	Dense	102	22
15	202	192	95	19.0	Medium Dense	67	10
20	324	314	122	24.4	Medium Dense	55	7
25	450	440	126	25.2	Medium Dense	53	7
30	585	575	135	27.0	Medium Dense	50	6
35	704	694	119	23.8	Medium Dense	56	7
40	819	809	115	23.0	Medium Dense	57	7
45	940	930	121	24.2	Medium Dense	55	7
50	1000	990	60	12.0	Dense	91	18

** According to Dr B van Wyk's Method



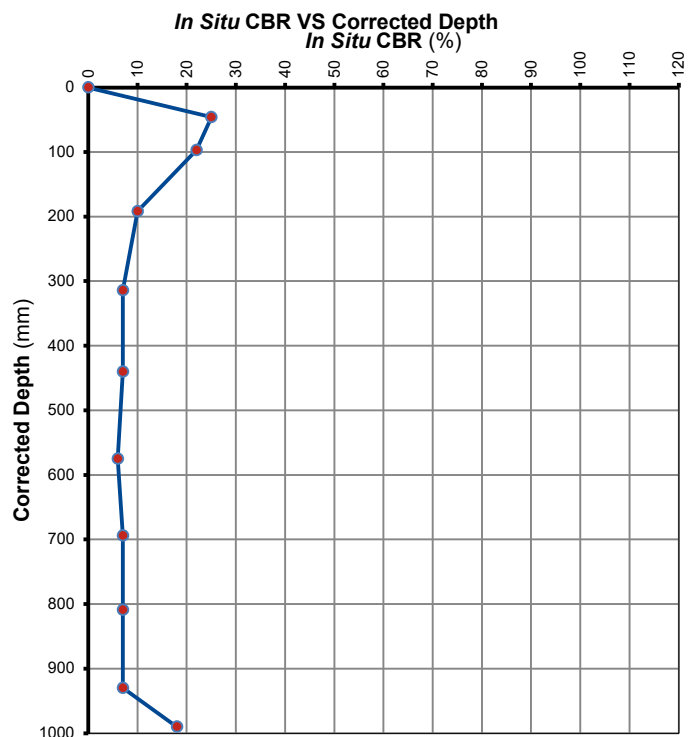
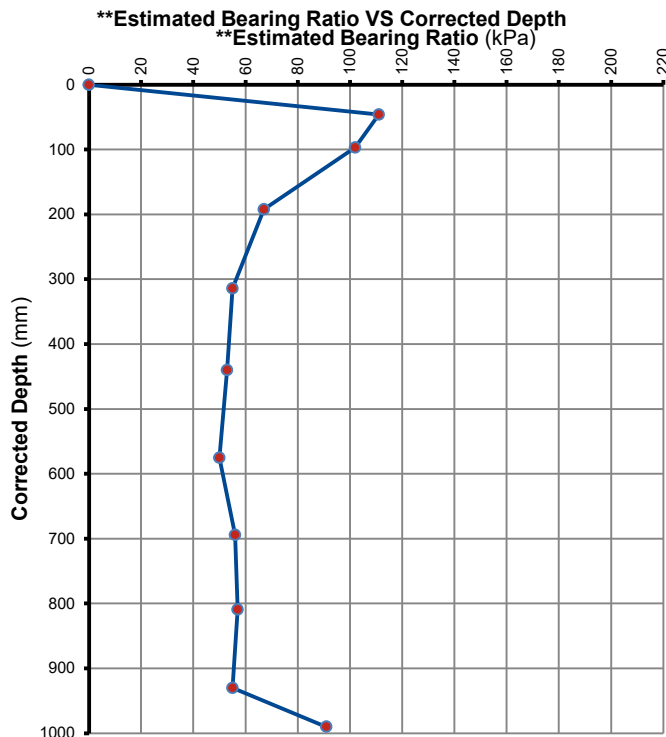
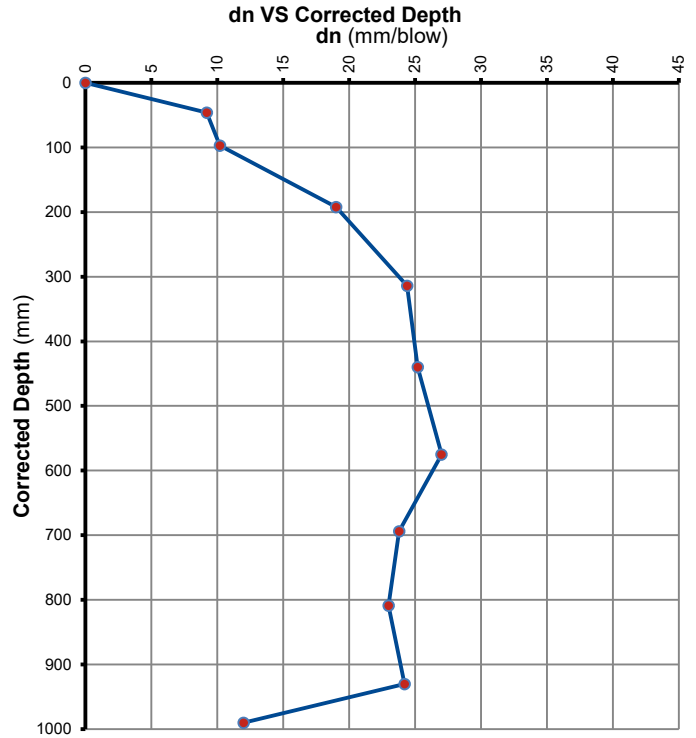
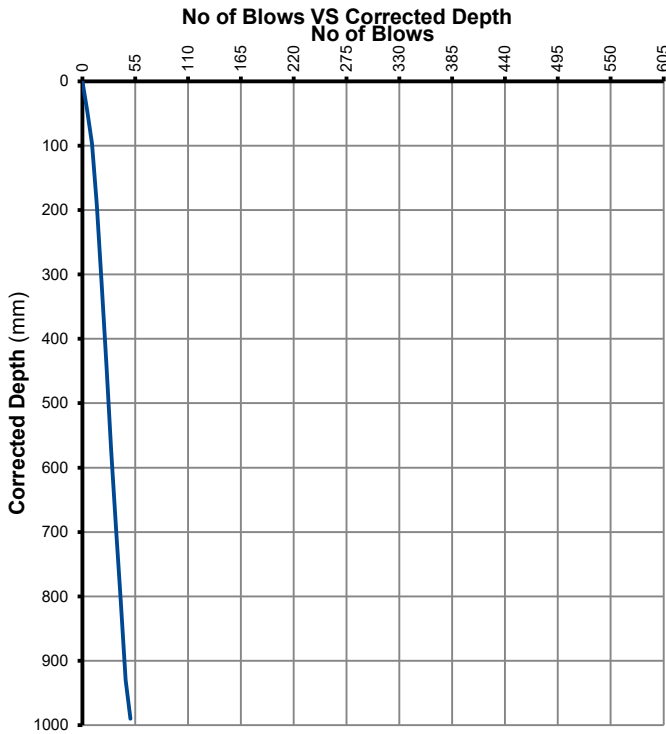
DYNAMIC CONE PENETROMETER (DCP) TEST

POSITION: Test Pit 1

DEPTH BELOW NGL:

0.000m

*DYNAMIC CONE PENETROMETER TEST RESULT SUMMARY (TMH 6: 1984, METHOD ST6)



** According to Dr B van Wyk's Method



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DYNAMIC CONE PENETROMETER (DCP) TEST

POSITION: Test Pit 2

DEPTH BELOW NGL:

0.000m

DYNAMIC CONE PENETROMETER TEST RESULT SUMMARY (TMH 6: 1984, METHOD ST6)

No of Blows	Depth (mm)	Corrected Depth (mm)	Penetration Tempo	dn (mm/blow)	Consistency	**Estimated Bearing Ratio (kPa)	In Situ CBR
0	20	0	-	-	-	-	-
5	123	103	103	20.6	Medium Dense	63	9
10	240	220	117	23.4	Medium Dense	57	7
15	377	357	137	27.4	Medium Dense	49	6
20	493	473	116	23.2	Medium Dense	57	7
25	618	598	125	25.0	Medium Dense	53	7
30	763	743	145	29.0	Medium Dense	47	5
35	879	859	116	23.2	Medium Dense	57	7
40	923	903	44	8.8	Dense	115	27
45	1000	980	77	15.4	Medium Dense	76	13

** According to Dr B van Wyk's Method

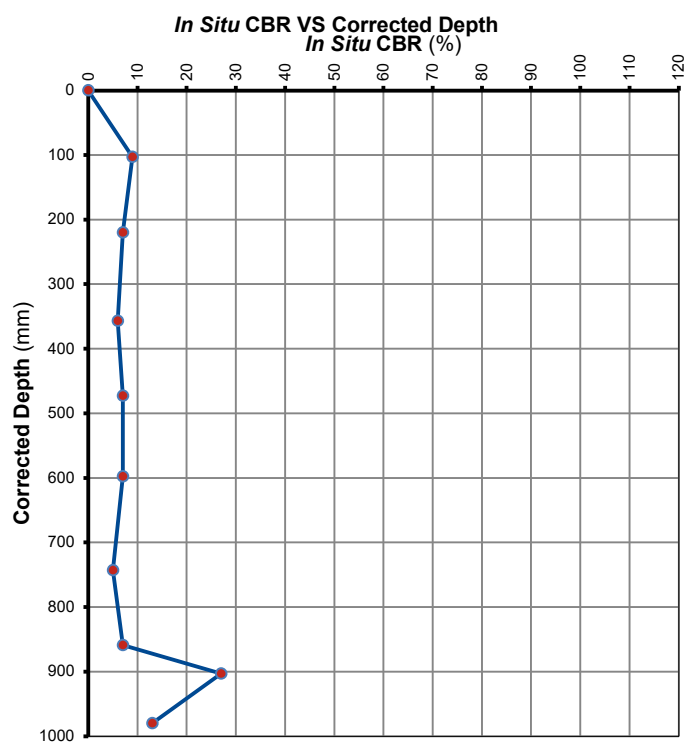
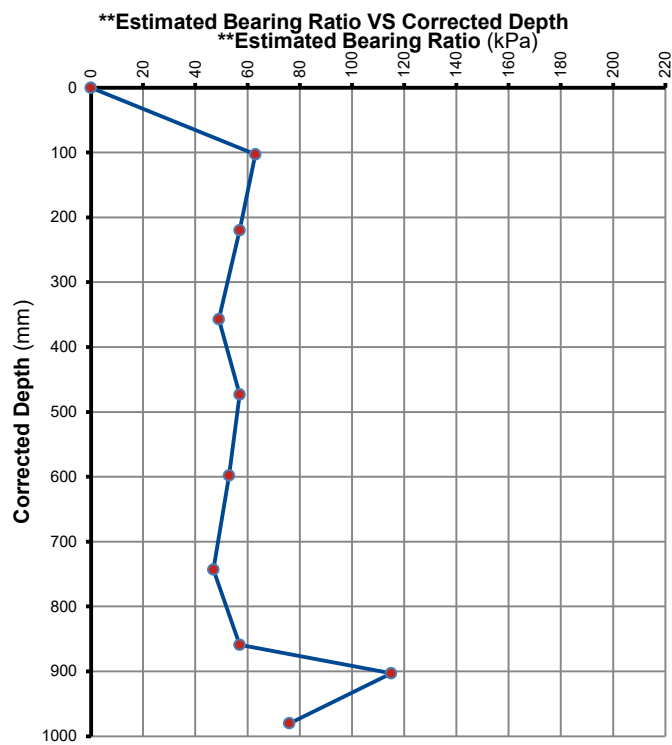
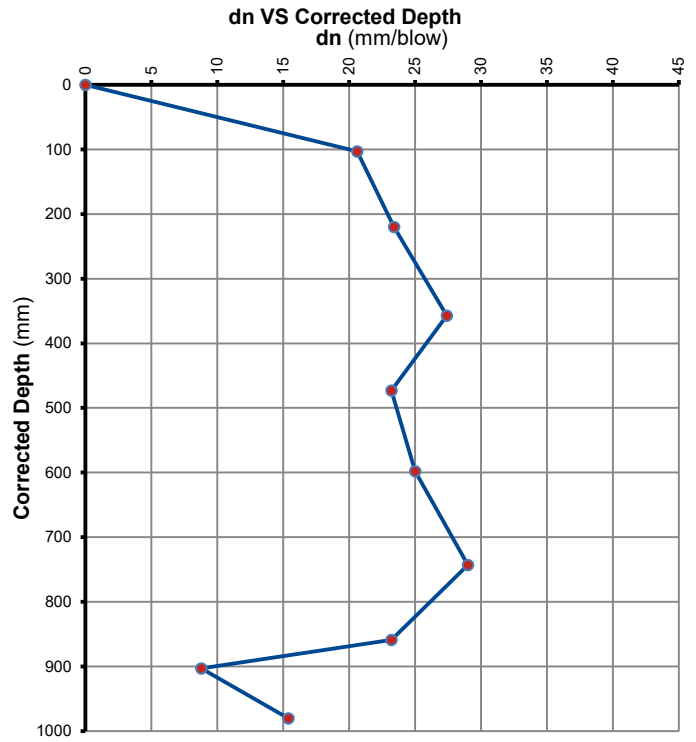
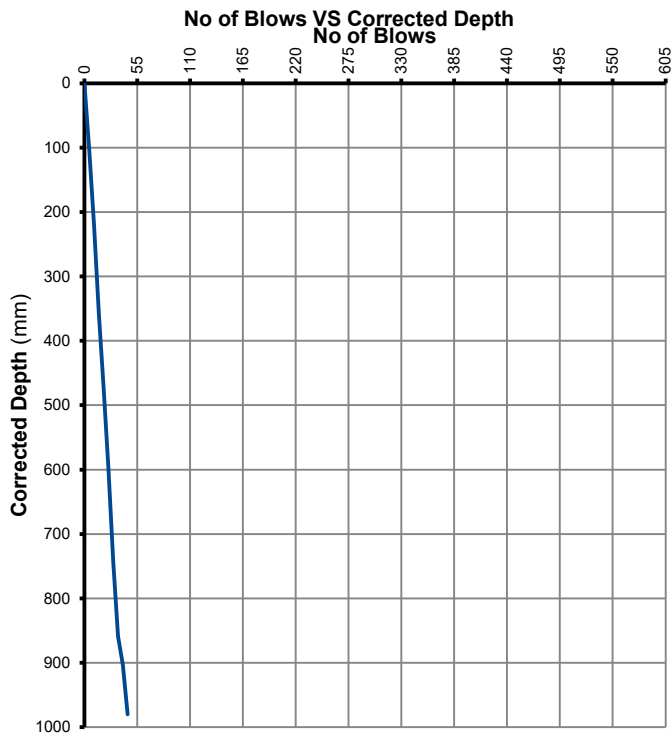


DYNAMIC CONE PENETROMETER (DCP) TEST

POSITION: Test Pit 2

DEPTH BELOW NGL: 0.000m

*DYNAMIC CONE PENETROMETER TEST RESULT SUMMARY (TMH 6: 1984, METHOD ST6)



** According to Dr B van Wyk's Method



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DYNAMIC CONE PENETROMETER (DCP) TEST

POSITION: Test Pit 3

DEPTH BELOW NGL:

0.000m

DYNAMIC CONE PENETROMETER TEST RESULT SUMMARY (TMH 6: 1984, METHOD ST6)

No of Blows	Depth (mm)	Corrected Depth (mm)	Penetration Tempo	dn (mm/blow)	Consistency	**Estimated Bearing Ratio (kPa)	In Situ CBR
0	45	0	-	-	-	-	-
5	153	108	108	21.6	Medium Dense	61	8
10	284	239	131	26.2	Medium Dense	51	6
15	427	382	143	28.6	Medium Dense	47	6
20	583	538	156	31.2	Loose	44	5
25	755	710	172	34.4	Loose	42	4
30	893	848	138	27.6	Medium Dense	49	6
35	1000	955	107	21.4	Medium Dense	61	8

** According to Dr B van Wyk's Method

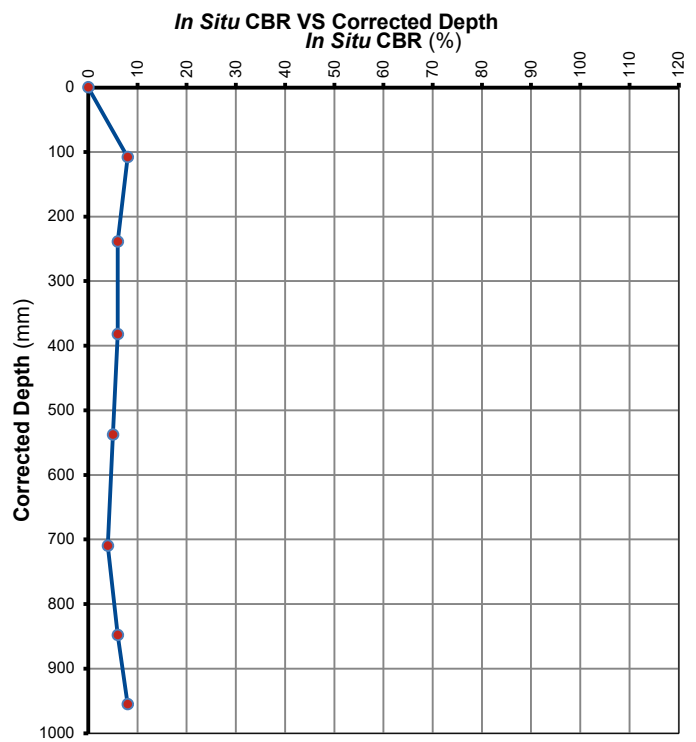
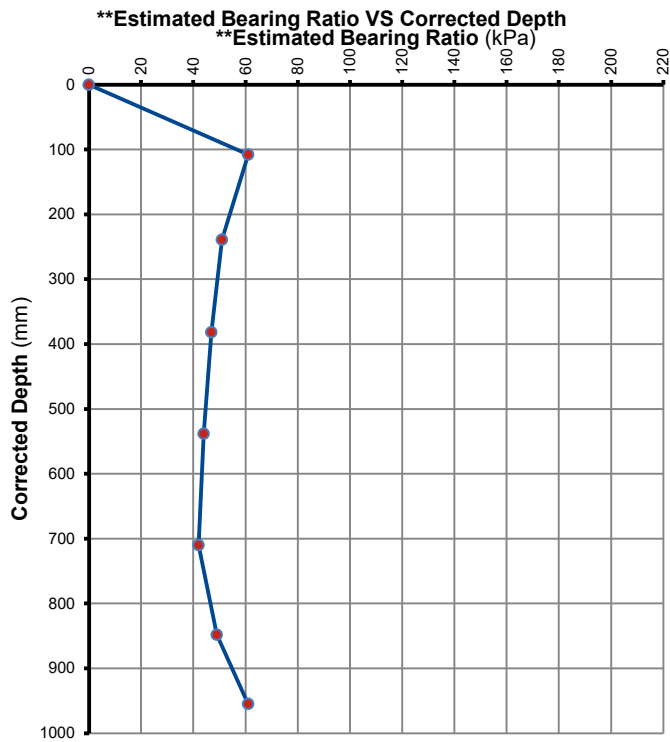
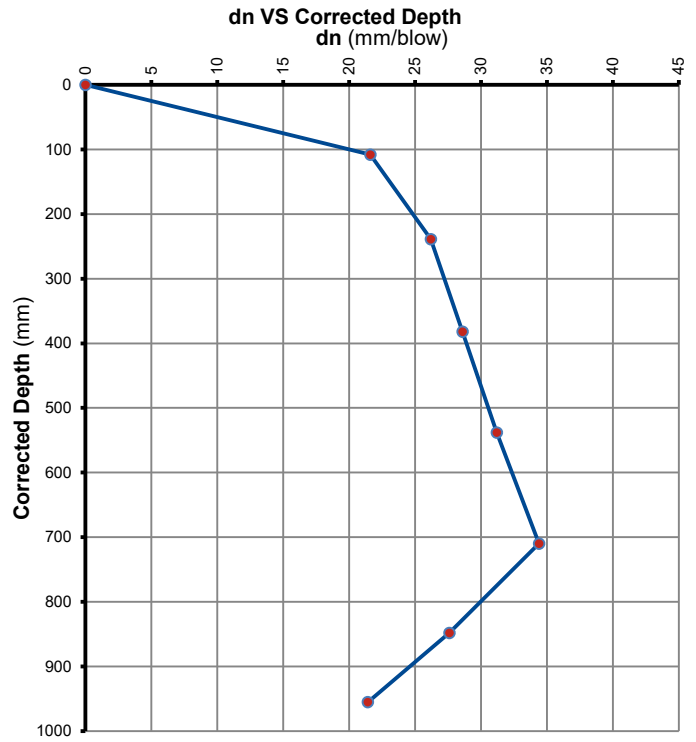
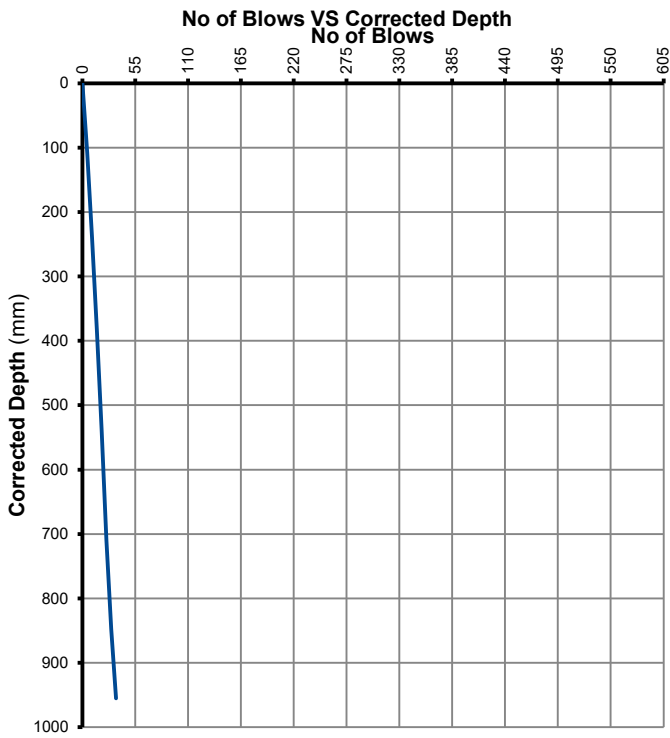


DYNAMIC CONE PENETROMETER (DCP) TEST

POSITION: Test Pit 3

DEPTH BELOW NGL: 0.000m

*DYNAMIC CONE PENETROMETER TEST RESULT SUMMARY (TMH 6: 1984, METHOD ST6)



** According to Dr B van Wyk's Method

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POSITION: Test Pit 4

DEPTH BELOW NGL:

0.000m

DYNAMIC CONE PENETROMETER TEST RESULT SUMMARY (TMH 6: 1984, METHOD ST6)

No of Blows	Depth (mm)	Corrected Depth (mm)	Penetration Tempo	dn (mm/blow)	Consistency	**Estimated Bearing Ratio (kPa)	In Situ CBR
0	19	0	-	-	-	-	-
5	95	76	76	15.2	Medium Dense	77	13
10	223	204	128	25.6	Medium Dense	52	6
15	350	331	127	25.4	Medium Dense	53	7
20	495	476	145	29.0	Medium Dense	47	5
25	640	621	145	29.0	Medium Dense	47	5
30	800	781	160	32.0	Loose	43	5
35	916	897	116	23.2	Medium Dense	57	7
40	1000	981	84	16.8	Medium Dense	72	11

** According to Dr B van Wyk's Method

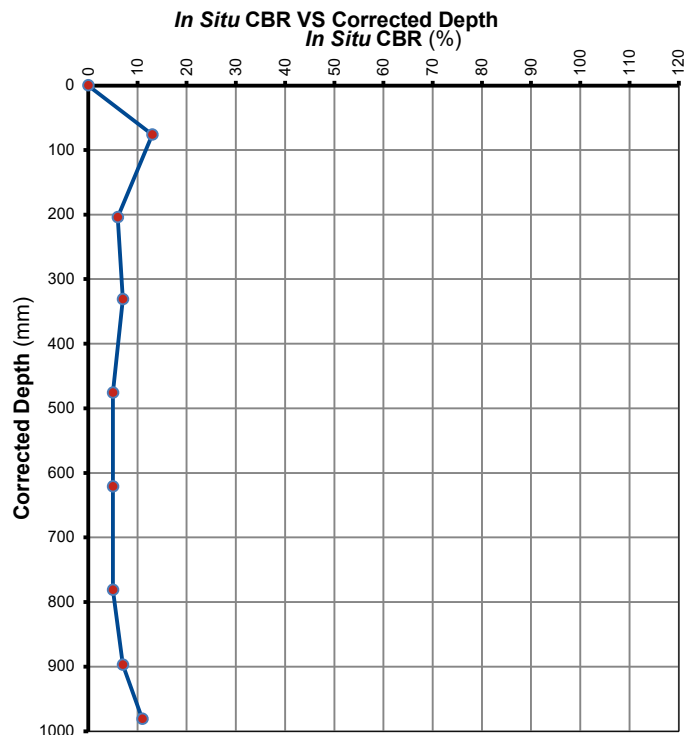
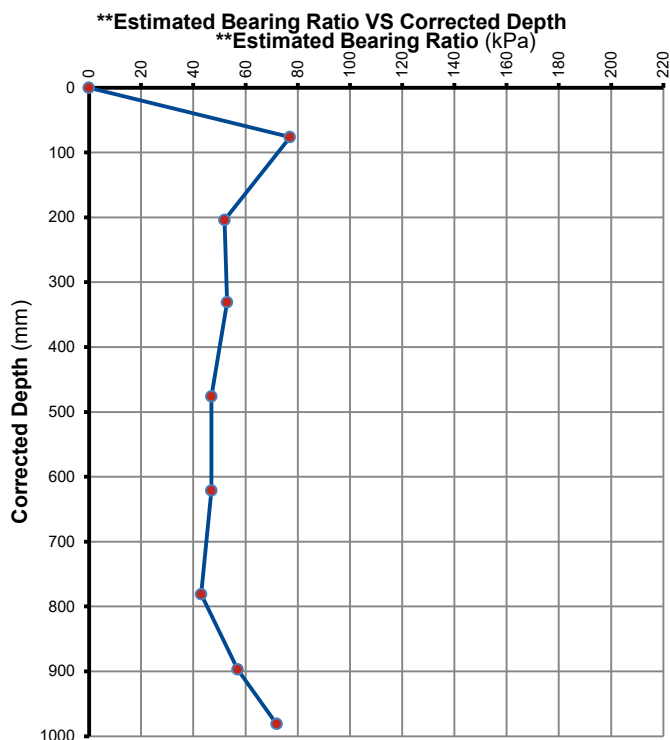
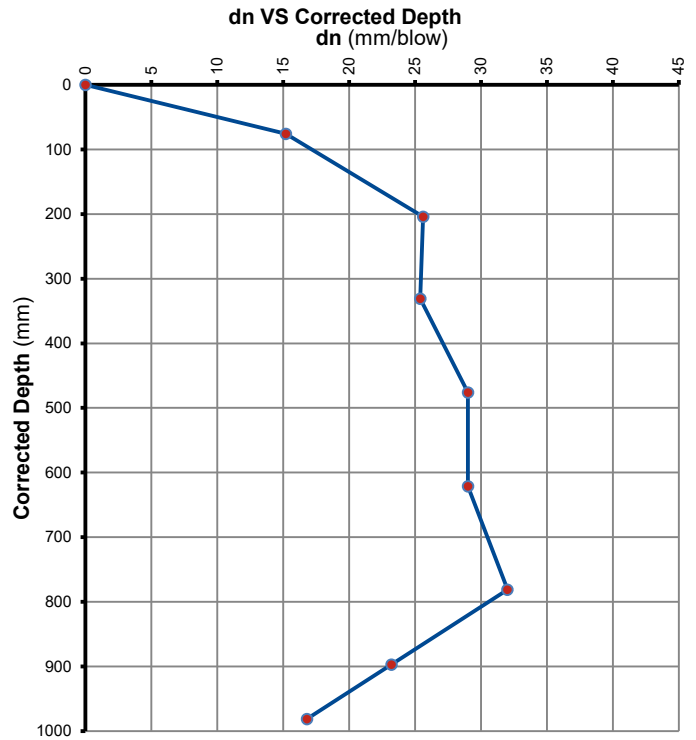
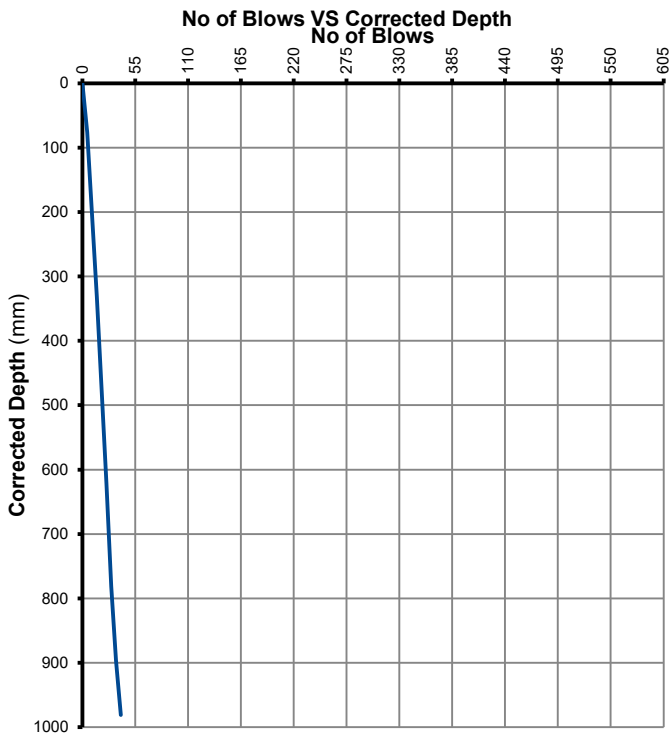


DYNAMIC CONE PENETROMETER (DCP) TEST

POSITION: Test Pit 4

DEPTH BELOW NGL: 0.000m

*DYNAMIC CONE PENETROMETER TEST RESULT SUMMARY (TMH 6: 1984, METHOD ST6)



** According to Dr B van Wyk's Method



DYNAMIC CONE PENETROMETER (DCP) TEST

POSITION: Test Pit 5

DEPTH BELOW NGL:

0.000m

DYNAMIC CONE PENETROMETER TEST RESULT SUMMARY (TMH 6: 1984, METHOD ST6)

No of Blows	Depth (mm)	Corrected Depth (mm)	Penetration Tempo	dn (mm/blow)	Consistency	**Estimated Bearing Ratio (kPa)	In Situ CBR
0	20	0	-	-	-	-	-
5	133	113	113	22.6	Medium Dense	58	8
10	275	255	142	28.4	Medium Dense	48	6
15	395	375	120	24.0	Medium Dense	55	7
20	494	474	99	19.8	Medium Dense	65	9
25	566	546	72	14.4	Medium Dense	80	14
30	642	622	76	15.2	Medium Dense	77	13
35	671	651	29	5.8	Dense	157	47
40	689	669	18	3.6	Very Dense	> 200	88
45	705	685	16	3.2	Very Dense	> 200	103
50	719	699	14	2.8	Very Dense	> 200	> 110
55	730	710	11	2.2	Very Dense	> 200	> 110
60	742	722	12	2.4	Very Dense	> 200	> 110
65	754	734	12	2.4	Very Dense	> 200	> 110
70	767	747	13	2.6	Very Dense	> 200	> 110
75	780	760	13	2.6	Very Dense	> 200	> 110
80	791	771	11	2.2	Very Dense	> 200	> 110
85	804	784	13	2.6	Very Dense	> 200	> 110
90	817	797	13	2.6	Very Dense	> 200	> 110
95	833	813	16	3.2	Very Dense	> 200	103
100	868	848	35	7.0	Dense	137	36
105	882	862	14	2.8	Very Dense	> 200	> 110
110	891	871	9	1.8	Very Dense	> 200	> 110
115	931	911	40	8.0	Dense	124	31
120	963	943	32	6.4	Dense	147	41
125	978	958	15	3.0	Very Dense	> 200	> 110
130	989	969	11	2.2	Very Dense	> 200	> 110
135	1000	980	11	2.2	Very Dense	> 200	> 110

** According to Dr B van Wyk's Method



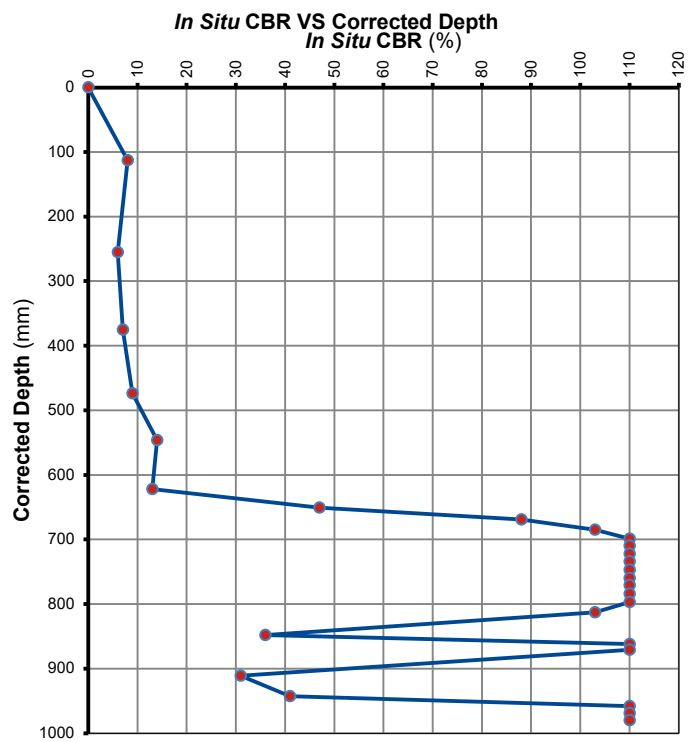
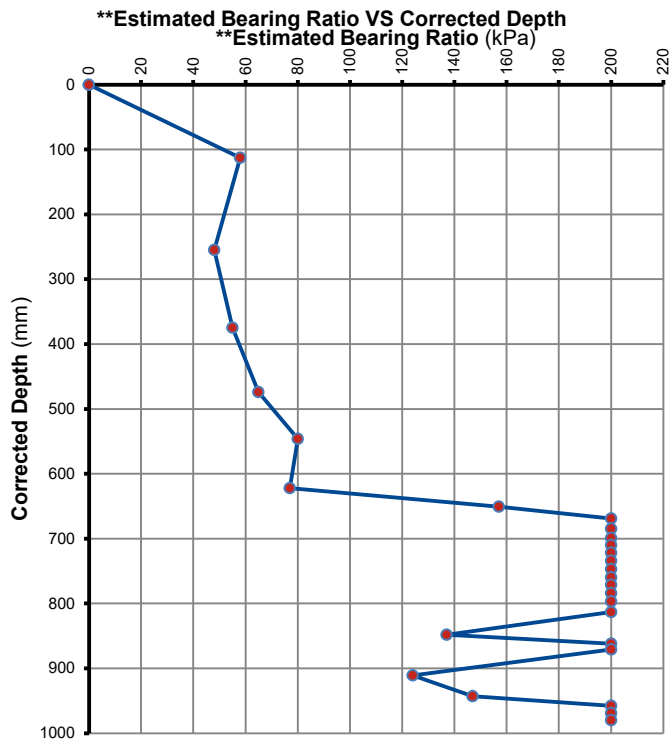
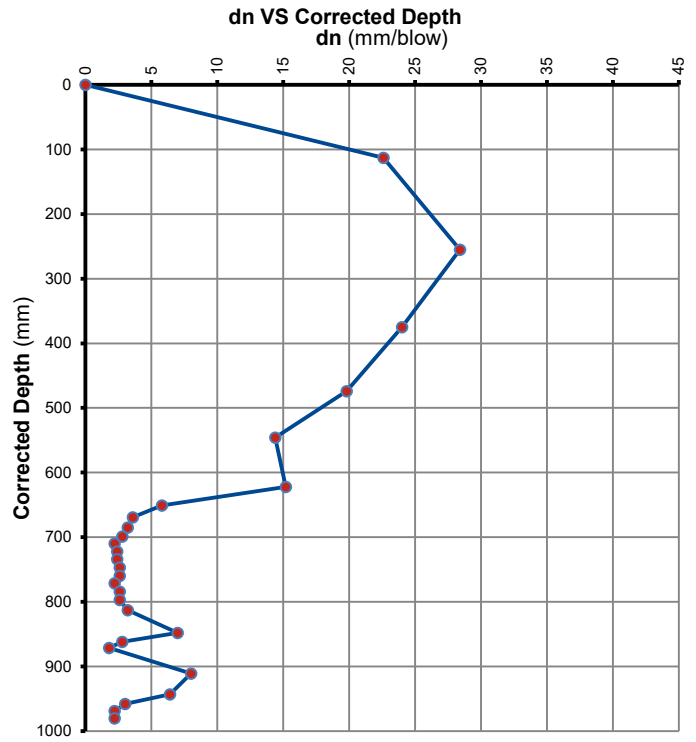
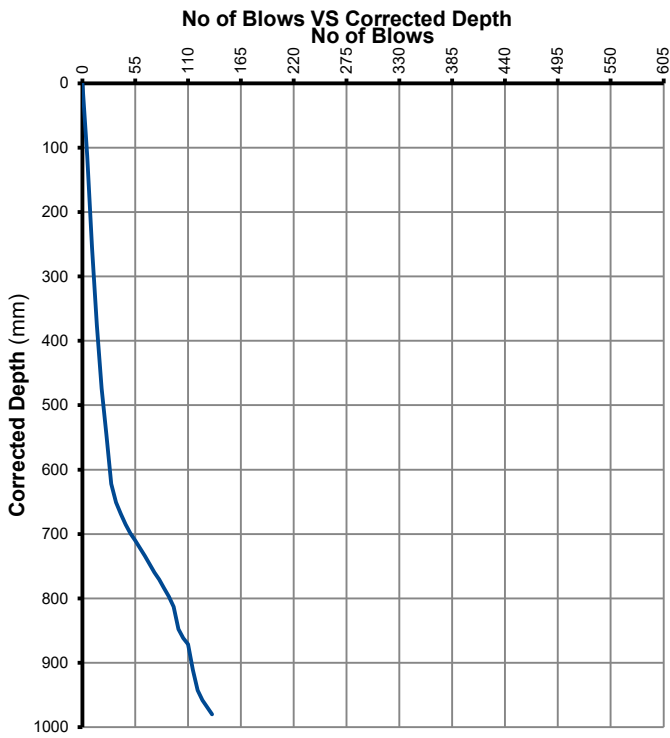
DYNAMIC CONE PENETROMETER (DCP) TEST

POSITION: Test Pit 5

DEPTH BELOW NGL:

0.000m

*DYNAMIC CONE PENETROMETER TEST RESULT SUMMARY (TMH 6: 1984, METHOD ST6)



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POSITION: Test Pit 6

DEPTH BELOW NGL:

0.000m

DYNAMIC CONE PENETROMETER TEST RESULT SUMMARY (TMH 6: 1984, METHOD ST6)

No of Blows	Depth (mm)	Corrected Depth (mm)	Penetration Tempo	dn (mm/blow)	Consistency	**Estimated Bearing Ratio (kPa)	In Situ CBR
0	5	0	-	-	-	-	-
5	137	132	132	26.4	Medium Dense	51	6
10	345	340	208	41.6	Loose	40	3
15	548	543	203	40.6	Loose	41	4
20	751	746	203	40.6	Loose	41	4
25	922	917	171	34.2	Loose	42	4
30	1000	995	78	15.6	Medium Dense	76	13

** According to Dr B van Wyk's Method



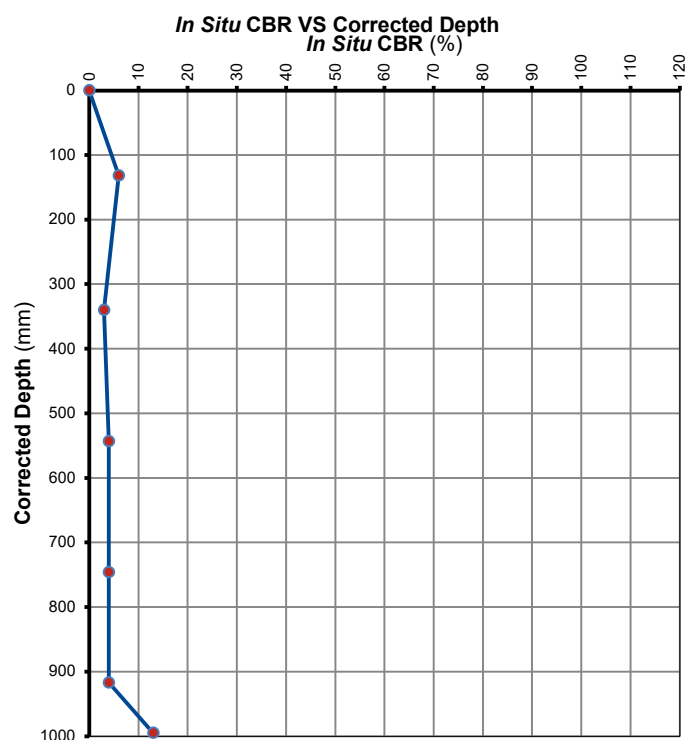
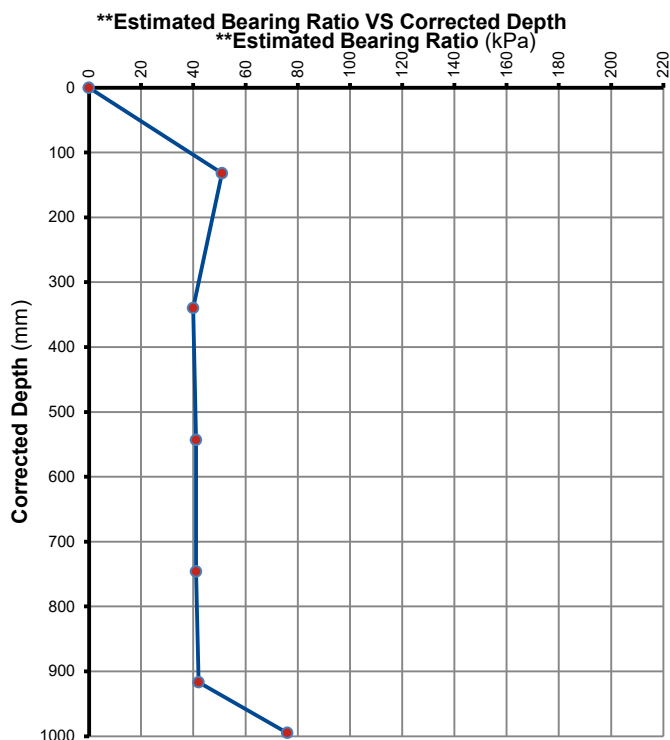
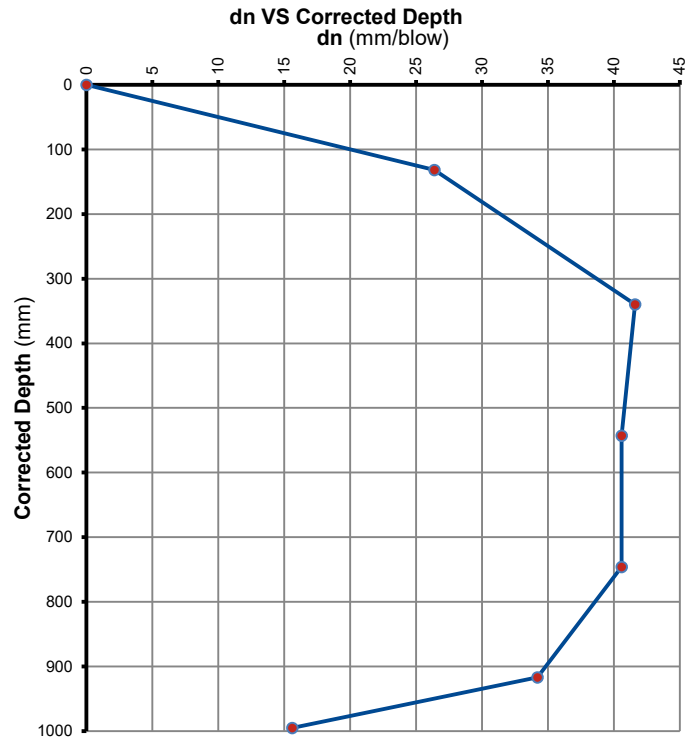
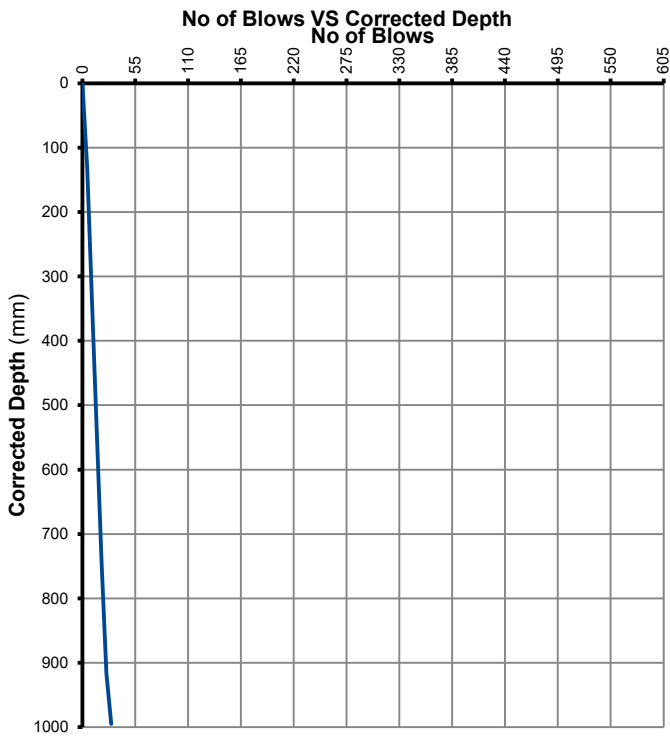
DYNAMIC CONE PENETROMETER (DCP) TEST

POSITION: Test Pit 6

DEPTH BELOW NGL:

0.000m

*DYNAMIC CONE PENETROMETER TEST RESULT SUMMARY (TMH 6: 1984, METHOD ST6)



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DYNAMIC CONE PENETROMETER (DCP) TEST

POSITION: Test Pit 7

DEPTH BELOW NGL:

0.000m

DYNAMIC CONE PENETROMETER TEST RESULT SUMMARY (TMH 6: 1984, METHOD ST6)

No of Blows	Depth (mm)	Corrected Depth (mm)	Penetration Tempo	dn (mm/blow)	Consistency	**Estimated Bearing Ratio (kPa)	In Situ CBR
0	14	0	-	-	-	-	-
5	130	116	116	23.2	Medium Dense	57	7
10	261	247	131	26.2	Medium Dense	51	6
15	410	396	149	29.8	Medium Dense	46	5
20	595	581	185	37.0	Loose	41	4
25	800	786	205	41.0	Loose	41	3
30	1000	986	200	40.0	Loose	41	4

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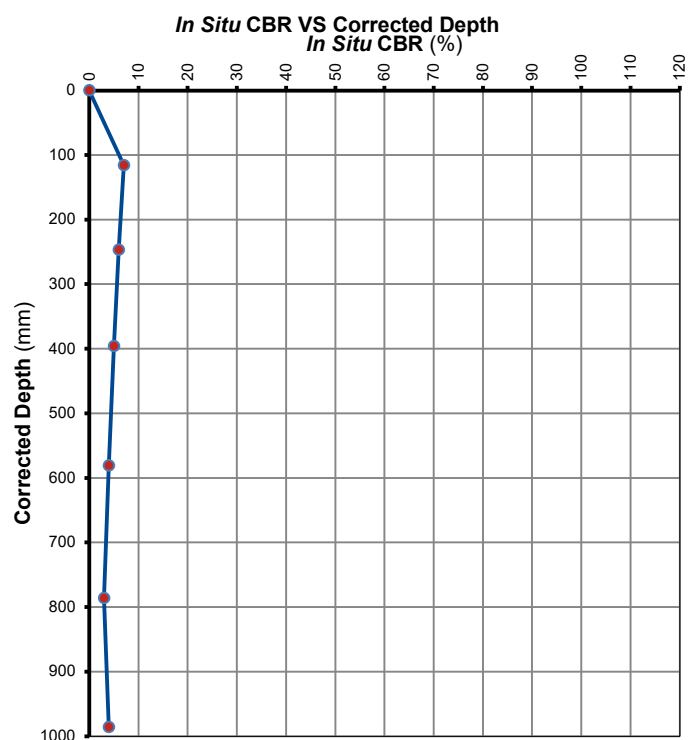
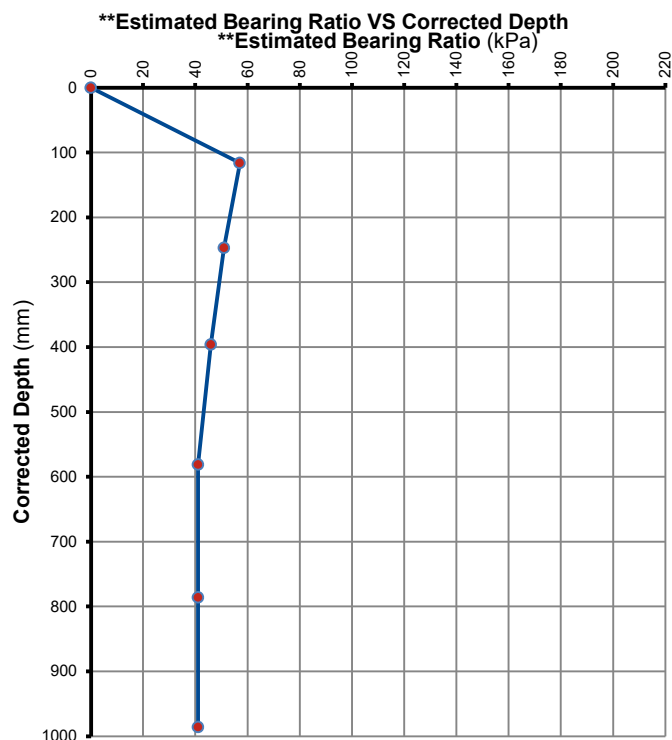
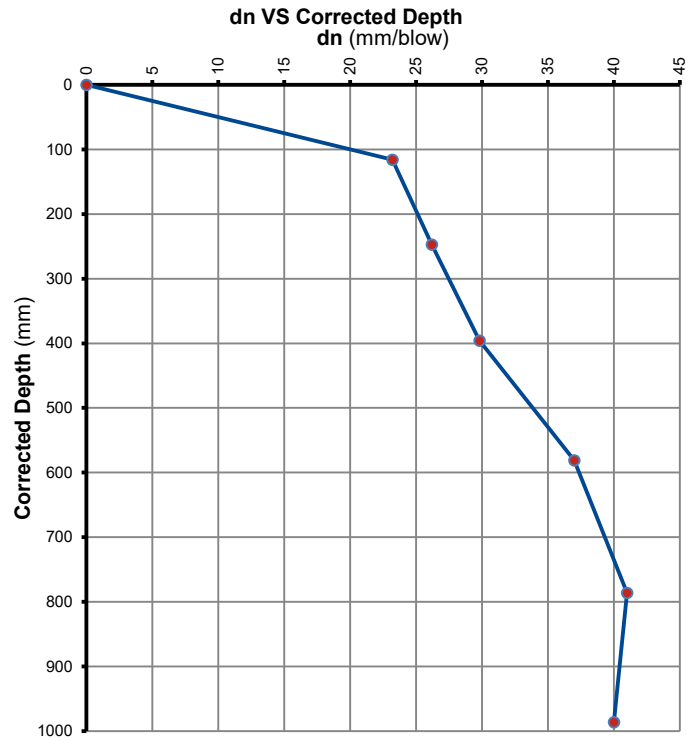
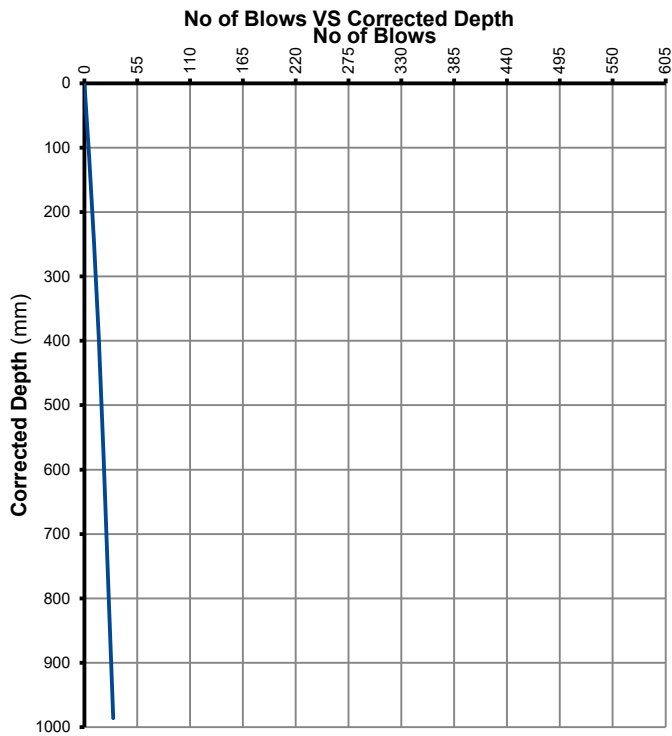
DYNAMIC CONE PENETROMETER (DCP) TEST

POSITION: Test Pit 7

DEPTH BELOW NGL:

0.000m

*DYNAMIC CONE PENETROMETER TEST RESULT SUMMARY (TMH 6: 1984, METHOD ST6)



** According to Dr B van Wyk's Method



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DYNAMIC CONE PENETROMETER (DCP) TEST

POSITION: Test Pit 8

DEPTH BELOW NGL:

0.000m

DYNAMIC CONE PENETROMETER TEST RESULT SUMMARY (TMH 6: 1984, METHOD ST6)

No of Blows	Depth (mm)	Corrected Depth (mm)	Penetration Tempo	dn (mm/blow)	Consistency	**Estimated Bearing Ratio (kPa)	In Situ CBR
0	22	0	-	-	-	-	-
5	144	122	122	24.4	Medium Dense	55	7
10	285	263	141	28.2	Medium Dense	48	6
15	486	464	201	40.2	Loose	41	4
20	743	721	257	51.4	Loose	23	3
25	936	914	193	38.6	Loose	41	4
30	1000	978	64	12.8	Medium Dense	87	16

** According to Dr B van Wyk's Method

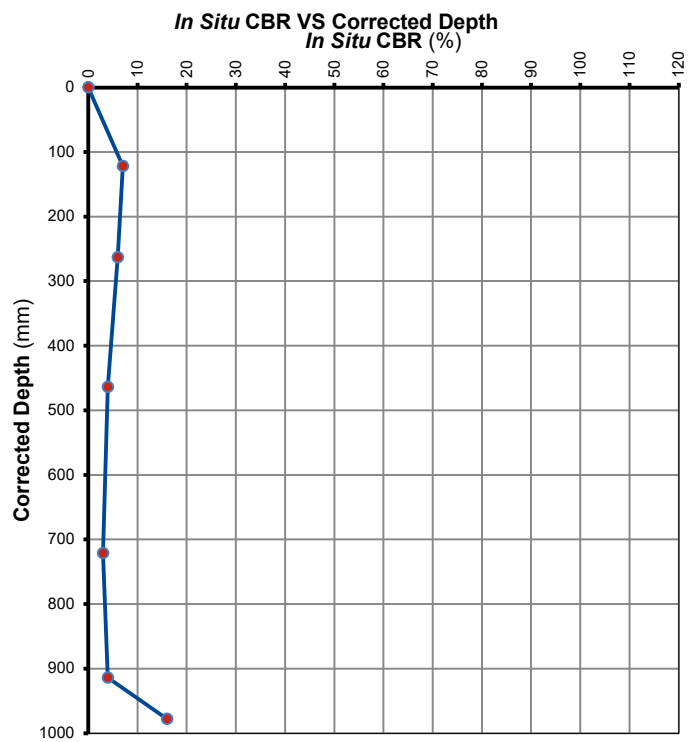
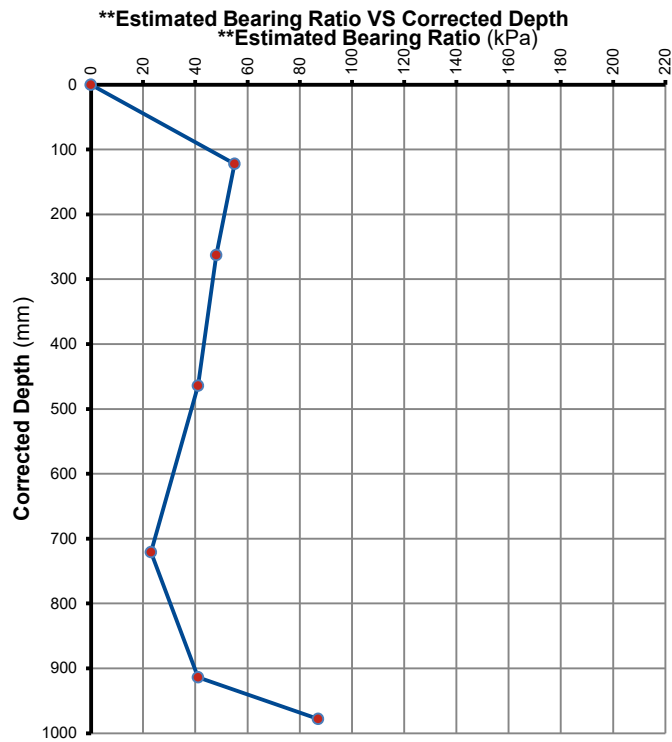
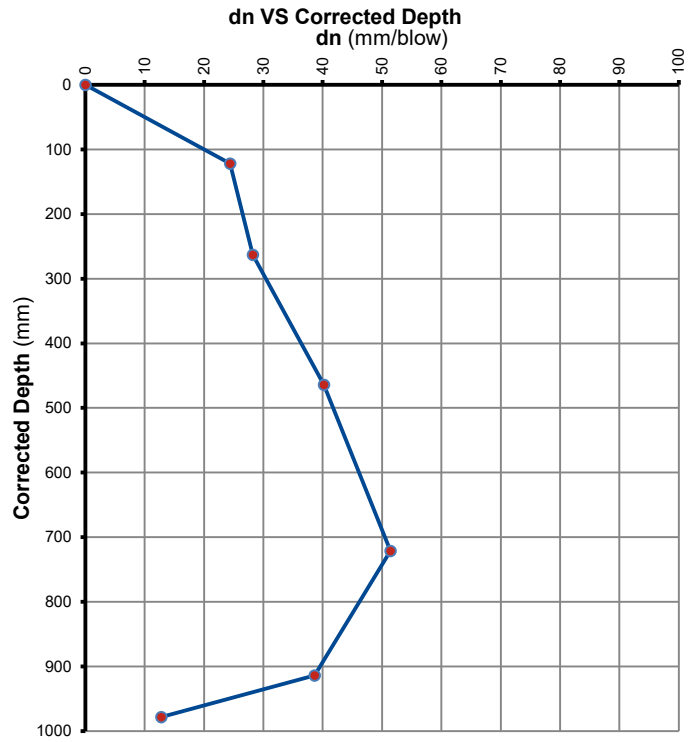
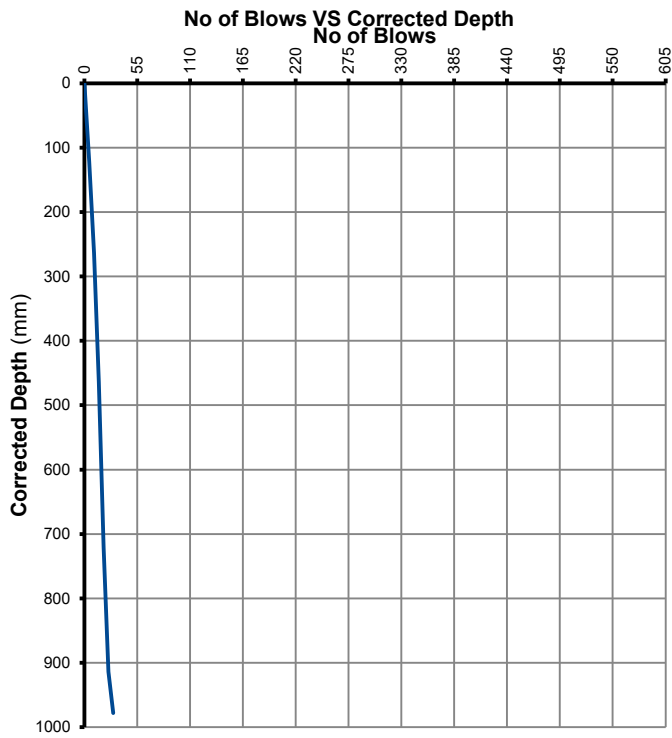


DYNAMIC CONE PENETROMETER (DCP) TEST

POSITION: Test Pit 8

DEPTH BELOW NGL: 0.000m

*DYNAMIC CONE PENETROMETER TEST RESULT SUMMARY (TMH 6: 1984, METHOD ST6)



** According to Dr B van Wyk's Method

APPENDIX E

SITE PHOTOS



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SITE PHOTOS



Test Pit 1



Test Pit 2



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SITE PHOTOS



Test Pit 3



Test Pit 4



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SITE PHOTOS



Test Pit 5



Test Pit 6



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SITE PHOTOS



Test Pit 7



Test Pit 8

APPENDIX F

LAYOUT PLAN / SITE ZONING PLAN



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LAYOUT PLAN / SITE ZONING PLAN



COORDINATES

TP 1	25 Y0031664 X3176912	TP 5	25 Y0031512 X3176970
TP 2	25 Y0031575 X3176936	TP 6	25 Y0031501 X3176961
TP 3	25 Y0031545 X3176915	TP 7	25 Y0031515 X3176939
TP 4	25 Y0031542 X3176983	TP 8	25 Y0031474 X3176961



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LAYOUT PLAN / SITE ZONING PLAN



Colour on Figure 5	Classification (NHBRC)	Lower Limit of Total Heave / Settlement (mm)	Upper Limit of Total Heave / Settlement (mm)
1	C	0.0mm	5.0mm

APPENDIX G

GEOLOGICAL PLAN



Simlab

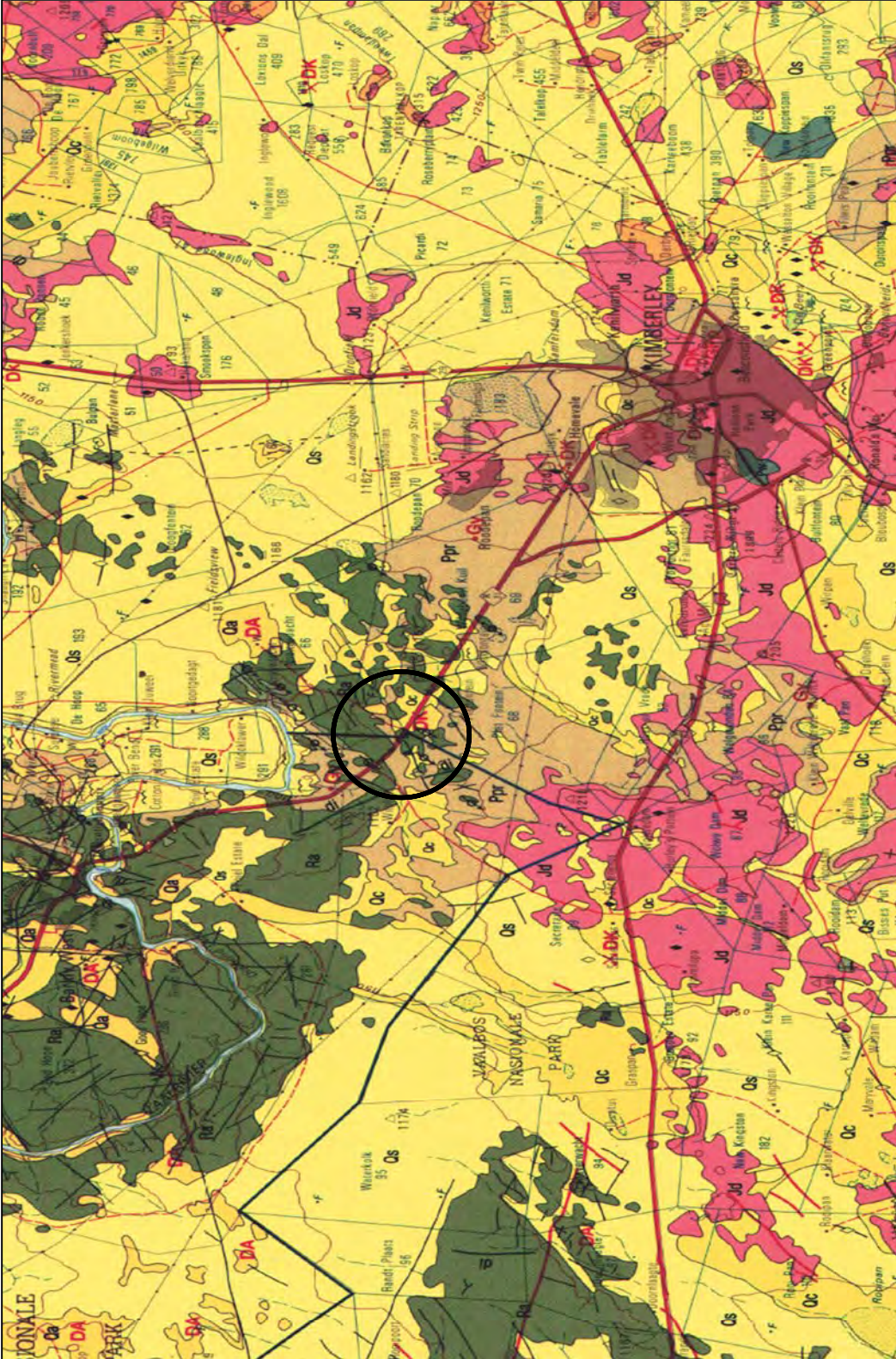
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GEOLOGICAL PLAN



Qc - Calcrete, calcified pandure and surface limestone

Ppr - Shale

Ra - Andesite and Quartzite

Scale of Detail - 1 : 250 000



ANNEXURE 11 – TRAFFIC IMPACT STUDY

PLATFONTEIN, KIMBERLEY

ESTABLISHMENT OF FILLING STATION
TRAFFIC IMPACT ASSESSMENT


MARCH 2021



Project: 7411

PO Box 25054, Langenhoven Park, 9330, 12 AG Visser Street, Langenhoven Park, Bloemfontein
Tel & Fax: 051 446 2647, Cell: 083 381 5884, E-mail: kma@telkomsa.net

REPORT SHEET

Property Description:	<i>Platfontein, Kimberley.</i>
Municipal Area:	<i>Sol Plaatje Local Municipality</i>
Application:	<i>Establishment of Filling Station</i>
Type of Report:	<i>Traffic Impact Assessment</i>
Project Number:	<i>7411</i>
Declaration	<i>I, Koot Marais, author of this study, hereby certify that I am a professional traffic engineer (registration No 920023) and that I have the required experience and training in the field of traffic and transportation engineering as required by the Engineering Council of South Africa (ECSA), to compile traffic impact studies and I take full responsibility for the content, including all calculations, conclusions and recommendations made herein.</i>
Compiled by:	<i>Koot Marais Pr Eng</i>
Signed:	
Date:	<i>March 2021</i>

PREPARED BY:



PO Box 25054, Langenhoven Park, 9330, 12 AG Visser Street, Langenhoven Park, Bloemfontein
Tel & Fax: 051 446 2647, Cell: 083 381 5884, E-mail: kma@telkomsa.net

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1. INTRODUCTION

1.1 Aim of the Study

The aim of this study was to investigate and report on the traffic impact of the proposed establishment of a **Filling Station at Platfontein, Kimberley.**

1.2 Background

It is the intention to develop a filling station at the access to the Platfontein Area and this study deals with the traffic implications of the development.

The study was undertaken as per the requirements of the National Land Transport Act (Act 5 of 2009), and according to the procedures prescribed by the *Manual for Traffic Impact Studies, Report RR93/635, South African Department of Transport, Chief Directorate Roads* as well as *TMH 16: South African Traffic Impact and Site Traffic Assessment Standards and Requirements Manual, COTO, 2018.*

1.3 Site Location

The site is located to the west of the existing urban area, at the intersection of the access road to Platfontein with the R31.

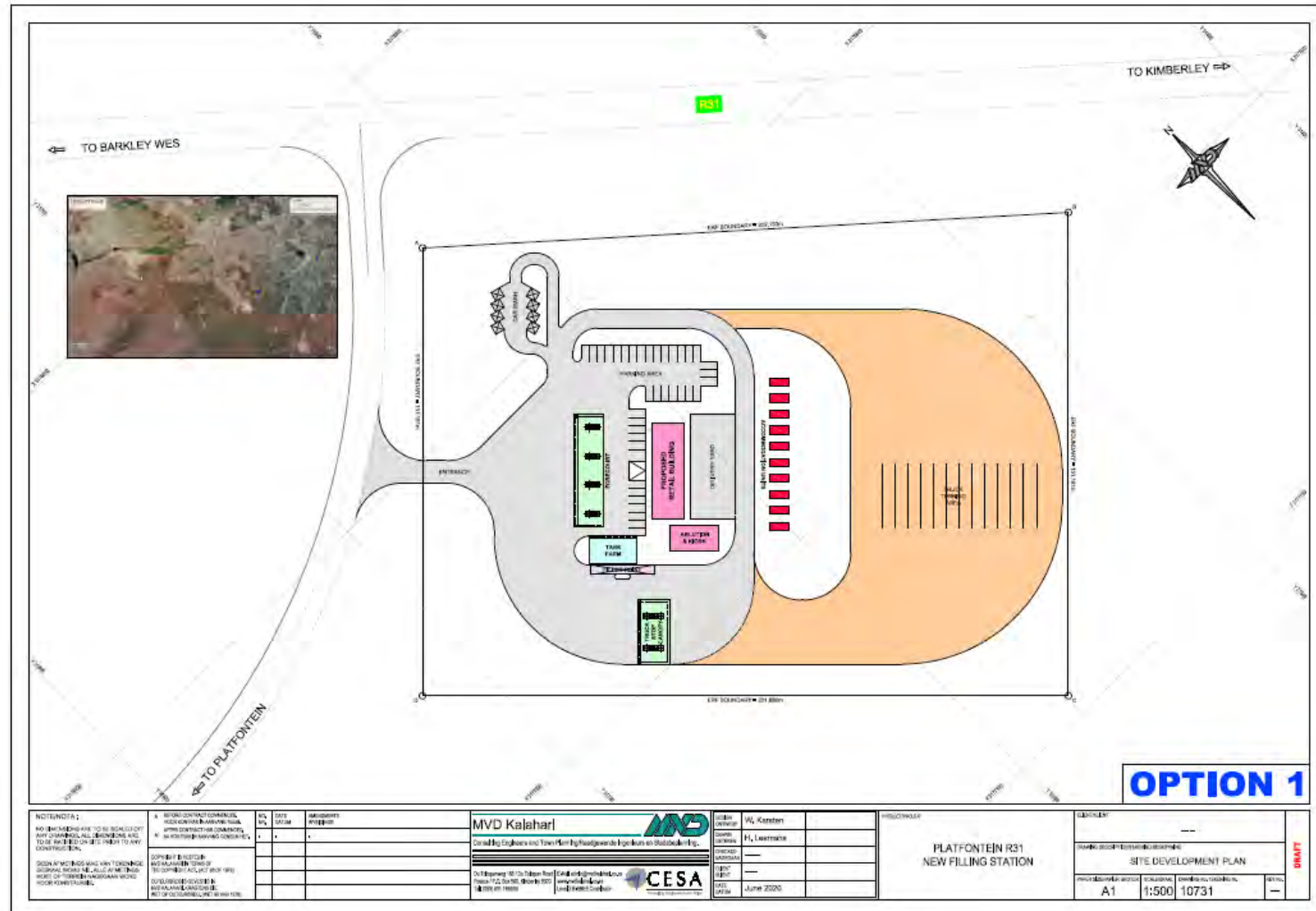


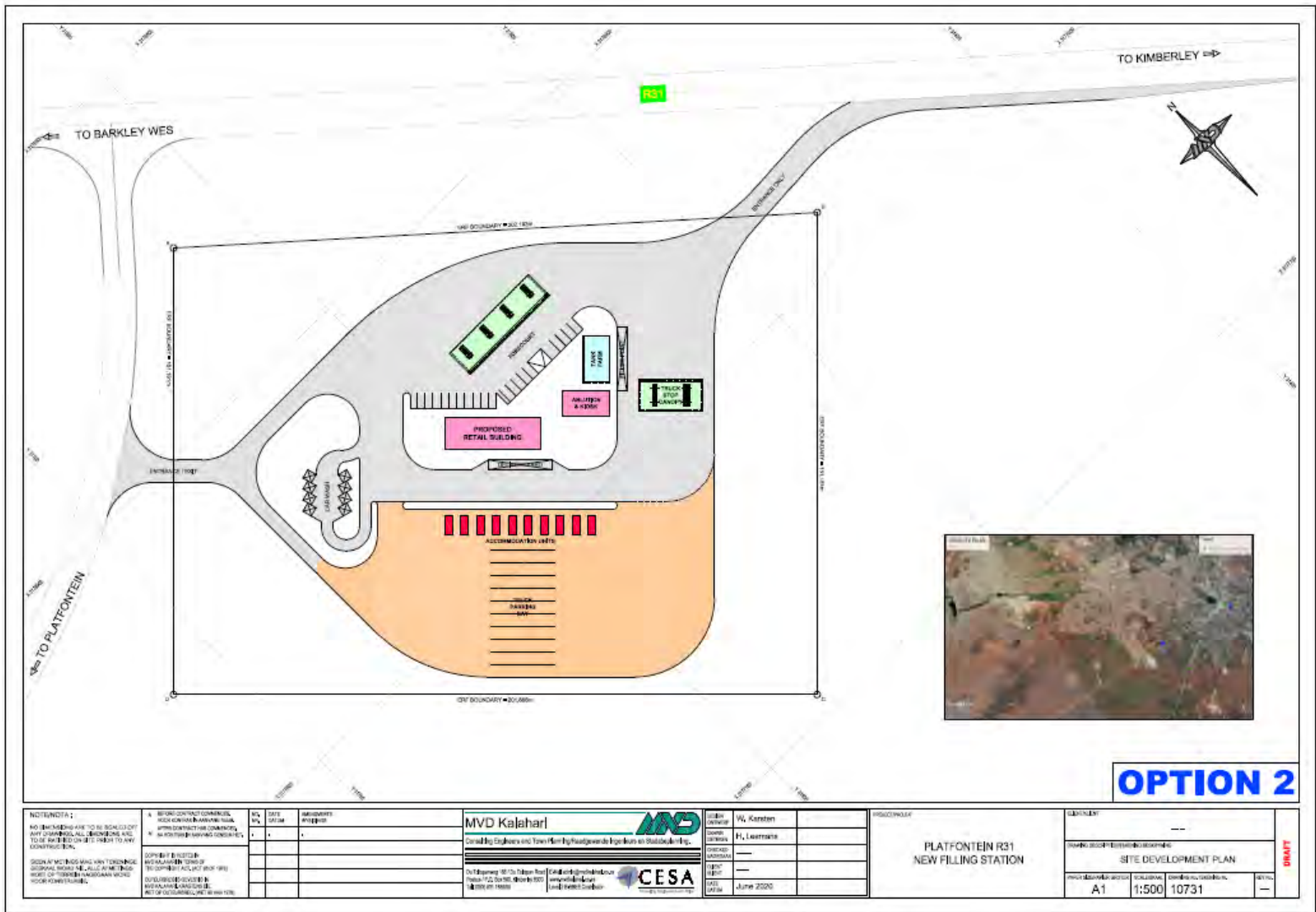


Figures 1.1 & 1.2 Location Plans

1.4 Development

The planned development is shown in the figures below. Two options are shown. The viability of the options is discussed in Chapter 7.





In principle the intention is to develop a standard filling station with a convenience shop

1.5 Scope of Analysis

1.5.1 Period for Analysis

Given the type of development both the morning and afternoon peak hours were investigated, although the road does not display significant peak periods.

1.5.2 Warrants for a Traffic Impact Study

As the development is not expected to generate in excess of 50 new trips, according to the “Manual for Traffic Impact Studies”¹, a Traffic Impact Statement with formal capacity analyses is strictly not warranted; but considering the importance of access, a statement was compiled.

1.5.3 Extent of Analysis

The following intersections were investigated.

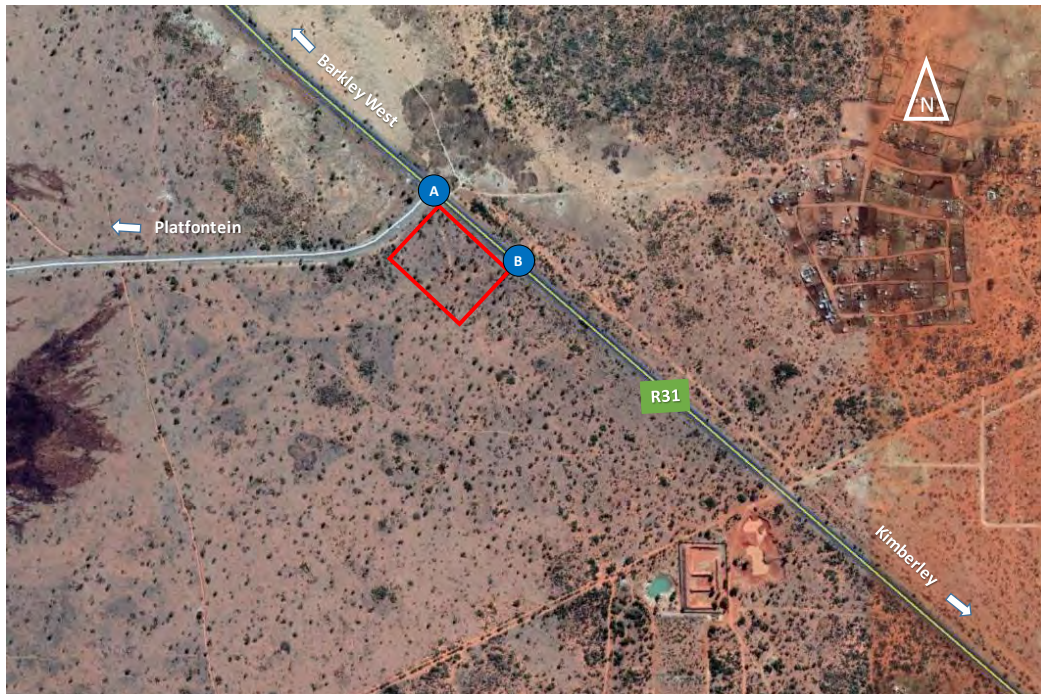


Figure 1.3: Intersections Investigated

- a) **Intersection A:** R31 / Access to Platfontein Intersection
- b) **Intersection B:** Marginal Access from R31

1.5.4 Assessment Years

Current traffic volumes and a five-year horizon were analysed. A generally accepted 3% per annum traffic growth was assumed.

1.6 Available Information

1.6.1 Traffic Counts

Traffic counts were undertaken on 21 September 2020 and on 26 January 2021.

2 BACKGROUND INFORMATION

2.1 Existing Road Network

The most important roads in the area are the following:

a) R31

The R31 is a provincial route that connects Kimberley with the Namibian border via Kuruman and Hotazel. In the area, the road connects Kimberley with Barkly West. The road is a two lane paved road with limited access.



Photo 1: Road as seen towards Barkly West

b) Access Road to Platfontein

The road connects the area with the R31 and is a two lane undivided road.

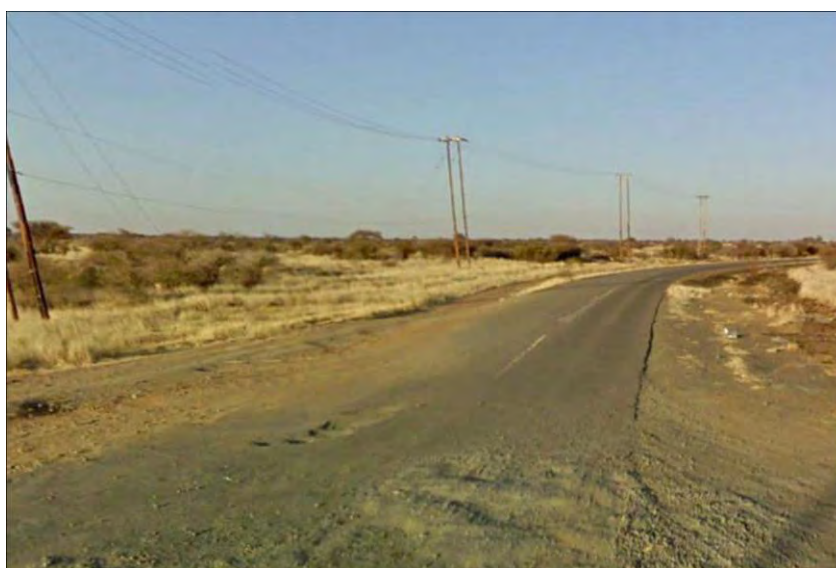


Photo 2: Road as seen towards Platfontein

2.2 Existing Land Use

The site as well as the surrounding area is undeveloped.



Photo 3: Development site as seen from R31

2.3 Road Planning

There is no known road planning that will directly affect the development.

3 TRIP GENERATION

3.1 Trip Generation Descriptions

Relevant land uses for this development as described in the TMH 17 are as follows:

3.1.1 Filling Station 946

Filling Stations at which the primary business is the fuelling of motor vehicles. Related facilities such as a convenience shop, service facilities and a car wash are not included.

TMH 17 however does not provide any indication of trip generation rates. The South African Trip Generation Rates document provides the following information.

3.1.1 Filling Station

According to the “The South African Trip Generation Rates” ² a filling station is expected to attract 4% of passing traffic with 16% of the attracted traffic expected to be new trips.

3.2 Trip Generation

The expected trip generation is shown in the relevant figures in Chapter 4.

4 TRIP DISTRIBUTION & - ASSIGNMENT

The following figures show the trip distribution and - assignment. As a worst case, all trips were distributed to the access road

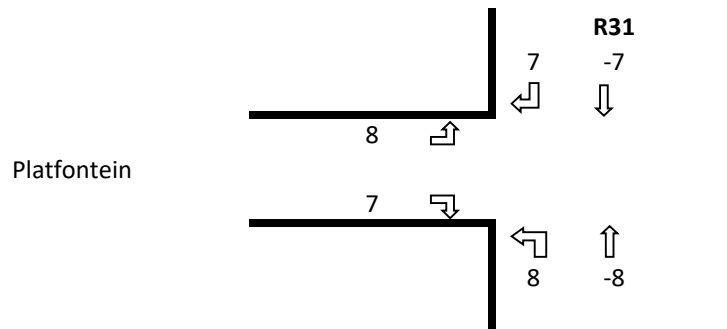


Figure 4.1 AM Trip Distribution

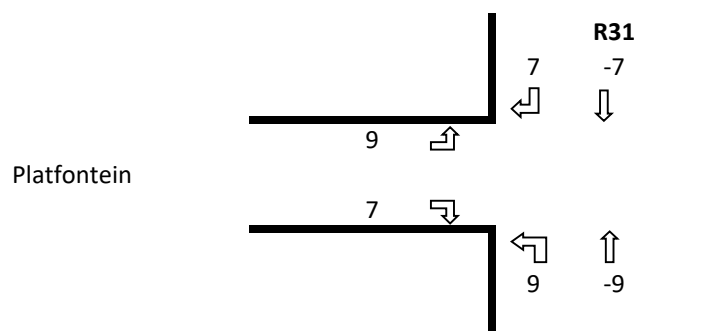


Figure 4.2 PM Trip Distribution

5 TRAFFIC SCENARIOS

The following figures show the traffic volumes for the different scenarios.

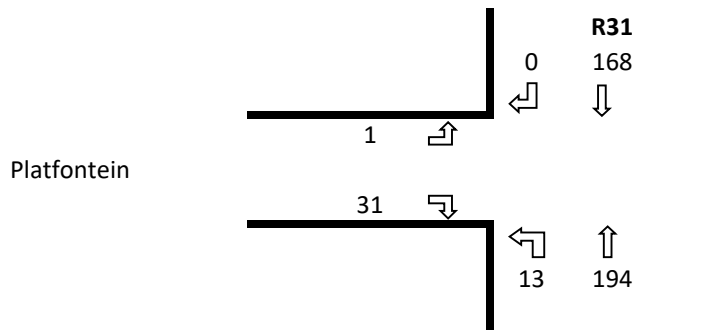


Figure 5.1: 2021 AM Peak Volumes

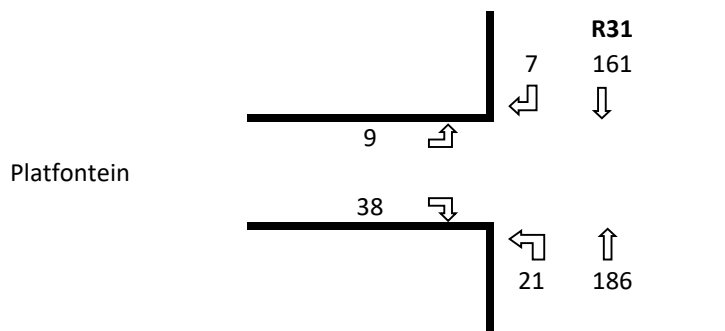


Figure 5.2: 2021 AM Peak with Development

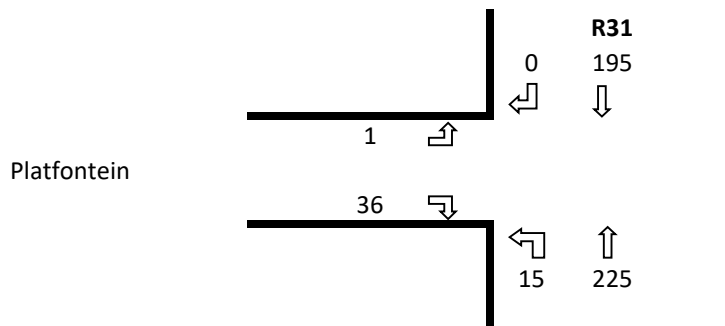


Figure 5.3: 2026 AM Background Peak

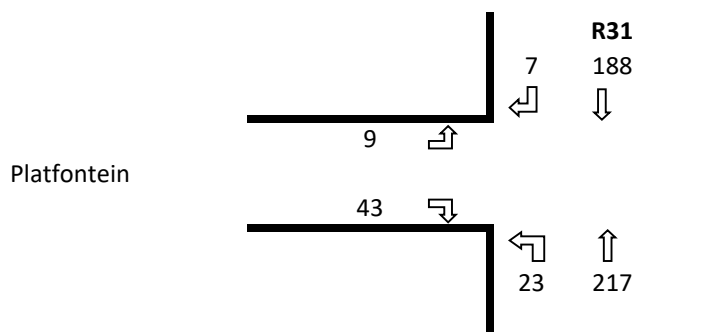


Figure 5.4: 2026 AM Peak with Development

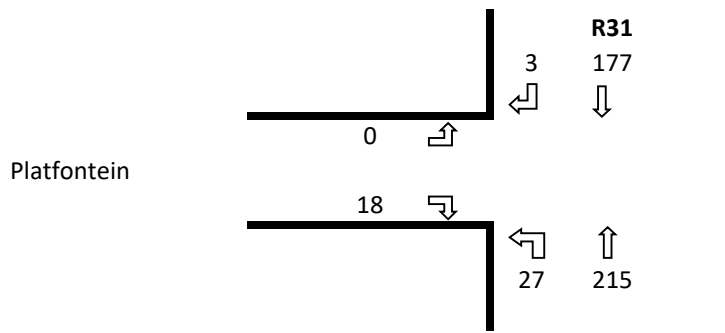


Figure 5.5: 2021 PM Peak Volumes

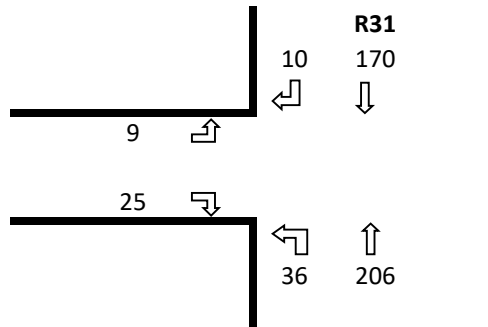


Figure 5.6: 2021 PM Peak with Development

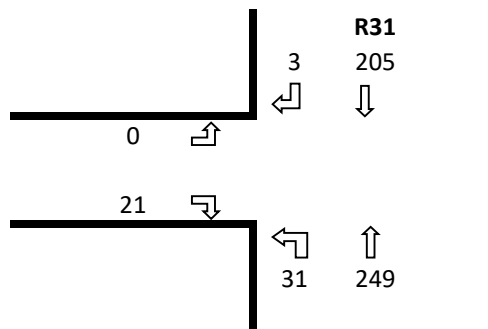


Figure 5.7: 2026 PM Background Peak

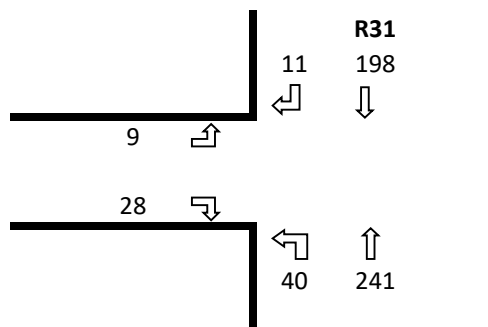


Figure 5.8: 2026 PM Peak with Development

6 CAPACITY ANALYSIS

Capacity analyses were performed by means of the SIDRA program. The table below shows the Levels of Service of the different traffic movements. Levels of Service (LOS) give an indication of operational characteristics in a traffic stream and their perception by motorists and passengers. Levels of service A to D are usually assumed to be acceptable, with LOS E regarded as the maximum flow rate, or capacity of the facility.

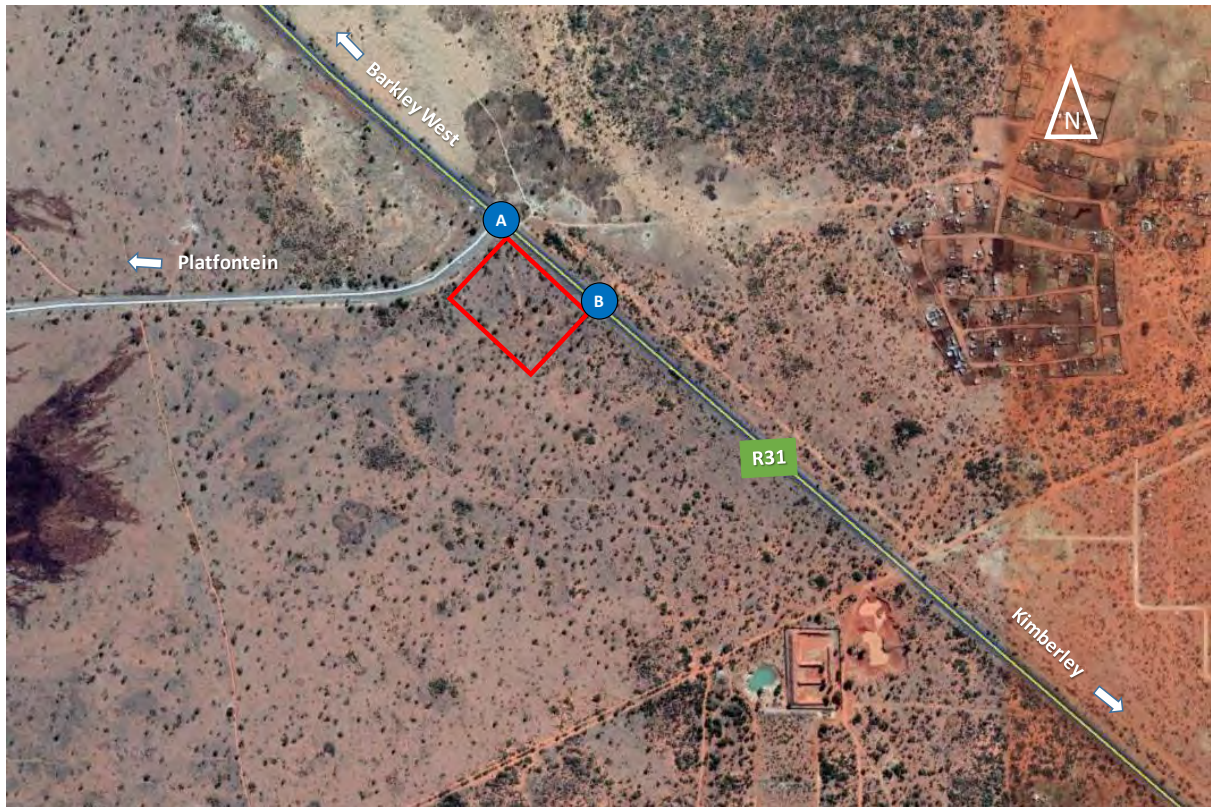
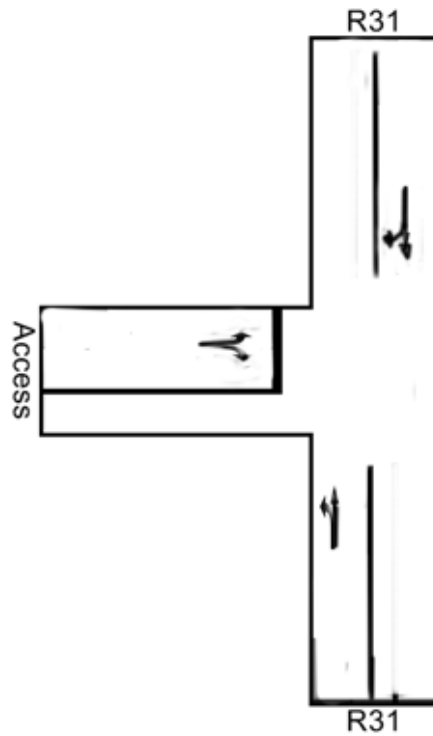


Figure 6.1: Intersections Investigated

- a) **Intersection A:** R31 / Access to Platfontein Intersection
- b) **Intersection B:** Marginal Access from R31

6.1 Intersection A: R31 / Access to Platfontein Intersection

The current access is as follows:



Current Layout

Worst case levels of service should be as follows:

Intersection: Access from R31		North			East			South			West		
		L	T	R	L	T	R	L	T	R	L	T	R
4	2026 AM Peak with development		A	A				A	A		B		B
8	2026 PM Peak with development		A	A				A	A		B		B

The intersection is therefore expected to continue to operate at high able levels of service.

6.2 Intersection B: Marginal Access from R31

As a marginal access, the access will operate at high levels of service

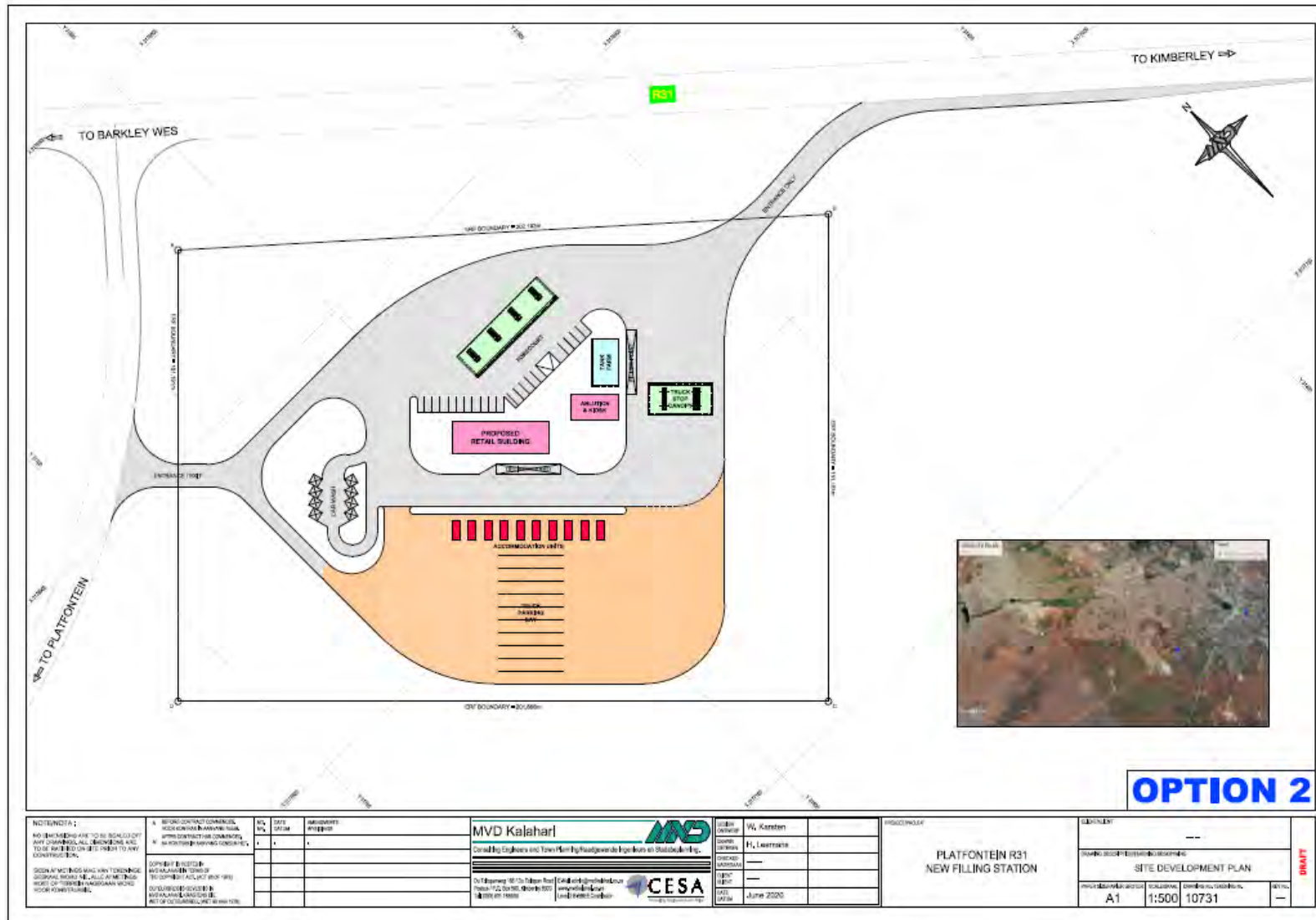


Figure 7.2 Concept Site Development Plan – Option 2

7.1 Access Considerations – Access from Platfontein Access Road

Considering the nature of the development, access is the most important aspect of the development.

7.1.1 Road Classification

To determine the appropriate access spacing, road classification needs to be determined. The *TRH 26 South African Road Classification and Access Management Manual* ⁽¹⁰⁾ uses a six-class rural and urban road classification system. The first three classes in the system consist of mobility roads while the second three classes are used for access/activity roads or streets

A distinction is made between rural and urban areas. Roads in rural and urban areas have the same six functional classes but at different scales and standards. Rural roads have longer reaches of connectivity and therefore require higher levels of mobility than urban roads. It is therefore necessary that the classification system should differentiate between rural and urban areas.

Rural Classes		Urban Classes	
R1	Rural principal arterial*	U1	Urban principal arterial
R2	Rural major arterial*	U2	Urban major arterial
R3	Rural minor arterial*	U3	Urban minor arterial
R4	Rural collector road	U4	Urban collector street
R5	Rural local road	U5	Urban local street
R6	Rural walkway	U6	Urban Walkway

With the development and the location of the Platfontein area adjacent to the road, the access road can be regarded as an Urban Road as TRH 26 defines an urban area as follows:

For the purposes of this document, an urban area is defined as an area that has been subdivided into erven, whether formal or informal. It includes areas on which townships have been formally declared as well as informal settlements. Rural settlements of one hectare or less are also included in the urban definition.

Based on the Manual the access to Platfontein can be classified as U3 urban minor arterial.

Class U3 urban minor arterials

Urban minor arterials would typically be required to serve traffic in most urban areas, including small towns.

In cities and larger towns, the Class U3 arterials would be used to provide connections between districts of the city or town and form the last leg of the journey on the mobility road network, bringing traffic to within one kilometre of its final destination. In small towns, they would be used to provide general overall mobility to the whole town. The arterials can also be used to serve economic activity centres that are not served by Class 1 or 2 arterials.

The Class U3 arterials should also be used to serve as connectors to rural Class 3 routes. They should preferably start and stop at arterials of equal or one higher Class (2 to 3), but can connect to Class 1 principal arterials.

Minor arterials function as through routes on a district scale. While still carrying predominantly through traffic, they serve shorter distance trips with a length of around 2 km, but can be as short as a single block if connecting higher order routes.

The minor arterials would typically carry volumes of traffic of between 10 000 and 40 000 vehicles per day.

7.1.2 Intersection / Access Spacing

TMH 16 prescribes as follows with regards to access to filling stations (service stations):

Service stations

4.5.1. Access to service (filling) stations is subject to the same conditions and requirements applicable to other types of development, but with the following exemptions:

- a) Access may be provided by means of marginal access on all classes of roads in both urban and rural areas.*
- b) Access separation requirements may be reduced as specified in this manual.*

4.5.2. The above exemptions may only be allowed when the access is restricted to the service station only and not to a shared access with any other adjacent erven or other parts of the road network. This restriction is not applicable where the access meets all the requirements provided in this chapter (i.e. if no exemptions are required to accommodate the access).

4.5.3. The service station may include ancillary facilities associated with the service function of the service station and which are intended to serve the driving public making use of the primary service function. The ancillary facilities may not be primary trip generators.

The Manual prescribes the following access separation for Class 2 and 3 roads

Intersection/Access configuration	Class 2	Class 3
a) Right-turn lanes not required	150-175 m	125-150 m
b) Right-turn lane required in one direction only	150-175 m	125-150 m
c) Right-turn lanes required in two directions	250-300 m	200-250 m
d) Service station without bus stop	125-150 m	100-125 m
e) Service station with bus stop (includes bus stop)	150-175 m	125-150 m

The proposed access separation as per the plan is in the order of 90m. To ensure acceptable access separation the access should ideally be slightly extended to at least 100m.

7.1.3 Sight Distances

Stopping sight distance should at least at all times be maintained. This is the distance required to enable a driver to observe an obstruction, and stop in time.

Basic stopping sight distances are as follows:

Table 34 Stopping sight distances (AASHTO, 2004)

Design speed (km/h)	Stopping sight distance (m) for gradients of:						
	-9%	-6%	-3%	0%	3%	6%	9%
20	25	20	20	20	20	20	20
30	35	35	35	35	35	30	30
40	55	50	50	50	45	45	45
50	75	70	70	65	65	60	60
60	100	95	90	85	80	80	75
70	125	120	110	105	100	100	95
80	155	145	140	130	125	120	115
90	190	175	165	155	150	145	140
100	225	210	195	185	175	170	160
110	265	245	230	215	205	195	190
120	305	285	265	250	235	225	215
130	350	325	305	285	270	255	245

Ideally adequate gap acceptance sight distance must be provided at access to allow drivers to find a sufficiently large gap in the traffic stream to enter the road safely and with limited disruption to the traffic on the main road.

Based on TMH 16 a gap acceptance sight distance of 255m should be available.

In this instance the location on the outside of a horizon curve should result in unrestricted sight distances and sight distances should thus be acceptable.

7.1.4 Provision of Auxiliary Lanes

TMH16 prescribes as follows:

7.4.2. On uncontrolled and traffic signal controlled approaches, the following auxiliary lanes must be provided:

- a) *Left-turn auxiliary lanes should be provided on all uncontrolled and traffic signal controlled approaches to intersections and accesses on Class 1 to 3 roads that are "access managed". On urban roads where a large number of accesses have been provided and where it is not possible to provide such turning lanes, the outside lane width should be increased to between 4.5 and 5.0 m instead of providing left-turn lanes. Left-turn lanes are normally not required on Class 4 and 5 roads (including service stations), but may be provided for capacity purposes.*
- b) *Right-turn auxiliary lanes should be provided as follows where right-turn movements are possible:*
 - i) *At all traffic signal controlled intersections on all classes of roads.*
 - ii) *At all uncontrolled approaches to intersections and accesses on Class 1 to 4 roads. On Class 4 roads with one lane per direction, the right-turn lane is not required when the total road width (excluding shoulders) is 9.0 m or wider (for the two directions combined).*

Based on the above and the classification of the road, it is preferable that the access be developed with proper auxiliary lanes. This will probably require the upgrading of the road from the intersection with the R31 up to the access.

Given the low traffic volumes along the access road and the relatively low speeds near the intersection, auxiliary lanes in this instance are probably not critically important.

7.1.5 Summary

A full access from the access road to Platfontein is viable at an access separation of at least 100m. The access should preferably be developed with auxiliary lanes.:

7.2 Access Considerations – Access from the R31

Option 2 shows a possible marginal left-in- only access from the R31.

7.2.1 Road Classification

Based on TRH 26 the R31 in the area of the city can be classified as U2 urban major arterial. The Manual describes a U2 road as follows:

Class U2 urban major arterials

Urban major arterials would typically be required to serve traffic in metropolitan areas, cities and medium to large towns (population typically greater than about 25 000).

In metropolitan areas and larger cities, the Class U2 arterials would be used to provide connections between larger regions of the city. In smaller cities and towns, they would be used to provide general overall mobility to the whole city or town. The arterials would also be used to serve important economic activity centres that are not served by Class 1 arterials.

The Class U2 arterials should also be used to serve as connectors to rural Class 2 routes. They should preferably start and stop at arterials of equal or higher Class (1 or 2).

Major arterials should be continuous routes with a minimum length of about 10 km. The arterial would typically carry large volumes of traffic of about 20 000 to 60 000 vehicles per day.

Further to the northwest the road will be a R2 rural major arterial, which is described as follows:

Class R2 rural major arterials

Rural major arterials carry inter-regional traffic between:

- *Smaller cities and medium to large towns (population typically greater than about 25 000);*
- *Smaller border posts;*
- *Class 1 and other Class 2 routes;*
- *Important regions, transport nodes and commercial areas that generate large volumes of freight and other traffic such as seaports and international airports.*
- *Smaller centres than the above when travel distances are relatively long (e.g. 200 km or more).*

Travel distances on R2 arterials are seldom less than 25 km in length. Some routes, however, can carry traffic over long distances and can reach from one side of a province to the other or even into adjoining provinces.

AADT would typically exceed about 500 vehicles per day on the long distance routes, 2 000 veh/day on medium distance routes but on shorter routes the volumes could exceed 25 000 veh/day.

Class R2 arterials should preferably be continuous routes that would usually serve several nodes (typically in a province). The nodes do not have to be located on the route, but should be located within a reasonable distance from the routes.

For the purposes of the evaluation of the access it is not essential to determine the exact start of the rural character of the road.

7.2.2 Intersection / Access Spacing

TMH 16 prescribes as follows with regards to access to filling stations (service stations):

Service stations

4.5.1. Access to service (filling) stations is subject to the same conditions and requirements applicable to other types of development, but with the following exemptions:

- a) Access may be provided by means of marginal access on all classes of roads in both urban and rural areas.*
- b) Access separation requirements may be reduced as specified in this manual.*

4.5.2. The above exemptions may only be allowed when the access is restricted to the service station only and not to a shared access with any other adjacent erven or other parts of the road network. This restriction is not applicable where the access meets all the requirements provided in this chapter (i.e. if no exemptions are required to accommodate the access).

4.5.3. The service station may include ancillary facilities associated with the service function of the service station and which are intended to serve the driving public making use of the primary service function. The ancillary facilities may not be primary trip generators.

The Manual prescribes the following access separation for Class 2 and 3 roads

Intersection/Access configuration	Class 2	Class 3
a) Right-turn lanes not required	150-175 m	125-150 m
b) Right-turn lane required in one direction only	150-175 m	125-150 m
c) Right-turn lanes required in two directions	250-300 m	200-250 m
d) Service station without bus stop	125-150 m	100-125 m
e) Service station with bus stop (includes bus stop)	150-175 m	125-150 m

The proposed access separation as per the plan is in the order of 220m and is thus acceptable based on the requirements.

TMH 16 also states as follows:

4.9.4. Access to service stations, however, may be provided by means of marginal intersections on all road classes in both urban and rural environments.

7.2.3 Sight Distances

Stopping sight distance should at least at all times be maintained. This is the distance required to enable a driver to observe an obstruction, and stop in time. With a marginal access, this is the only relevant sight distance.

Basic stopping sight distances are as follows:

Table 34 Stopping sight distances (AASHTO, 2004)

Design speed				Stopping sight distance (m) for gradients of:			
(km/h)	-9%	-6%	-3%	0%	3%	6%	9%
20	25	20	20	20	20	20	20
30	35	35	35	35	35	30	30
40	55	50	50	50	45	45	45
50	75	70	70	65	65	60	60
60	100	95	90	85	80	80	75
70	125	120	110	105	100	100	95
80	155	145	140	130	125	120	115
90	190	175	165	155	150	145	140
100	225	210	195	185	175	170	160
110	265	245	230	215	205	195	190
120	305	285	265	250	235	225	215
130	350	325	305	285	270	255	245

With no sight restrictions, acceptable stopping sight distance is available.

7.2.4 Provision of Auxiliary Lanes

TMH16 prescribes as follows:

7.4.2. On uncontrolled and traffic signal controlled approaches, the following auxiliary lanes must be provided:

- a) *Left-turn auxiliary lanes should be provided on all uncontrolled and traffic signal controlled approaches to intersections and accesses on Class 1 to 3 roads that are “access managed”. On urban roads where a large number of accesses have been provided and where it is not possible to provide such turning lanes, the outside lane width should be increased to between 4.5 and 5.0 m instead of providing left-turn lanes. Left-turn lanes are normally not required on Class 4 and 5 roads (including service stations), but may be provided for capacity purposes.*

Based on the above, the classification of the road and the planned marginal left turn auxiliary lane should be provided (as shown).

It is not expected that a slipway of this length will illegally be used as an exit, but it is essential that proper traffic signs be erected to prevent this.

With the access some distance to the south east of the site, right turning from the northwest is not really expected with vehicles from this direction rather accessing the site from the main access. TMH16 however states as follows:

4.9.5 Marginal intersections may only be provided when:

e) A raised constructed median is available that prevents undesirable turning movements. The median must be provided over a distance extending 30 m beyond the length of the longest auxiliary turning lane that may be required on an approach to the intersection, even if such auxiliary lane is currently not provided or warranted.

TMH 16 also states that the access should be:

Easily identifiable (by means of road signs) and safe egress routes are available for traffic to leave the area and travel in the direction not served by the marginal intersection.

7.2.5 Summary

A marginal access from the R31 as proposed is viable. The access should comply with the following:

- Easily identifiable by means of road signs.
- Developed with a deceleration have,
- Provided with proper traffic signs to prevent exiting through the access road, and
- A raised constructed median should be erected to prevent undesirable turning movements. The median must be provided over a distance extending 30 m beyond the length of the auxiliary turning lane.

7.3 Other Aspects

7.3.1 Throat Length

To ensure turning vehicles on the site do not affect vehicles entering the site, a throat length (clear portion of road between site boundary and first turn off) of approximately 20m should be provided. Provision is made for this in the concept layout plan.

7.3.2 Gradient of Access Road

The area is relatively flat and gradients are not of a concern.

7.3.3 Traffic Flow on Site

Although it is accepted that the layout is still conceptual, the basic layout seems acceptable with sufficient manoeuvring movement.

7.3.4 Provision for Fuel Tanker

It is important that a fuel tanker parked on the site should not affect traffic flow on the site. The site is of sufficient size to ensure this.

8 CONCLUSIONS AND RECOMMENDATIONS

Based on the study, the following conclusions and recommendations are made:

- a) The development will not have a notable effect on levels of service and capacity considerations are not of a concern.
- b) A full access from the access road to Platfontein is viable at an access separation of at least 100m. The access should preferably be developed with auxiliary lanes
- c) A marginal access from the R31 as proposed is viable. The access should comply with the following
 - Easily identifiable by means of road signs.
 - Developed with a deceleration lane,
 - Provided with proper traffic signs to prevent exiting through the access road, and
 - A raised constructed median should be erected to prevent undesirable turning movements. The median must be provided over a distance extending 30 m beyond the length of the auxiliary turning lane.
- d) The site development plan is in principle acceptable.

In summary, the development can be recommended for approval from a traffic point of view.

9 REFERENCES

1. **Manual for Traffic Impact Studies**, Department of Transport, Pretoria, 1995
2. **Manual for Traffic Impact Studies**, Department of Transport, Pretoria, 1995
3. **South African Trip Generation Rates**, Department of Transport, Pretoria, 1995
4. **ITE Trip Generation Rates, 6th Edition**, Institute of Transportation Engineers, Washington, 1998
5. **Transportation and Land Development**, Institute of Transportation Engineers, Washington, 1988
6. **UTG 1, Guidelines for the Geometric Design of Urban Arterial Roads**, CSIR, Pretoria, 1986
7. **National Guidelines for Road Management in South Africa**, COTO
8. **Spacing of Accesses on Major Arterials**, Department of Transport, Pretoria, 1993
9. **UTG 7, Guidelines for the Geometric Design of Urban Local Residential Streets**, CSIR, Pretoria, 1989
10. **SANRAL Geometric Design Guidelines**, SANRAL, 2004
11. **TRH 26, South African Road Classification and Access Management Manual, Version 1.0**, COTO, 2019
12. **South African Road Traffic Signs Manual**, Third Edition, May 2012
13. **Parking Standards**, Department of Transport, Pretoria, 1985
14. **TMH 17 South African Trip Data Manual**, COTO, Pretoria, 2018
15. **UTG 5: Geometric Design of Urban Collector Roads**, CUTA, Pretoria, 1988
16. **UTG 7: Geometric Design of Urban Local Residential Streets**, CUTA, Pretoria, 1986
17. **TMH16 South African Traffic Impact and Site Traffic Assessment Standards and Requirements Manual**, COTO, Pretoria, 2018



ANNEXURE 12 – BULK SERVICES REPORT



SOL PLAATJE LOCAL MUNICIPALITY

BULK SERVICES REPORT:
CONSTRUCTION OF TRUCK STOP
IN PLATFONTEIN

JULY 2021

MVD Kalahari



INSPIRING ENGINEERING INNOVATION



SOL PLAATJE LOCAL MUNICIPALITY

BULK SERVICES REPORT:
CONSTRUCTION OF TRUCK STOP
IN PLATFONTEIN

JULY 2021

Prepared by : P PHEPHENG
Date : JULY 2021
On behalf of : MVD KALAHARI
For : PLAATPAL DEVELOPMENT
Attention : Mr L MACHABE

BULK SERVICES REPORT:

CONSTRUCTION OF TRUCK STOP IN PLATFONTEIN (SOL PLAATJE LOCAL MUNICIPALITY)

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1. DEVELOPER AND SERVICE PROVIDERS DETAILS

1.1. Developers Details

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1.2. Service Providers Details

MVD Kalahari Consulting Engineers and Town Planners



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2. BACKGROUND

Platfontein is a community located in an arid region of the Northern Cape Province, within the Sol Plaatje Local Municipality, approximately 15 kilometres outside the city of Kimberley along the R31 to Barkley West. See Figure 1.

The community consists of two San tribes, the !Xun and the Khwe. **"The San of Platfontein"** is a collective name used for both the !Xun and Khwe.

The residents of Platfontein originate from the northern parts of Namibia and southern Angola.

In both Namibia and Angola, the !Xun and the Khwe were militarised first by the Portuguese army during the Angolan War of Independence. They had been part of the Flechas, a unit of the Portuguese Special Forces. With the Popular Movement for the Liberation of Angola (MPLA) assuming power in Angola in November 1975, many joined the South African National Defence Force.

In the South African National Defence Force, these San soldiers were part of 31 Battalion (SWATF) fighting at a base called Omega, located in the Western Caprivi, the Zambezi region of Namibia, on the Namibian border with Angola. **"The San of Platfontein" were involved in counter-insurgency operations during the South African Border War.** This war was between the South African Defence Force, in alliance with the South-West Africa Territory Force, against the **People's Liberation Army of Namibia, the active military wing of SWAPO.** The San of the battalion were used for their tracking skills. 31 Battalion was disbanded on 7 March 1993.

When the battalion was disbanded, the SANDF relocated approximately 4000 !Xun and Khwe soldiers, men, women, and children from the Omega base to Mangetti Dune in Bushmanland, Namibia, and then to Schmidtsdrift in South Africa.

In Schmidtsdrift they lived in makeshift army tents. The land on which the San were living at Schmidtsdrift formed part of the ancestral lands of ethnic Tswana, Bathlaping and a group of Griqua people. The claim to the land by these groups was approved in April 2000, and the San of Schmidtsdrift had to be relocated. They were relocated to Platfontein where they reside today in a small community. Before the !Xun and Khwe were relocated to Platfontein, it was abandoned farmland.

Under the Land Redistribution Programme, the Department of Land Affairs identified Platfontein as possible land to settle the !Xun and the Khwe people, and in May 1999, former South African President Nelson Mandela presented the community with the title deed for this land.

The residents of Platfontein number approximately 5 185 people as of 2011 census. They live in low-income, government-built Reconstruction and Development Programme housing.

Since being handed over by the Department of Housing, these RDP houses have not all been provided with proper water, sanitation, and electricity by the Sol Plaatje Local Municipality.

Despite being relocated and settled together, the !Xun and Khwe have chosen to live in different parts of the settlement due to differences in the community.

In Platfontein the basic services that are available are a school, two shops, a municipal building, and a health clinic which both the !Xun and Khwe share



Figure 1: Town Location

3. SITE DESCRIPTION

3.1. Location

The site of the proposed project is situated in the Sol Plaatje Municipal area, approximately 2.6km east of Platfontein, along the R31. GIS reference:

Description	Longitude	Latitude
Proposed Development Site	24° 40'36.00"E	28° 42'29.50"S

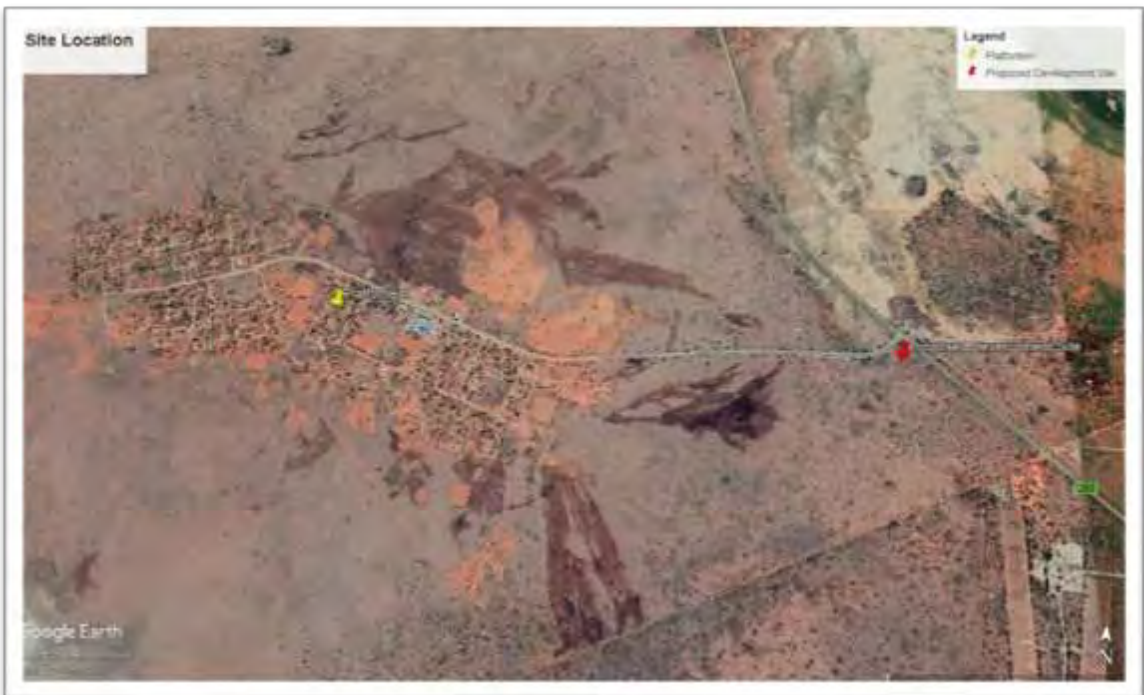


Figure 2: Site Locality

3.2. Topography

The general topography of the proposed site may be characterized as flat with gentle slopes from south-east to north-west of less than 3%.

Figure 3 depicts the gradient of the proposed site.



Figure 3: Site Elevation

3.3. Climate

3.3.1. Rainfall

Kimberley has a semi-arid climate, with moderate rainfall primarily during the summer.

The average annual precipitation for the Kimberley region is approximately 275 mm/year, with the most precipitation on average in February at 45 mm, and the lowest in July at 3mm. There is an average of 43.1 days of precipitation, with the most precipitation occurring in March with 6.8 days and the least precipitation occurring in July with 1.6 days.

3.3.2. Temperature

The average temperatures for the year in the Kimberley area are 26.7°C and 9.5°C for the mean daily maximum and minimum, respectively. The warmest month, on average, is January with an average temperature of 33°C, and the coolest month on average is July, with an average temperature of 0°C.

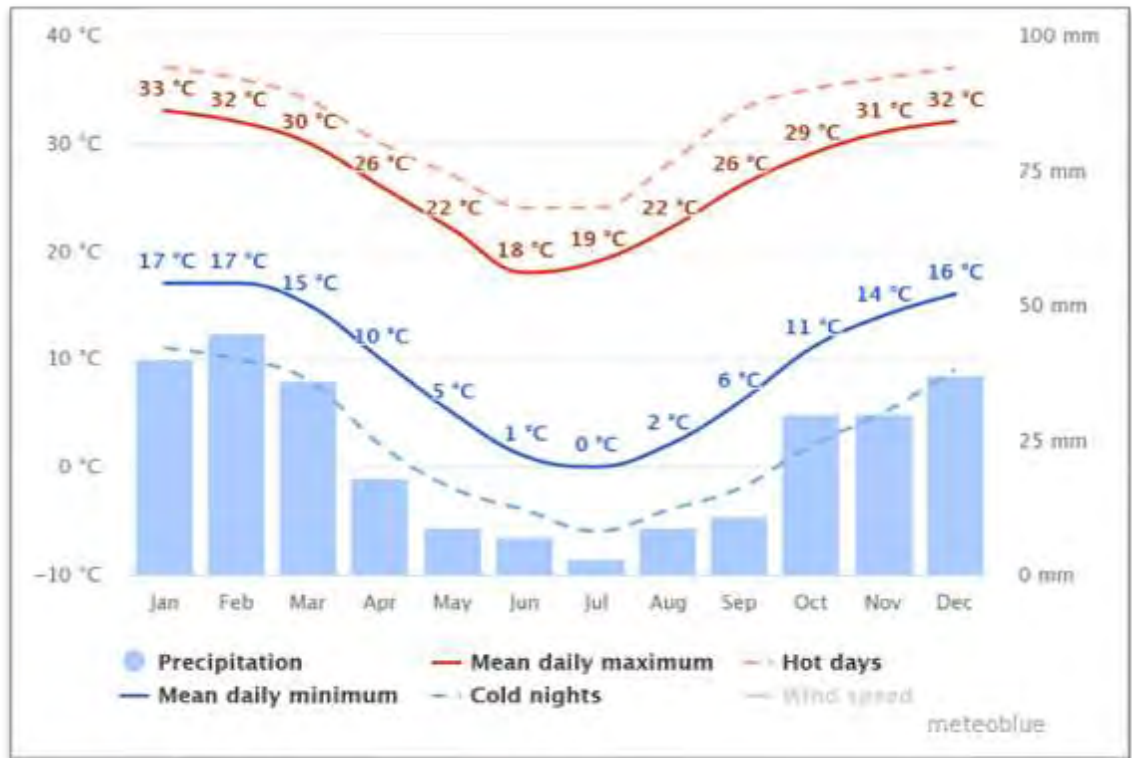


Figure 4: Precipitation and Temperatures

3.4. Geology

An engineering geological investigation with reference to GSFH-2 specification was conducted by Simlab on the proposed development site., with the aim to assess aspects such as geology relief and subsoil founding conditions which may influence the development. A report was compiled and provided to MVD Kalahari with the reference and document numbers:

- Reference No: NL/026
- Document No: 2021/K208/Doc.

The following conclusions were drawn from the above report.

- The geology in the investigated area is underlain by the Allanridge Formation (Ra – Andesite and Quartzite) and the Prince Albert Formation (Ppr – Shale), overlain by calcrete, calcified pandune, surface limestone, and sand (Qc).
- No ground-water seepage was encountered at the time of the investigation.
- The materials encountered on site have a mildly corrosive to corrosive nature.
- Typical martials encountered on site were silty sand with gravel(SM); well graded gravel with clay and sand (GW-CG); poorly graded sand with silt and gravel (SP-SM), and poorly graded sand with clay and gravel (SP-SC).
- Refusal layers/ bedrock of hard calcrete were encountered during the investigation at an average depth of 2.152m below natural ground level (1.4m to 3.0m).
- Plasticity index of material ranged from non-plastic (NP) to 5.0%.
- Linear shrinkage ranged from 0.0% to 3.0%.
- Percentage clay fractions ranged from 3% to 25%.
- Materials on site consist of low (<7.5mm) potential expansiveness, with high probability of collapsing nature(Handy; Priklonski), and low settlement (Clevenger).

- Materials consist of COLTO classification of G6; G7; and no classification. G6 material is suitable for sub-base, selected layers, and fill, while G7 material is suitable for selected layers and fill. Materials with no classification are not suitable for layers works and fill.
- The site is classed as C, thus normal foundations for construction purposes (strip footings; ground slabs) may be considered. Foundation bearing pressures of 50kPa may not be exceeded.

See *Annexure B* for the complete geotechnical report.

3.5. Drainage

Overland flow is the dominant drainage pattern in the surrounding area, with storm water run-off originating in the high lying area situated to the south and south-east of the proposed site, near the intersection of the N8 and the R31. The estimated area of this catchment is 664ha (6.64Mm²).

See figure 5 for a graphic representation of the drainage area directly affecting the site of the proposed development.



Figure 5: Drainage Catchment

Drainage of storm water run-off occurs in a north-eastern direction, toward and along the alignment of the R31, crossing over the site of the proposed development before crossing the Platfontein access road.

3.6. DEMOGRAPHIC OVERVIEW

As indicated in Table 3-1, the population of Platfontein in 2011 was 5 185 people.

Table 3-1: Overview of key demographic indicators for Platfontein	
Key Demographic Indicators	
Aspect	2011
Population	5 185
% Population <15 years	41.4
% Population 15-64	51.7
% Population 65+	6.9
Households	1 277
Household size (average)	4.1
Formal Dwellings %	83.7
Dependency ratio per 100 (15-64)	93.5
Unemployment rate (official) - % of economically active population	Not Available
Youth unemployment rate (official) - % of economically active population 15-34	Not Available
No schooling - % of population 20+	57
Higher Education - % of population 20+	0.3
Matric - % of population 20+	6.9

Source: Compiled from StatsSA Census 2011 Municipal Fact Sheet

The majority of the population in Platfontein is indicated as Other (86.3%) likely representing the majority of the !Xun and Khwe people settled in Platfontein as described in item 2 of this report, followed by Black African people (12.7%), Coloured and Indian/ Asian people (0.5% respectively) (Census 2011).

The dominant language spoken in Platfontein is indicated as Other (92.5%) likely representing the mother language of the !Xun and Khwe people settled in Platfontein as described in item 2 of this report, followed by Afrikaans (4.5%), IsiNdebele (1.4%), IsiZulu, SiSwati, Xitsonga (0.4% respectively), English (0.3%), and Sepedi, Sesotho, Setswana, Tshivenda (0.1% respectively).

3.6.1. Employment

No employment statistics were available as of census 2011.

3.6.2. Household income

Based on the data from the 2011 Census, 16.9 % of the population of Platfontein have no formal income, 9.3% earn between 1 and R 4 800, 15.6% earn between R 4 801 and R 9 600 per annum, 25.4% between R 9 601 and 19 600 per annum, 21% between R 19 601 and R 38 200 per annum, 6% between R 38 201 and R 76 400 per annum, 4% between R 76 401 and R 153 800 per annum, 1.3% between R 153 801 and R 307 600 per annum, and 0.6% above R 307 601 per annum. (Census 2011).

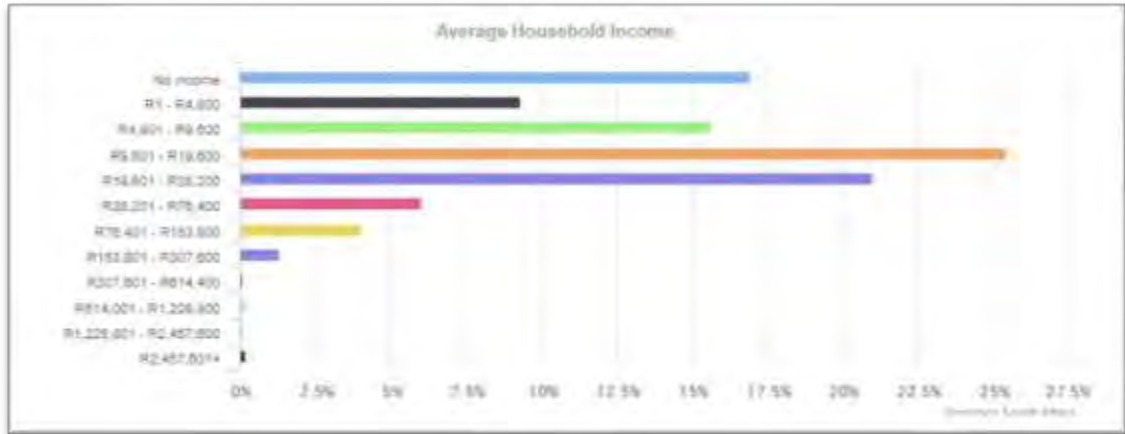


Figure 6: Household Income
 Source: Compiled from StatsSA Census 2011 Municipal Fact Sheet

3.6.3. Education

The highest education levels for Platfontein are as indicated in Figure 8.

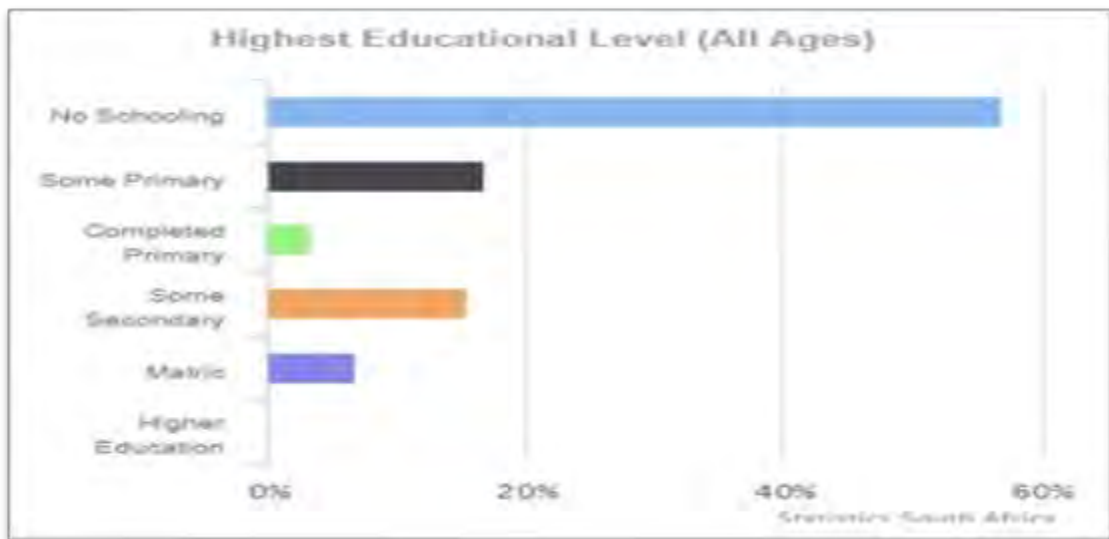


Figure 7: Education Levels
 Source: Compiled from StatsSA Census 2011 Municipal Fact Sheet

3.6.4. Municipal services

Access to basic municipal services as of census 2011 is indicated in table 3-2:

Table 3-2: Overview of Access to Basic Services in SLM	
Municipal Services	2011
% Households with access to flush toilet	0.5
% Households with weekly municipal refuse removal	0.5
% Households with piped water inside dwelling	3.6
% Households which uses electricity for lighting	60.4

Source: Compiled from StatsSA Census 2011 Municipal Fact Sheet

3.6.5. Population Figures

Sol Plaatje Local Municipality incorporates the towns of Galeshewe, Kimberley, Motswedimosa, Platfontein, Ritchie, Roodepan, and Sol Plaatje NU. They strive to deliver basic services to its community by ensuring that there is water, sanitation, and electricity. Kimberley is the administrative centre within the municipality. The population figures for the Sol Plaatje Local Municipality are depicted in Table 3-3 below.

Table 3-3: Beneficiaries 2011		
Suburb Benefiting	Total Benefiting Population	Total No. of Households Benefiting
Galeshewe	107 920	25 429
Kimberley	96 977	24 395
Motswedimosa	7 240	1 735
Platfontein	5 185	1 277
Ritchie	7 610	1 883
Roodepan	20 263	4 799
Sol Plaatje NU	2 846	779
Total	248 041	60 297

Source: Compiled from StatsSA Census 2011 Municipal Fact Sheet

Assuming the average growth rate per annum of 2.04%, based on these figures as indicated in table 3-3, the anticipated population in 2021 is displayed in Error! Reference source not found. below:

Table 3-4: Beneficiaries 2021		
Suburb Benefiting	Total Benefiting Population	Total No. of Households Benefiting
Galeshewe	132 071	31 112
Kimberley	118 679	29 854
Motswedimosa	8 860	2 123
Platfontein	6 345	1 563
Ritchie	9 313	2 304
Roodepan	24 798	5 873
Sol Plaatje NU	3 483	953
Total	303 549	73 812

4. TERMS OF REFERENCE

MVD Kalahari Consulting Engineers and Town Planners were appointed by Plaatpal Development for the compilation of a bulk civil services engineering report for the establishment of a new refuelling station and truck stop along the R31 to Barkley West, at the intersection of the R31 and the Platfontein access road.

The scope of the proposed development will comprise the following:

- Truck stop, and refuelling facilities.
- Truck driver ablution and attendance facilities.
- Truck driver overnight accommodation consisting of 10 containerised units.
- Retail filling station with support facilities.
- Convenience store.
- Fast food outlet
- Tyre repair centre and workshop facilities.
- Car wash with 8 hand wash bays.

The main objectives of the proposed project are:

- Provide trucks enroute to northern and western destinations with ease of access to refuelling, refreshment, and accommodation facilities.
- Provide ease of access to the surrounding community to fuel resources and basic amenities.

The proposed project will also have the following outcomes:

- Alleviation of local unemployment and poverty
- Upliftment of local business opportunities.
- Upliftment of local socio-economic activities and standards.
- Capacity building and skills development within the local community.
- Revival of local economy.

5. INFORMATION

5.1. Information Obtained

5.1.1. Estimated Existing Population Figures

As indicated previously, the projected population figures for Platfontein for 2021 were obtained from extrapolated figures based on the outcomes of censuses 2011. These extrapolated figures may be summarised as follows:

- No. of Households : 1 563
- Population per Household : 4.1
- Total Population : 6 345

5.1.2. Proposed Site Development Plan

A proposed site development plan was developed by MVD Kalahari. See *Annexure A*.

5.1.3. Existing Infrastructure

5.1.3.1. Sewer

No existing municipal sewer infrastructure exists within the immediate area of the proposed development. The existing Platfontein community is currently serviced by means of conservancy tanks, emptied by Sol Plaatje Municipality on a weekly basis with suction tankers.

5.1.3.2. Water:

At present there is an existing 315mm Ø bulk water supply main situated in the road reserve of the Platfontein access road, north-west and adjacent to the proposed development site. This existing water main serves as main supply of potable water to the community of Platfontein.

5.1.3.3. Roads:

The site of the proposed development is bordered on two sides by well-developed road infrastructure. To the north-east the site is bordered by the R31 Regional Road, while to the north-west it is bordered by the Platfontein access road. Both roads are paved roads.

It must be noted that the R31 regional route falls under the jurisdiction of the Department of Roads and Public Works (DRPW).

5.1.3.4. Storm Water:

At present there is no discernible existing storm water drainage infrastructure surrounding the proposed development site.

5.1.4. Cadastral and Topographic survey

No cadastral and topographical survey has yet been completed.

6. TECHNICAL DESIGN PARAMETERS AND STANDARDS

The design criteria and specifications as contained in this report are based on the following:

- The *Neighbourhood Planning and Design Guide, 2019 (a.k.a. the "Red Book")*.
- *South African Local Government Association (SALGA) Planning and Design Guidelines Part II (K-Sanitation)*.

6.1. PROPOSED DESIGN CRITERIA: SEWER INFRASTRUCTURE

Parameter	Element	Guideline
1. Effluent Generation (PDDWF)	<ul style="list-style-type: none">• Filling Station:• Over-night Accommodation• Car Wash	640 ℓ/100m ² floor area/day 86 ℓ/unit/day 200 ℓ/car/day
2. Sewer gradients	<ul style="list-style-type: none">• Maximum (all diameters)• Minimum 110mm Ø<ul style="list-style-type: none">◦ Minimum 160mm Ø	1: 60 1: 120 1: 200
3. Flow Velocity	<ul style="list-style-type: none">• Minimum (all diameters; self-cleansing)• Maximum (all diameters)	0.6 m/s 1.2 m/s
4. Dry weather Peak Factor (DWPF)	<ul style="list-style-type: none">• Design Peak<ul style="list-style-type: none">◦ Business: 1.5◦ Accommodation: 2.5◦ Car Wash: 1.0	

Table 6-1: Sewer Gravitational Network: Proposed Design Criteria		
Parameter	Element	Guideline
5. Ground Water Infiltration	Infiltration for estimated theoretical pipe length.	0.03 l/min/m Ø/m pipe length/day
6. Storm Water Infiltration	Design Peak	30% additional to Dry Weather Peak Flow
7. Pipe Location	All Areas	1.5 m from roads edge and building sides
8. Pipe Materials	All pipe diameters	uPVC Class 34
9. Pipe Size	Minimum diameter	160mm Ø
10. Cover to Pipes	Minimum: Road reserves Other Areas	1,000 mm 800 mm

6.2. PROPOSED DESIGN CRITERIA: WATER INFRASTRUCTURE

Table 6-2: Water Distribution Network: Proposed Design Criteria			
Parameter	Element	Guideline	
1. Demand	<ul style="list-style-type: none"> Filling Station: Over-night Accommodation: Car Wash 	800 l/100m ² floor area/day 110 l/unit/day 200 l/car/day	
2. Pressure	<ul style="list-style-type: none"> Maximum (Static) Minimum: Trunk Mains Minimum: Reticulation Mains 	90 m (9.0 bar) 25 m (2.5 bar) 10 m (1.0 bar)	
3. Flow Velocity	<ul style="list-style-type: none"> Minimum (all diameters) Maximum (all diameters) 	0.6 m/s 1.2 m/s	
4. Fire Flow	<ul style="list-style-type: none"> Number of hydrants in operation. Flow rate Maximum velocity Design fire duration 	2 1200 l/min/hydrant 3.0m/s 2 hours	
5. Peak Factor (P)	<ul style="list-style-type: none"> Filling Station: Over-night Accommodation: Car Wash 	P _w	P _d P _h
		1.45	1.70 3.30
		1.45	1.70 3.30
		1.45	1.70 3.30
6. Pipe Location	All Areas	1.5 m from roads edge and building sides	
7. Pipe Materials	All pipe diameters	uPVC Class 09	
8. Cover to Pipes	Minimum: Road reserves Other Areas	1,000 mm 800 mm	

7. SEWER

7.1. ANTICIPATED TOTAL EFFLUENT GENERATION

The anticipated peak flow will be based on figures and peak factors as obtained from The **Neighbourhood Planning and Design Guide, 2019 (a.k.a. the "Red Book")** as set out in table 6-1, in conjunction with the elements of the proposed development to produce sewer effluent.

The relevant elements of the proposed development to generate sewer effluent are:

- Filling Station: Total floor area : 500m²
- Accommodation: 10 Containerized Over-night rooms : 10 of
- Car Wash: Hand wash bays : 8 of

7.1.1. Peak Daily Dry Weather Flow (PDDWF):

The total Peak Daily Dry Weather Flow (PDDWF) for the proposed development as depicted in the table below, amounts to 16.86m³/day (0.20l/s). It must be noted that an assumption of approximately 8 cars can be washed in a space of 1 day per wash bay at a rate of 1 car/hour, thus a total of 64 car may be washed per day.

Table 7-1: Peak Daily Dry Weather Flow (PDDWF)				
Description	Capacity (l/unit measurement/day)	Area (m ²)	Unit factor	m ³ /day
• Filling Station	640 l/100m ² /day	500	5	3.20
• Over -night Accommodation	86 l/unit/day	-	10	0.86
• Car` Wash	200 l/car/day	-	64	12.80
TOTAL				16.86

7.1.2. Instantaneous Peak Dry Weather Flow (IPDWF):

For ground water infiltration estimation an assumption of 160mm Ø pipes will be taken over an estimated pipe length of 100m per element of the proposed project as indicated in table 7-3 below. The estimated ground water infiltration will be as follows:

Table 7-2: Ground Water Infiltration (GWI)					
Description	Ground Water Infiltration (l/min/m Ø/m pipe length)	Ø of pipe (m)	Length of pipe(m)	Unit factor (No of Erven)	m ³ /day
• Filling Station	0.03	0.160	100.0	-	0.69
• Over -night Accommodation	0.03	0.160	100.0	-	0.69
• Car Wash	0.03	0.160	100.0	-	0.69
TOTAL					2.07

From the above, the total Instantaneous Peak Dry Weather Flow for the proposed development will be as follows:

- (PDDWF from table 7-2) x (DWPF from table 6-1) + (Total GWI)= (IPDDWF).
- (2.60m³/day x 1.5) + (0.86m³/day x 2.5) + (2.07m³/day) = 21.82m³/day (0.25l/s).

7.1.3. Instantaneous Peak Wet Weather Flow (IPWWF):

Considering storm water infiltration rate of 30%, the Instantaneous Peak Wet Weather Flow (IPWWF) amounts to the following:

- (IPDWF) / (1-0.3) = (IPWWF)

Thus, from the previous, the IPWWF will be as follows:

- IPWWF = (21.82m³/day) / (1-0.3)
- IPWWF = 31.18m³/day (0.36l/s)

7.2. PROPOSED INFRASTRUCTURE

7.2.1. Overview:

The proposed infrastructure for the proposed development may be defined as follows:

- Proposed 160mm Ø uPVC class 34 sewer gravitational network.
- Proposed sub-surface sewer conservancy tank.

7.2.2. Proposed Gravitational Network:

It is recommended that a waterborne gravitational sewer reticulation network be installed, consisting of minimum 160 mm Ø uPVC class 34 sewer pipes installed and drained at slopes not exceeding 1:30 and no less than 1:200, toward the low-lying area situated in the north-western edge of the proposed development site. From here it will discharge to a subsurface conservancy tank to be discussed in 7.2.3 below.

Furthermore, it is recommended that all sanitary wares be furnished with individual uPVC class 34 soil drainage pipe connections of no less than 50mm Ø, and no more than 110mm Ø, installed at adequate depths to ensure the drainage of sewer effluent from all parts of development at a minimum internal slope of no less than 1:60.

7.2.3. Proposed Conservancy Tank:

It is proposed that the sewer effluent from the proposed gravitational network be discharged to a new sub-surface conservancy tank situated at the lowest point of the proposed development site.

The red book states that conservancy tanks should be sized for a storage volume of minimum 5000ℓ or 48 hours pf IPDWF, witch ever is greater.

From the above, the proposed conservancy tank may be sized as:

- Cons. Tank Volume = (IPDWF) x (48 hours / 24 hours)
- Cons. Tank Volume = (21.82m³/day) x (2)
- Cons. Tank Volume = 43.65m³

From above the conservancy tank may be sized at 44kℓ for a duration of 48hours (2 days).

Furthermore, it is recommended that the conservancy tank be constructed of masonry walls and reinforced concrete floor- and cover slabs. See figure 8 below for typical detail of proposed conservancy tank.

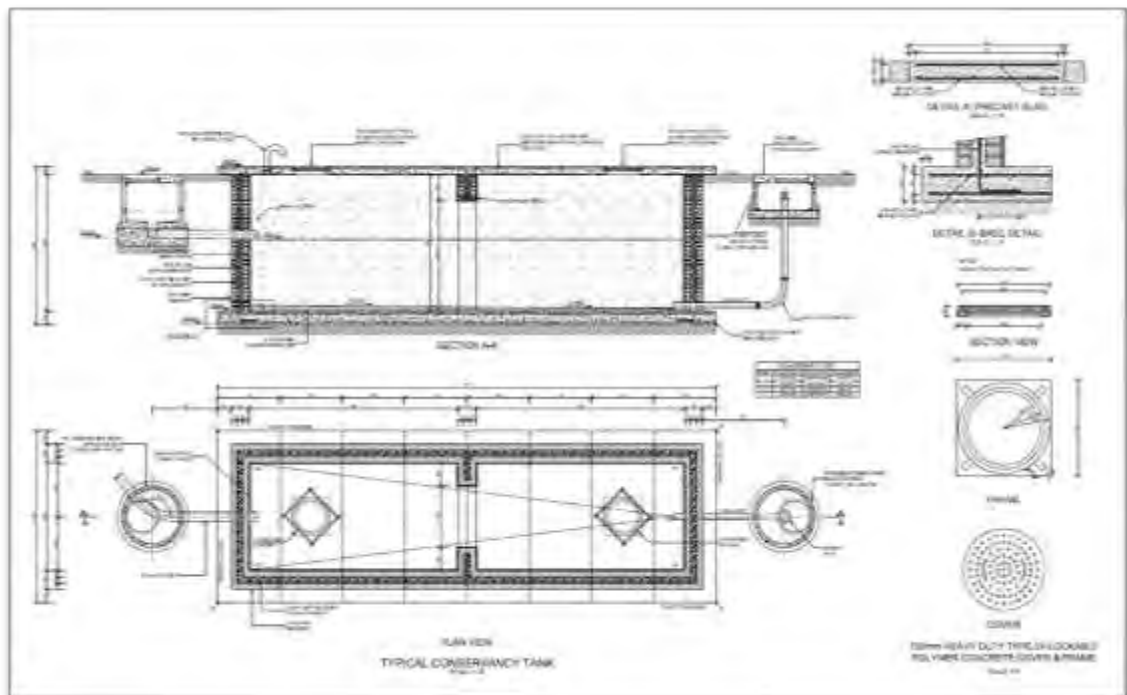


Figure 8: Typical Detail of Conservancy Tank

8. WATER

8.1. ANTICIPATED TOTAL DOMESTIC WATER DEMAND

The anticipated peak demand will be based on figures and peak factors as obtained from The **Neighbourhood Planning and Design Guide, 2019 (a.k.a. the "Red Book")** as set out in table 6-2, in conjunction with the elements of the proposed development that will generate the water demand.

The relevant elements of the proposed development to generate sewer effluent are:

- Filling Station: Total floor area : 500m²
- Accommodation: 10 Containerized Over-night rooms : 10 of
- Car Wash: Hand wash bays : 8 of

8.1.1. Annual Average Daily Demand (AADD):

The Total Annual Average Daily Demand (TAADD) for the proposed development as depicted in the table 8-1 below, amounts to 17.90m³/day (0.21ℓ/s).

Table 8-1: Annual Average Daily Demand (AADD)				
Description	Capacity (ℓ/unit measurement/day)	Area (m ²)	Unit factor	m ³ /day
• Filling Station	800 ℓ/100m ² /day	500	5	4.00
• Over -night Accommodation	110 ℓ/unit/day	-	10	1.10
• Car Wash	200 ℓ/car/day	-	64	12.80
TOTAL				17.90

8.1.2. Total Annual Average Daily Demand (TAADD):

Total Annual Average Daily Demand is determined by applying estimated water losses to the AADD as determined previously.

Assuming real losses to be 25% of AADD, TAADD may then be defined as:

- $TAADD = AADD / (1-0.25)$

Table 8-2: Total Annual Average Daily Demand (TAADD)					
Description	Capacity (ℓ/unit measurement/day)	Area (m ²)	Unit factor	% Losses	m ³ /day
• Filling Station	800 ℓ/100m ² /day	500	5	25	5.33
• Over -night Accommodation	110 ℓ/unit/day	-	10	25	1.47
• Car Wash	200 ℓ/car/day	-	64	25	17.07
TOTAL					23.87

Thus, TAADD amounts to 23.87m³/day (0.28ℓ/s).

8.1.3. Fire Flow:

From table 6-2 the requirement for water provision for fire flow, as given in SANS 10252-1, is 1200ℓ/min/hydrant with a minimum of 2 hydrants in operation for a design fire duration of 2 hours.

From the above, design fire flow may be given as:

- Fire Flow = ((hydrant Flow Rate) x (Number of Hydrants)) / 60s
- Fire Flow = ((1200ℓ/min/hydrant) x (2)) / 60s
- Fire Flow = **40 ℓ/s**

8.2. PROPOSED INFRASTRUCTURE

From item 8.1 the design demand to be served by the proposed development is 40.28 **ℓ/s** (TAADD + Fire Flow).

From the above, assuming a maximum flow velocity of 3.0m/s for fire flow, the size of required connection to the existing 315mm Ø bulk water main may be given as:

$$\begin{aligned} \text{If } Q &= v \times A \\ \text{and } A &= (\pi D^2)/4 \\ \text{Then } (\pi D^2)/4 &= Q / v \\ (\pi D^2)/4 &= (0.040\text{m}^3/\text{s}) / 3.0\text{m/s} \\ D^2 &= (0.0133 \text{ m}^2 \times 4) / \pi \\ D &= \sqrt{0.0169} \\ D &= 0.130\text{m} \end{aligned}$$

Thus, from above it is recommended that the site be provided with a bulk water connection of not less than 160 mm Ø to provide sufficient capacity for direct supply of fire suppression equipment.

9. ROADS

A traffic impact assessment was conducted by KMA consulting engineers in March 2021, based on the site development plan as indicated in Annexure A. The conclusions of the traffic impact assessment are as follows:

- The development will not have a notable effect on levels of service, and capacity considerations are not of concern.
- A full access from the Platfontein road is viable at an access separation of minimum 100m from the intersection with the R31. The access should be developed with auxiliary lanes. Development should include the intersection with the R31.
- Marginal access from the R31 is viable. The access should comply with the following:
 - Identifiable by means of signboard.
 - Developed with left turning deceleration (auxiliary) lane.
 - Regulated to prevent exiting through the access road.
 - Raised constructed median should be erected to prevent undesirable turning movements. The median must be provided over a distance extending 30m beyond the length of the left turning deceleration (auxiliar) lane.
- The site development plan is in principle acceptable from a traffic engineering standpoint.

See Annexure C for traffic impact assessment.

9.1. PROPOSED INFRASTRUCTURE

9.1.1. Geometric Design:

Considering the recommendations contained in the traffic impact assessment, and outlined above, the following is recommended:

- Widen north-west bound side of R31 for accommodation of deceleration lane and left turning slip lane at the Platfontein road intersection.
- Include right turn lane for south-east bound traffic at the Platfontein road intersection.
- Widen south-west bound road edge of Platfontein road for accommodation of left turning slip lane at access road to the site of the proposed development.

Figure 9 depicts a sketch line diagram of the above intersection and access road, indicating widened road edges in red.

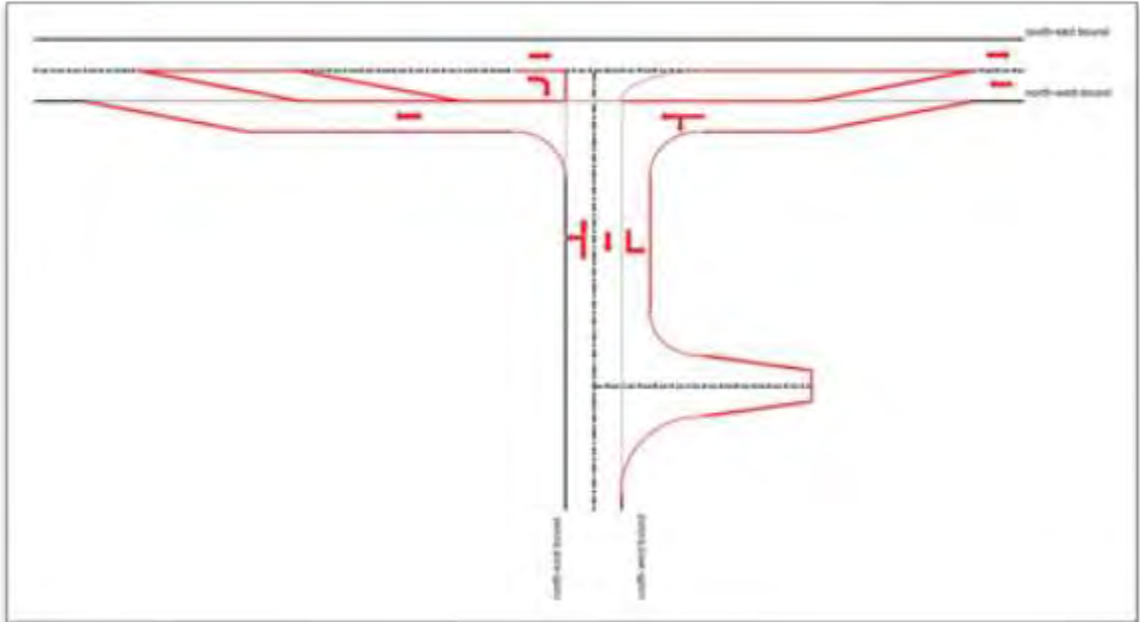


Figure 9: Line Diagram: Proposed R31 Intersection Layout

9.1.2. Layer Works Design:

Considering above recommendations, the proposed layer works for the widened road sections, in accordance to COLTO specifications, will be as follows:

- Surfacing : 40mm Continuously graded asphalt.
- Base : 150mm G3 quality crushed stone base compacted to 98% to 100% of MDD.
- Sub-base : 150mm G5 quality natural gravel compacted to 97% of MDD.
- Selected Layer : 150mm G7 quality natural gravel compacted to 95% of MDD.
- In-Situ cut and fill : 150mm Ripped and recompacted to 93% of MDD.
- Slope fill : G6 quality natural gravel in layers not exceeding 150mm and compacted to 95% of MDD.

10. STORM WATER

As indicated in item 3.5, the proposed development site is situated in the drainage path of a storm water catchment of approximately 664ha.

From the rational method for storm water run-off calculations for overland flow conditions, the estimated volume of storm water run-off to be experienced on sit was determined to be approximately 11.53m³/s for 1 in 20-year flood return period.

Considering the above volume of anticipated storm water, it is recommended that measures be taken to protect the proposed development site from ingress of flood water.

To this end it is recommended that an earthworks berm drainage channel be constructed along the up-stream erf boundaries of the proposed development site. The earthworks berm and channel will be located on the north-eastern, south-eastern, and south-wester erf boundaries of the proposed site and will function to intercept and redirect storm water run-off around the development toward the lower laying north-eastern area, adjacent to the Platfontein road. The proposed berm will be formed in layers of gravel material not exceeding 150mm taken from excavated material from the proposed storm water channel.

It must be noted that due to the natural fall of the area, redirected storm water will influence the proposed new access roads. To the end of preventing undue damage to roads infrastructure as described in item 9, it may be required to construct culvert road crossings at key locations below the existing Platfontein access road as well as the new access roads to the proposed development site.



Figure 10: Proposed Berm and Channel Alignment

11. REFERENCES

- *Department of Statistics South Africa Census 2011 Municipal Fact Sheet. Nama Khoi Municipality Draft Integrated Development Plan 2018/2019.*
- *Guidelines for the Provision of Engineering Services and Amenities in Residential Township Development, 1994 as amended (a.k.a. the "Blue Book").*
- *Guidelines for Human Settlement Planning and Designs as published by the CSIR and will also refer to the local municipality's guidelines and standards (a.k.a. the "Red Book").*
- *South African Local Government Association (SALGA) Planning and Design Guidelines Part II; J-Water Supply; and K-Sanitation.*
- *COLTO 1984*

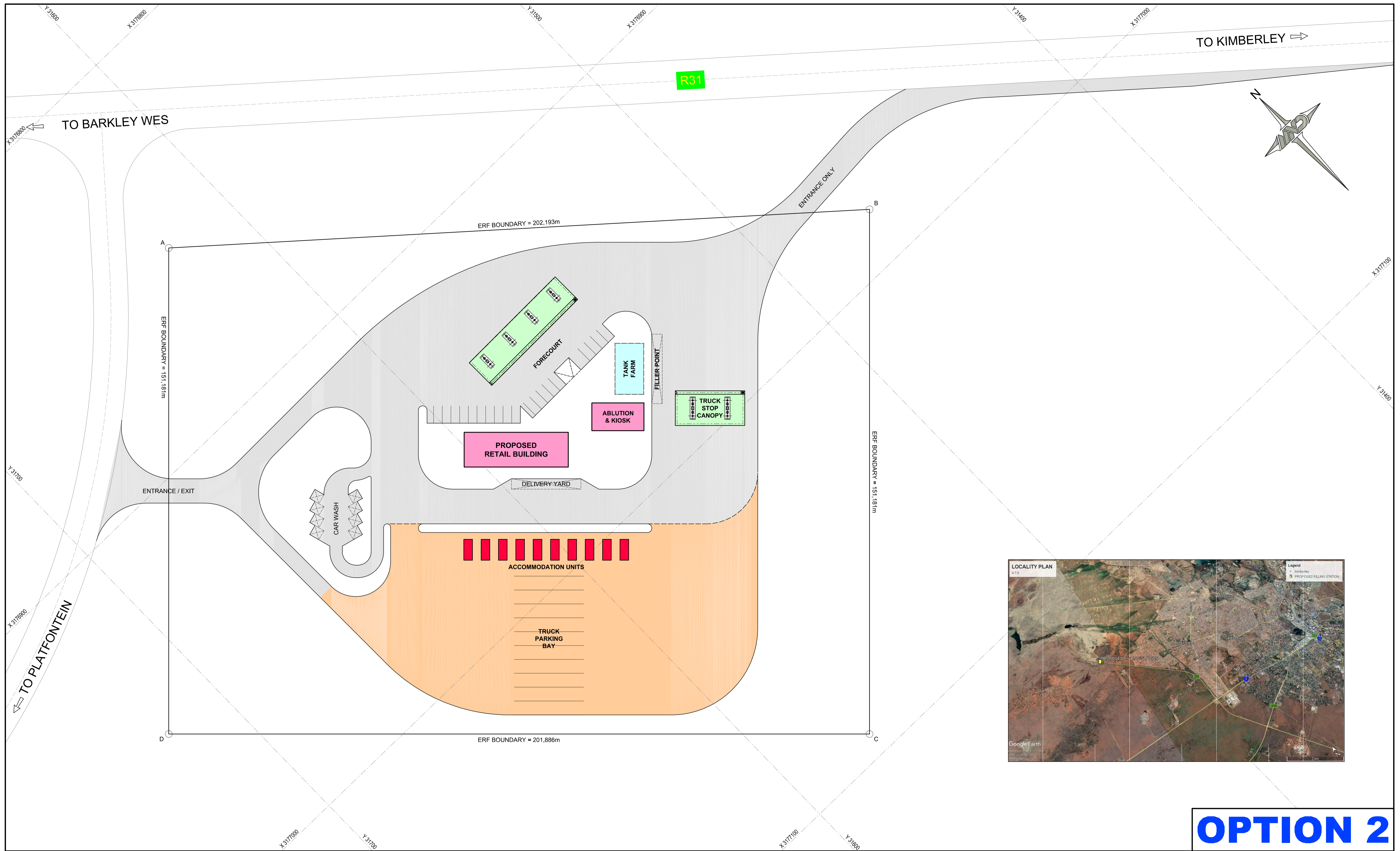
12. CONCLUSION

We trust this will enable you to make the necessary decisions. MVD Kalahari will gladly assist with additional information should the need arise.

PT PHEPHENG (DIRECTOR)
MVD Kalahari
Consulting Engineers and Town Planners
Level 2 B-BBEE Contributor
/evdb/10731-QR-Platfontein - Bulk Services Report

ANNEXURES

ANNEXURE A:
SITE DEVELOPMENT PLAN



OPTION 2

NOTE/NOTA :
 NO DIMENSIONS ARE TO BE SCALED OFF ANY DRAWINGS. ALL DIMENSIONS ARE TO BE RATIFIED ON SITE PRIOR TO ANY CONSTRUCTION.
 GEEN AFMETINGS MAG VAN TEKENINGE GESKAAL WORD NIE. ALLE AFMETINGS MOET OP TERREIN NAGEGAAN WORD VOOR KONSTRUKSIE.

A BEFORE CONTRACT COMMENCES, VOOR KONTRAK IN AANVANG NEEM.
 A1 AFTER CONTRACT HAS COMMENCED, NA KONTRAK IN AANVANG GENEEM HET.
 COPYRIGHT IS VESTED IN MVD KALAHARI IN TERMS OF THE COPYRIGHT ACT. (ACT 98 OF 1978)
 OUTEURSREG IS GEVESTIG IN MVD KALAHARI. KRAGTENS DIE WET OP OUTEURSREG. (WET 98 VAN 1978)

NO. NR.	DATE DATUM	AMENDMENTS WYSIGINGS

MVD Kalahari
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CESA
 Consulting Engineers South Africa

DESIGN ONTWERP	W. Karsten
DRAWN GETEKEN	H. Leemans
CHECKED NAGEGAAN	-----
CLIENT KLIJNT	-----
DATE DATUM	June 2020

PROJECT/PROJEK
**PLATFONTEIN R31
 NEW FILLING STATION**

CLIENT/KLIJNT	-----
DRAWING DESCRIPTION/TEKENING BESKRYWING	SITE DEVELOPMENT PLAN
PAPER SIZE/PAPIER GROTER	A1
SCALE/SKAAL	1:500
DRAWING No./TEKENING N.	10731
REV No.	--

DRAFT



ANNEXURE 13 – ENVIRONMENTAL IMPACT ASSESSMENT

Final Basic Assessment Report

01 October 2021

Platfontein Truck
Stop/Filling Station on
a Portion of the farm
Wildebeest Kuil 69,
Kimberley



GREEN-BOX
CONSULTING

BASIC ASSESSMENT REPORT



the denc

Department:
Environment & Nature Conservation
NORTHERN CAPE PROVINCE
REPUBLIC OF SOUTH AFRICA

Private Bag X6102, Kimberley, 8300, Metlife Towers, T-Floor, Tel: 053 807 7300, Fax: 053 807 7328

Project applicant:	Plaatpal Pty Ltd		
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Telephone:	053-831 1889	Cell:	
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Prepared by:

Environmental Assessment Practitioner/Firm:	Green – Box Consulting		
Business reg. no. /ID. no.:	2011/087408/23		
Contact person:	Danie Krynauw		
Postal address:	P.O. Box 37738, Langenhovenpark, Bloemfontein		
Telephone:	082 435 2108	Cell:	082 435 2108
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(For official use only)

File Reference Number:	
Application Number:	
Date Received:	

BASIC ASSESSMENT REPORT

Basic Assessment Report in terms of the Environmental Impact Assessment Regulations, 2014, promulgated in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended.

Kindly note that:

1. This basic assessment report is a standard report that may be required by a competent authority in terms of the EIA Regulations, 2014 and is meant to streamline applications. Please make sure that it is the report used by the particular competent authority for the activity that is being applied for.
2. This report format is current as of 08 December 2014. It is the responsibility of the applicant to ascertain whether subsequent versions of the form have been published or produced by the competent authority
3. The report must be typed within the spaces provided in the form. The size of the spaces provided is not necessarily indicative of the amount of information to be provided. The report is in the form of a table that can extend itself as each space is filled with typing.
4. Where applicable tick the boxes that are applicable in the report.
5. An incomplete report may be returned to the applicant for revision.
6. **The use of “not applicable” in the report must be done with circumspection because if it is used in respect of material information that is required by the competent authority for assessing the application, it may result in the rejection of the application as provided for in the regulations.**
7. This report must be handed in at offices of the relevant competent authority as determined by each authority.
8. No faxed or e-mailed reports will be accepted.
9. The signature of the EAP on the report must be an original signature.
10. The report must be compiled by an independent environmental assessment practitioner.
11. Unless protected by law, all information in the report will become public information on receipt by the competent authority. Any interested and affected party should be provided with the information contained in this report on request, during any stage of the application process.
12. A competent authority may require that for specified types of activities in defined situations only parts of this report need to be completed.
13. Should a specialist report or report on a specialised process be submitted at any stage for any part of this application, the terms of reference for such report must also be submitted.

SECTION A: ACTIVITY INFORMATION

Has a specialist been consulted to assist with the completion of this section?

NO

If YES, please complete the form entitled "Details of specialist and declaration of interest" for the specialist appointed and attach in Appendix I.

1. ACTIVITY DESCRIPTION

a) Describe the project associated with the listed activities applied for

Green-Box Consulting has been appointed by Plaatpal Pty Ltd to complete the Platfontein Truck Stop/Filling Station Basic Assessment process. The Proponent for the filling station is the company Plaatpal Pty Ltd, who is also the landowner.

The Proponent proposes the filling station and associated infrastructure on a site situated at the corner of road R31 and the road leading to Platfontein, in Kimberley. This portion is located on the farm Wildebeest Kuil 69 (the project site). The project site is situated approximately 10km north-west of the Kimberley Central Business District (CBD) and falls within the jurisdiction of the Sol Plaatje Local Municipality.

The portion proposed for the township establishment is approximately 2,5ha. The following structures and amenities are proposed:

- Truck stop area: 1666m²
- Truck ablution & attendance building: 120m²
- Truck stop accommodation units: 10 units
- Convenience Store including Fast Food: 300m²
- Retail filling station with supporting facilities: 4443m²
- Car wash with 8 hand wash bays: 701m²



Figure 1: Proposed development site (Google EarthPro, 2020)

According to the feasibility study prepared and validated by Engelbrecht (2020), the *main objective* of the PLAATPAL Truck Stop is to supply diesel, accommodation and ablution facilities to cargo drivers that drive through on the R31 via Kimberley on their route to northern and western destinations. The facility will also

BASIC ASSESSMENT REPORT

provide a car wash, laundry facility and secure parking for trucks and truck drivers.

The *second objective* is to increase its turnover through petrol sales to taxi owners and residence of Platfontein and Galeshewe, as well as gas sales to consumers in its area of operation.

The *third objective* of the business is to provide a convenience forecourt and take-away shop. The store will sell basic amenities, such as bread, milk, sweets, snacks, airtime, cold drinks, and other products found in such shops. **The store will also not be solely dependent on “fuel customers” for sales as the truck stop location** is on route to a cultural settlement to the south and a residential area to its north. The business will draw additional customers and sales from these residents.

Bulk services and Infrastructure:

Sewer: No existing municipal sewer infrastructure exists within the immediate area of the proposed development. The existing Platfontein community is currently serviced by means of conservancy tanks, emptied by Sol Plaatje Municipality on a weekly basis with suction tankers.

The proposed infrastructure for the proposed development may be defined as follows:

- **Proposed 160mm Ø uPVC class 34 sewer gravitational network.**
- **Proposed sub-surface sewer conservancy tank.**

Water: At present there is an existing 315mm Ø bulk water supply main situated in the road reserve of the Platfontein access road, north-west and adjacent to the proposed development site. This existing water main serves as main supply of potable water to the community of Platfontein.

It is recommended that the site be provided with a bulk water connection of not less than 160 mm Ø to provide sufficient capacity for direct supply of fire suppression equipment.

Storm Water: At present there is no discernible existing storm water drainage infrastructure surrounding the proposed development site.

It is recommended that measures be taken to protect the proposed development site from ingress of flood water.

Roads: The site of the proposed development is bordered on two sides by well-developed road infrastructure. To the north-east the site is bordered by the R31 Regional Road, while to the north-west it is bordered by the Platfontein access road. Both roads are paved roads.

The conclusions of the traffic impact assessment are as follows:

- **The development will not have a notable effect on levels of service, and capacity** considerations are not of concern.
- **A full access from the Platfontein road is viable at an access separation of minimum 100m** from the intersection with the R31. The access should be developed with auxiliary lanes. Development should include the intersection with the R31.
- Marginal access from the R31 is viable. The access should comply with the following:
 - Identifiable by means of signboard.
 - Developed with left turning deceleration (auxiliary) lane.
 - Regulated to prevent exiting through the access road.
 - Raised constructed median should be erected to prevent undesirable turning movements.
 - The median must be provided over a distance extending 30m beyond the length of the left turning deceleration (auxiliary) lane.
 - The site development plan is in principle acceptable from a traffic engineering standpoint.

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- b) Provide a detailed description of the listed activities associated with the project as applied for

Listed activity as described in GN 734, 735 and 736	Description of project activity
<p><i>Example:</i> GN 734 Item xx xx): The construction of a bridge where such construction occurs within a watercourse or within 32 metres of a watercourse, measured from the edge of a watercourse, excluding where such construction will occur behind the development setback line.</p>	<p>A bridge measuring 5 m in height and 10m in length, no wider than 8 meters will be built over the Orange river</p>
<p>Government Notice R 327, Activity No. 14. “The development and related operation of facilities or infrastructure, for the storage, or for the storage and handling, of a dangerous good, where such storage occurs in containers with a combined capacity of 80 cubic metres or more but not exceeding 500 cubic metres”.</p>	<p>The proposed filling station will include the installation of one underground tank farm comprising 3 × 46m³ tanks. This gives a storage capacity of 138 000ℓ (138m³).</p>
<p>Listing Notice 1 (GN R327), Activity 27: The clearance of an area of 1 hectare or more, but less than 20 hectares of indigenous vegetation.</p>	<p>The property area is ±3ha in extent, of this 3ha approximately 2ha will be occupied by the filling station and its associated infrastructure. The property is defined by natural vegetation cover.</p>

2. FEASIBLE AND REASONABLE ALTERNATIVES

“**alternatives**”, in relation to a proposed activity, means different means of meeting the general purpose and requirements of the activity, which may include alternatives to—

- (a) the property on which or location where it is proposed to undertake the activity;
- (b) the type of activity to be undertaken;
- (c) the design or layout of the activity;
- (d) the technology to be used in the activity;
- (e) the operational aspects of the activity; and
- (f) the option of not implementing the activity.

Describe alternatives that are considered in this application as required by Appendix 1 (3)(h), Regulation 2014. Alternatives should include a consideration of all possible means by which the purpose and need of the proposed activity (NOT PROJECT) could be accomplished in the specific instance taking account of the interest of the applicant in the activity. The no-go alternative must in all cases be included in the assessment phase as the baseline against which the impacts of the other alternatives are assessed.

The determination of whether site or activity (including different processes, etc.) or both is appropriate needs to be informed by the specific circumstances of the activity and its environment. After receipt of this report the, competent authority may also request the applicant to assess additional alternatives that could possibly accomplish the purpose and need of the proposed activity if it is clear that realistic alternatives have not been considered to a reasonable extent.

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Indicate the position of the activity using the latitude and longitude of the centre point of the site for each alternative site. The co-ordinates should be in degrees, minutes and seconds. The projection that must be used in all cases is the WGS84 spheroid in a national or local projection.

a) Site alternatives

Alternative 1 (preferred alternative)		
Description	Lat (DDMMSS)	Long (DDMMSS)
Development of a Truck Stop / Filling Station (termed Platfontein Filling Station) facility on a portion of the farm Wildebeest Kuil 69, Kimberley	28°42'29.59"S	24°40'35.95"E
Alternative 2		
Description	Lat (DDMMSS)	Long (DDMMSS)
None considered	-	-
Alternative 3		
Description	Lat (DDMMSS)	Long (DDMMSS)
None considered	-	-

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In the case of linear activities:

	Latitude (S):	Longitude (E):
Alternative:		
Alternative S1 (preferred)		
• Starting point of the activity	Not applicable	Not applicable
• Middle/Additional point of the activity		
• End point of the activity		
Alternative S2 (if any)		
• Starting point of the activity	Not applicable	Not applicable
• Middle/Additional point of the activity		
• End point of the activity		
Alternative S3 (if any)		
• Starting point of the activity	Not applicable	Not applicable
• Middle/Additional point of the activity		
• End point of the activity		

For route alternatives that are longer than 500m, please provide an addendum with co-ordinates taken every 250 meters along the route for each alternative alignment.

In the case of an area being under application, please provide the co-ordinates of the corners of the site as indicated on the lay-out map provided in Appendix A of this form.

b) Lay-out alternatives

Alternative 1 (preferred alternative)		
Description	Lat (DDMMSS)	Long (DDMMSS)
Development of a Truck Stop / Filling Station (termed Platfontein Filling Station) facility on a portion of the farm Wildebeest Kuil 69, Kimberley	28°42'29.59"S	24°40'35.95"E
Alternative 2		
None considered	-	-
Alternative 3		
None considered	-	-

c) Technology alternatives

Alternative 1 (preferred alternative)
No technology alternatives are being considered for this project as no alternatives which are feasible or reasonable are available. The storage of fuel for dispensing is governed by SANS 10089-3 (SANS 10089-3 (2010) (English): The petroleum industry Part 3: The installation, modification, and decommissioning of underground storage tanks, pumps/dispensers and pipework at service stations and consumer installations), and the installation of the underground storage tanks and associated fuel handling infrastructure, will need to conform to these standards. This requirement limits the opportunity to implement alternate technology, therefore preferred technology requirements that are governed by SANS has taken the most appropriate engineering/architectural designs into consideration which reduces the environmental impacts.
Alternative 2
None considered

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Alternative 3
None considered

d) Other alternatives (e.g. scheduling, demand, input, scale and design alternatives)

Alternative 1 (preferred alternative)		
No other alternatives considered		
Alternative 2		
None considered		
Alternative 3		
None considered		

e) No-go alternative

If the no-go option is considered, the status quo will remain. As such, the site would not provide any services to the community, nor would it assist in improving the value of the area. The site would remain in its current state, which is limited to a vacant area with no other economic activities taking place on site.

Paragraphs 3 – 13 below should be completed for each alternative.

3. PHYSICAL SIZE OF THE ACTIVITY

a) Indicate the physical size of the preferred activity/technology as well as alternative activities/technologies (footprints):

Alternative:

Alternative A1¹ (preferred activity alternative)

Alternative A2 (if any)

Alternative A3 (if any)

Size of the activity:

±(2.5ha) 25000m ²
m ²
m ²

or, for linear activities:

Alternative:

Alternative A1 (preferred activity alternative)

Alternative A2 (if any)

Alternative A3 (if any)

Length of the activity:

m
m
m

b) Indicate the size of the alternative sites or servitudes (within which the above footprints will occur):

Alternative:

Alternative A1 (preferred activity alternative)

Alternative A2 (if any)

Alternative A3 (if any)

Size of the site/servitude:

± (3,57ha) 30 570 m ²
m ²
m ²

¹ "Alternative A.." refer to activity, process, technology or other alternatives.

4. SITE ACCESS

Does ready access to the site exist?

YES	
	m

If NO, what is the distance over which a new access road will be built

Describe the type of access road planned:

Access is gained to the facility via the R31 road and the Platfontein road. Construction will take place as modifications of the two roads in the form of two slipways (one off the R31, and one off the Platfontein road) towards the facility and will form part of the design.

Include the position of the access road on the site plan and required map, as well as an indication of the road in relation to the site.

5. LOCALITY MAP

An A3 locality map must be attached to the back of this document, as Appendix A. The scale of the locality map must be relevant to the size of the development (at least 1:50 000. For linear activities of more than 25 kilometres, a smaller scale e.g. 1:250 000 can be used. The scale must be indicated on the map.). The map must indicate the following:

- an accurate indication of the project site position as well as the positions of the alternative sites, if any;
- indication of all the alternatives identified;
- closest town(s);
- road access from all major roads in the area;
- road names or numbers of all major roads as well as the roads that provide access to the site(s);
- all roads within a 1km radius of the site or alternative sites; and
- a north arrow;
- a legend; and
- locality GPS co-ordinates (Indicate the position of the activity using the latitude and longitude of the centre point of the site for each alternative site. The co-ordinates should be in degrees and decimal minutes. The minutes should have at least three decimals to ensure adequate accuracy. The projection that must be used in all cases is the WGS84 spheroid in a national or local projection).

6. LAYOUT/ROUTE PLAN

A detailed site or route plan(s) must be prepared for each alternative site or alternative activity. It must be attached as Appendix A to this document.

The site or route plans must indicate the following:

- the property boundaries and numbers of all the properties within 50 metres of the site;
- the current land use as well as the land use zoning of the site;
- the current land use as well as the land use zoning each of the properties adjoining the site or sites;
- the exact position of each listed activity applied for (including alternatives);
- servitude(s) indicating the purpose of the servitude;

- a legend; and
- a north arrow.

7. SENSITIVITY MAP

The layout/route plan as indicated above must be overlain with a sensitivity map that indicates all the sensitive areas associated with the site, including, but not limited to:

- watercourses;
- the 1:100 year flood line (where available or where it is required by DWS);
- ridges;
- cultural and historical features;
- areas with indigenous vegetation (even if it is degraded or infested with alien species); and
- critical biodiversity areas.

The sensitivity map must also cover areas within 100m of the site and must be attached in Appendix A.

8. SITE PHOTOGRAPHS

Colour photographs from the centre of the site must be taken in at least the eight major compass directions with a description of each photograph. Photographs must be attached under Appendix B to this report. It must be supplemented with additional photographs of relevant features on the site, if applicable.

9. FACILITY ILLUSTRATION

A detailed illustration of the activity must be provided at a scale of at least 1:200 as Appendix C for activities that include structures. The illustrations must be to scale and must represent a realistic image of the planned activity. The illustration must give a representative view of the activity.

BASIC ASSESSMENT REPORT

10. ACTIVITY MOTIVATION

Motivate and explain the need and desirability of the activity (including demand for the activity):

1. Is the activity permitted in terms of the property's existing land use rights?	YES		Please explain
The area applicable has a current agricultural land use zone but will be rezoned for light industrial activities before development will commence.			
2. Will the activity be in line with the following?			
(a) Provincial Spatial Development Framework (PSDF)	YES		Please explain
The proposed area where the facility will be located falls within a vacant area.			
(b) Urban edge / Edge of Built environment for the area	YES		Please explain
The proposed development falls within the urban edge according to the Sol Plaatje Spatial Development Framework (C/48/02/2020).			
(c) Integrated Development Plan (IDP) and Spatial Development Framework (SDF) of the Local Municipality (e.g. would the approval of this application compromise the integrity of the existing approved and credible municipal IDP and SDF?).	YES		Please explain
The activities proposed compliments the IDP as well as the SDF of the Sol Plaatje Local Municipality.			
(d) Approved Structure Plan of the Municipality		NO	Please explain
Structure plans not applicable.			
(e) An Environmental Management Framework (EMF) adopted by the Department (e.g. Would the approval of this application compromise the integrity of the existing environmental management priorities for the area and if so, can it be justified in terms of sustainability considerations?)	YES		Please explain
The proposed area falls within an area zoned as agricultural. However, an application will be submitted for rezoning before construction commences.			
(f) Any other Plans (e.g. Guide Plan)		NO	Please explain
None applicable			
3. Is the land use (associated with the activity being applied for) considered within the timeframe intended by the existing approved SDF agreed to by the relevant environmental authority (i.e. is the proposed development in line with the projects and programmes identified as priorities within the credible IDP)?	YES		Please explain
The IDP is a principal strategic planning instrument which guides and informs all planning, budgeting, management and decision-making in a municipality. The proposed filling station, truck stop and related structures will fit into the IDP of the local municipality.			

BASIC ASSESSMENT REPORT

<p>4. Does the community/area need the activity and the associated land use concerned (is it a societal priority)? (This refers to the strategic as well as local level (e.g. development is a national priority, but within a specific local context it could be inappropriate.)</p>	YES		Please explain
<p>The area currently has no economic activities taking place on site. Although the development of the filling station, truck stop and related structures will be small in scale compared to much larger projects within the Northern Cape, the area will be developed and will have a positive economic effect for Kimberley as well as serving light and heavy motor vehicles making use of the R31 road. Job creation and the optimal use of vacant land will have a positive effect on the area.</p>			
<p>5. Are the necessary services with adequate capacity currently available (at the time of application), or must additional capacity be created to cater for the development? (Confirmation by the relevant Municipality in this regard must be attached to the final Basic Assessment Report as Appendix I.)</p>	YES		Please explain
<p>See attached Appendix I</p>			
<p>6. Is this development provided for in the infrastructure planning of the municipality, and if not what will the implication be on the infrastructure planning of the municipality (priority and placement of services and opportunity costs)? (Comment by the relevant Municipality in this regard must be attached to the final Basic Assessment Report as Appendix I.)</p>	YES		Please explain
<p>The area falls inside of Sol Plaatje's urban edge, infrastructure which will be used by light and heavy vehicles making use of the facility is limited to roads in particular the R31 road and Platfontein road.</p>			
<p>7. Is this project part of a national programme to address an issue of national concern or importance?</p>		NO	Please explain
<p>Small scale job development and skills transfer will take place, formal and informal training will also take place. The proposed filling station will however not be of national importance.</p>			
<p>8. Do location factors favour this land use (associated with the activity applied for) at this place? (This relates to the contextualisation of the proposed land use on this site within its broader context.)</p>	YES		Please explain
<p>The area falls within the urban edge of Sol Plaatje along the R31 road which is a busy road especially for heavy vehicles. The site is ideally situated especially with regard to vehicles traveling from the direction of Barkley West, as the filling station facility will be the first filling station before entering the town of Kimberley.</p>			
<p>9. Is the development the best practicable environmental option for this land/site?</p>	YES		Please explain
<p>The vicinity of this land against the R31 and Platfontein road provides the ideal location for the type of structure that is proposed.</p>			
<p>10. Will the benefits of the proposed land use/development outweigh the negative impacts of it?</p>	YES		Please explain
<p>The area is currently vacant and has no economic activity, the facility will offer overnight facilities heavy vehicles- a service not many other filling stations offer.</p>			

BASIC ASSESSMENT REPORT

11. Will the proposed land use/development set a precedent for similar activities in the area (local municipality)?		NO	Please explain
In terms of the feasibility investigation results, the proposed facility will be able to accommodate the volume of vehicles using the R31, more related facilities in the area will not be economically viable.			
12. Will any person's rights be negatively affected by the proposed activity/ies?		NO	Please explain
The area currently has no economic activities taking place on site. The proposed filling station will be a positive contribution to the transport industry in regard to heavy vehicles traveling along the R31 route. Through proper public participation stakeholders will have the chance to comment on the development and voice their opinions			
13. Will the proposed activity/ies compromise the "urban edge" as defined by the local municipality?		NO	Please explain
The proposed site is located within the urban edge of Sol Plaatje on an area zoned as agriculture			
14. Will the proposed activity/ies contribute to any of the 17 Strategic Integrated Projects (SIPS)?		NO	Please explain
Only small-scale job creation, and related trading of workers. The project is not big enough to fit into any of the 17 Strategic Integrated Projects.			
15. What will the benefits be to society in general and to the local communities?			Please explain
The construction of not only a fuel station, but also a truck stop / overnight facility will service heavy vehicles traveling along the R31. The area will also have a positive socio-economic effect as the facility will stimulate the local economy and also assist in the reduction of unemployed individuals, both during the physical construction activities of the facility, but also during the operational phase, as the facility will make use of locals- which in turn will receive training.			
16. Any other need and desirability considerations related to the proposed activity?			Please explain
The high unemployment figures will be lowered by the utilization of local contractors during the construction phase. As well as the use of locals during the operational phase of the facility.			
17. How does the project fit into the National Development Plan for 2030?			Please explain
The proposed filling station and truck stop will contribute to job creation, skills will be passed on through formal training, the high amount of unemployment will therefore somewhat be reduced by this proposed filling station development.			

BASIC ASSESSMENT REPORT

18. Please describe how the general objectives of Integrated Environmental Management as set out in section 23 of NEMA have been taken into account.

According to Section 23 of NEMA, 1998, the following should be considered:

EIA process for listed activities should be followed

An application for environmental authorization was submitted to DENC.

Baseline assessment was undertaken.

Compilation of a Draft Basic Assessment Report which includes the potential impacts identified during the assessments.

Submission of draft reports to the respective competent authorities for perusal.

The final BAR will also be made available to the respective competent authorities.

Compilation of an EMPr

An EMPr containing management measures to be implemented to limit environmental impacts are attached hereto.

All possible interested and/or affected parties were notified of the proposed project by means of letters, advertisement, and site notices.

I&APs were given the opportunity to register and comment on the Draft BAR.

Need in terms of socio-economic level

The need in terms of the socio-economic level was assessed.

The proposed development of a filling station has been adequately considered by a trained and competent Environmental Assessment Practitioner, and all potential impacts that may have a significant impact on the receiving environment have been considered and mitigated to acceptable levels as required by the NEMA 2014 EIA regulations. The conclusions of the environmental impact assessment have been concisely summarized to adequately inform decision-making by the competent authority. A comprehensive Public Participation Process was undertaken, which conforms to requirements in Chapter 6 of the Environmental Impact Assessment Regulations. Further all Interested, and Affected Parties were given ample time to review and comment on all documents and reports.

BASIC ASSESSMENT REPORT

19. Please describe how the principles of environmental management as set out in section 2 of NEMA have been taken into account.

An application for environmental authorization was submitted to DENC

DENC acknowledged receipt of the application and provided this office with a reference number. The results obtained from baseline assessments were used to assess the possible impacts (positive and negative) on an environmental as well as social level. The Draft BAR was made available to the relevant sector departments and the public for their respective comments. These comments were assessed and included in this Final BAR to be approved (or not) by DENC.

Compilation of an EMPr

An EMPr containing management measures to be implemented on site was compiled by taking the possible impacts that the proposed project may have on the environment, into consideration.

Public participation process undertaken

Adjacent landowners to the proposed filling station site will be notified of the proposed project by means of formal notices either delivered by hand / e-mail / postage. In addition, site notices were placed, and a notification was published in a local newspaper. The local municipality was also notified of the proposed project. I&APs are given the opportunity to register and comment on this Draft BAR.

Need in terms of socio-economic level

The proposed project will provide employment opportunities for a number of people from the local community during the construction and operational phases, training will also form part of the employment.

The principles of environmental management as set out in Section 2 of NEMA have been taken into account through the following means:

- There will be no loss of endangered or protected biological diversity;
- Pollution will be minimized; and
- This activity will reduce the exploitation of non-renewable resources.

BASIC ASSESSMENT REPORT

11. APPLICABLE LEGISLATION, POLICIES AND/OR GUIDELINES

List all legislation, policies and/or guidelines of any sphere of government that are applicable to the application as contemplated in the EIA regulations, if applicable:

Title of legislation, policy or guideline	Applicability to the project	Administering authority	Date
National Environmental Management Act, 1998 (Act No. 107 of 1998)	2014 NEMA Regulations applicable, filling station operation listed in terms of the Regulations. NEMA principles will apply as well as Section 28(1), Duty of Care.	National Department of Environmental Affairs and Tourism	27 November 1998
National Environmental Management: Waste Act (Act 59 of 2009)	The Act aims to consolidate waste management in South Africa and contains a number of commendable provisions. No waste management license would be required for the construction or operational phases of the proposed activity.	National Department of Environmental Affairs and Tourism	2009
National Water Act 36 of 1998	All water use is regulated by this Act; as such the filling station operation will use water both during the construction and operational phases. Water will be supplied through the current municipal system.	DWAF	1998
National Health Act, (Act 61 of 2003)	Overall legislation regulating human health, i.t.o. the proposed filling station operation these will apply to all staff (workers).	Department of Health	2003
Occupational Health and Safety Act (Act 85 of 1993).	Regulations applicable both during construction and operation of the proposed filling station.	Department of Labor	1993

12. WASTE, EFFLUENT, EMISSION AND NOISE MANAGEMENT

a) Solid waste management

Will the activity produce solid construction waste during the construction/initiation phase?

YES

If YES, what estimated quantity will be produced per month?

10 m³

How will the construction solid waste be disposed of (describe)?

BASIC ASSESSMENT REPORT

Waste skips will be available at the proposed construction site, construction waste will be deposited into these skips and once full will be removed from site and replaced with empty skips, these skips will be weather as well as scavenger proof. Hazardous wastes will be collected by an approved waste disposal service provider and will be disposed of at a licensed hazardous waste landfill site. All construction waste will be cleared from the site by the end of the construction phase.

Where will the construction solid waste be disposed of (describe)?

The construction waste generated will be disposed of at Sol Plaatje's general waste site, and will be managed as per the municipal waste management system. The license number for facility is as follows: 16/2/7/C901/D2//P265

Will the activity produce solid waste during its operational phase?
If YES, what estimated quantity will be produced per month?

YES

This amount would fluctuate based on the number of customers making use of the facility.

How will the solid waste be disposed of (describe)?

Waste which will be generated during the operational phase of the filling station, truck stop and related infrastructure includes general office wastes, domestic and packaging waste from the convenience store, sludges from the oil/grease traps / truck wash bay on the storm water management system and contaminated materials from the clean-up of potential fuel / oil spills. These comprise both general and hazardous waste types. General office waste and domestic and packaging waste from the convenience store would include paper, cardboard, plastic, and tins. These wastes will be stored in a general refuse area on site and will be transported on a regular basis to the nearest licensed general waste landfill site. The filling station / truck stop operator will be responsible for undertaking monthly inspections of these oil/water separators to ensure their continued functioning. Cleaning of these separators will be undertaken by an appropriate cleaning company.

Wastes generated from this cleaning process will most likely be hazardous in nature and will therefore be transported off site to an appropriate treatment and disposal facility by cleaning company. Additional hazardous wastes would include fuel / oil contaminated materials utilized at the filling station, for example, empty oil cans and oily rags, etc. These wastes will be stored in a designated, appropriately designed hazardous waste storage area, to minimize potential environmental impacts arising from this activity. Hazardous wastes will be transported on a regular basis to the nearest licensed hazardous waste landfill site.

If the solid waste will be disposed of into a municipal waste stream, indicate which registered landfill site will be used.

Domestic waste will be collected via the municipal system and be disposed of at the Sol Plaatje's general waste site (16/2/7/C901/D2//P265), where the waste will be disposed of will be up to the contractor himself. The waste will be managed as per the municipal waste management system.

Where will the solid waste be disposed of if it does not feed into a municipal waste stream (describe)?

All waste will either feed into the municipal waste stream or will be disposed of by a competent cleaning company at a registered hazardous waste treatment site.

If the solid waste (construction or operational phases) will not be disposed of in a registered landfill site or be taken up in a municipal waste stream, then the applicant should consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA.

BASIC ASSESSMENT REPORT

Can any part of the solid waste be classified as hazardous in terms of the NEM:WA? YES NO
 If YES, inform the competent authority and request a change to an application for scoping and EIA. An application for a waste permit in terms of the NEM:WA must also be submitted with this application.

The hazardous wastes generated by the operational facility would include fuel/oil contaminated containers / materials and sludges collected in the oil / grease traps on the wash water and storm water management systems.

Storage and handling activities proposed as part of the operational phase of this project (i.e. for the storage and handling of fuel-contaminated materials and containers, sump and oil / grease trap contents), do not exceed the thresholds and therefore do not trigger any of the Listed Activities published in GN 921 of 29 November 2013, in terms of the NEMWA, 2008. There is therefore no requirement to change the application process to a Scoping and EIA.

Is the activity that is being applied for a solid waste handling or treatment facility? YES NO
 If YES, then the applicant should consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA. An application for a waste permit in terms of the NEM:WA must also be submitted with this application.

b) Liquid effluent

Will the activity produce effluent, other than normal sewage, that will be disposed of in a municipal sewage system? YES NO

If YES, what estimated quantity will be produced per month? m³

Will the activity produce any effluent that will be treated and/or disposed of on site? YES NO

If YES, the applicant should consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA.

Will the activity produce effluent that will be treated and/or disposed of at another facility? YES NO

If YES, provide the particulars of the facility:

Facility name:			
Contact person:			
Postal address:			
Postal code:			
Telephone:	Cell:		
E-mail:	Fax:		

Describe the measures that will be taken to ensure the optimal reuse or recycling of waste water, if any:

The option to recycle rainwater will be explored and integrated in the design of the filling station.

BASIC ASSESSMENT REPORT

c) Emissions into the atmosphere

Will the activity release emissions into the atmosphere other than exhaust emissions and dust associated with construction phase activities?

YES	
	NO

If YES, is it controlled by any legislation of any sphere of government?

If YES, the applicant must consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA.

If NO, describe the emissions in terms of type and concentration:

Dust and vehicle emissions will be released into the atmosphere during the construction phase. Sources of emissions during the operational phase will include emissions related to the transfer of fuel from tankers to the storage tanks, as well as transfer of fuel from the storage tanks to vehicles. Emissions from exhaust fumes from vehicles at the filling station would also be emitted.

d) Waste permit

Will any aspect of the activity produce waste that will require a waste permit in terms of the NEM:WA?

	NO
--	----

If YES, please submit evidence that an application for a waste permit has been submitted to the competent authority

e) Generation of noise

Will the activity generate noise?

YES	
	NO

If YES, is it controlled by any legislation of any sphere of government?

Describe the noise in terms of type and level:

It is anticipated that construction vehicles and equipment would generate noise during the construction phase. The exact level of noise is unknown. The activity will also generate additional traffic related noise during the operational phase, the area is however located far from dense residential units, therefore it is not anticipated that the noise will unduly impact on human well-being. The area has also in the past been used as a filling station with similar effects regarding noise generation experience during the operational phase.

13. WATER USE

Please indicate the source(s) of water that will be used for the activity by ticking the appropriate box(es):

Municipal	Water board	Groundwater	River, stream, dam or lake	Other	The activity will not use water
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If water is to be extracted from groundwater, river, stream, dam, lake or any other natural feature, please indicate the volume that will be extracted per month:

Does the activity require a water use authorisation (general authorisation or water use license) from the Department of Water Affairs?

N/A	
	NO

If YES, please provide proof that the application has been submitted to the Department of Water Affairs.

14. ENERGY EFFICIENCY

Describe the design measures, if any, which have been taken to ensure that the activity is energy efficient:

Standard filling station construction designs, including SANS/SABS specifications will apply. Where possible, it is recommended that energy saving light bulbs be utilized.

Describe how alternative energy sources have been taken into account or been built into the design of the activity, if any:

No alternative energy sources would be utilized.

BASIC ASSESSMENT REPORT

SECTION B: SITE/AREA/PROPERTY DESCRIPTION

Important notes:

- For linear activities (pipelines, etc) as well as activities that cover very large sites, it may be necessary to complete this section for each part of the site that has a significantly different environment. In such cases please complete copies of Section B and indicate the area, which is covered by each copy No. on the Site Plan.

Section B Copy No. (e.g. A):

- Paragraphs 1 - 6 below must be completed for each alternative.

- Has a specialist been consulted to assist with the completion of this section? **NO**
If YES, please complete the form entitled "Details of specialist and declaration of interest" for each specialist thus appointed and attach it in Appendix I. All specialist reports must be contained in Appendix D.

Property description/physical address:

Province	Northern Cape Province
District Municipality	Frances Baard District Municipality
Local Municipality	Sol Plaatje Local Municipality
Ward Number(s)	30 & 31
Farm name and number	Portion on the farm Wildebeest Kuil 69
Portion number	69
SG Code	C0370000000006900000

Where a large number of properties are involved (e.g. linear activities), please attach a full list to this application including the same information as indicated above.

Current land-use zoning as per local municipality IDP/records:

Agricultural

In instances where there is more than one current land-use zoning, please attach a list of current land use zonings that also indicate which portions each use pertains to, to this application.

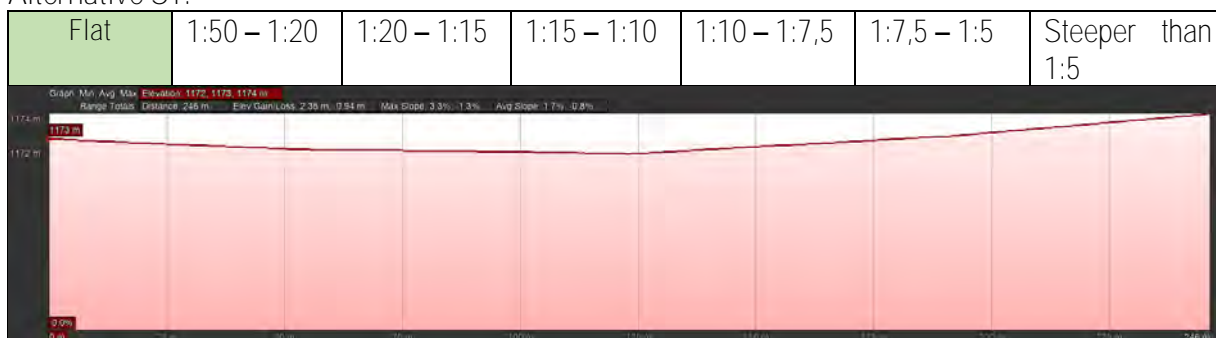
Is a change of land-use or a consent use application required? **YES** | **NO**

BASIC ASSESSMENT REPORT

1. GRADIENT OF THE SITE

Indicate the general gradient of the site.

Alternative S1:



Alternative S2 (if any):

Flat	1:50 – 1:20	1:20 – 1:15	1:15 – 1:10	1:10 – 1:7,5	1:7,5 – 1:5	Steeper than 1:5
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Alternative S3 (if any):

Flat	1:50 – 1:20	1:20 – 1:15	1:15 – 1:10	1:10 – 1:7,5	1:7,5 – 1:5	Steeper than 1:5
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2. LOCATION IN LANDSCAPE

Indicate the landform(s) that best describes the site:

- | | | | | | |
|---------------------------------|--------------------------|-------------------|-------------------------------------|----------------------------------|--------------------------|
| 2.1 Ridgeline | <input type="checkbox"/> | 2.4 Closed valley | <input type="checkbox"/> | 2.7 Undulating plain / low hills | <input type="checkbox"/> |
| 2.2 Plateau | <input type="checkbox"/> | 2.5 Open valley | <input type="checkbox"/> | 2.8 Dune | <input type="checkbox"/> |
| 2.3 Side slope of hill/mountain | <input type="checkbox"/> | 2.6 Plain | <input checked="" type="checkbox"/> | 2.9 Seafront | <input type="checkbox"/> |
| 2.10 At sea | <input type="checkbox"/> | | | | |

3. GROUNDWATER, SOIL AND GEOLOGICAL STABILITY OF THE SITE

Is the site(s) located on any of the following?

	Alternative S1:	Alternative S2 (if any):	Alternative S3 (if any):
Shallow water table (less than 1.5m deep)		YES NO	YES NO
Dolomite, sinkhole or doline areas		YES NO	YES NO
Seasonally wet soils (often close to water bodies)		YES NO	YES NO
Unstable rocky slopes or steep slopes with loose soil		YES NO	YES NO
Dispersive soils (soils that dissolve in water)		YES NO	YES NO
Soils with high clay content (clay fraction more than 40%)		YES NO	YES NO
Any other unstable soil or geological feature		YES NO	YES NO
An area sensitive to erosion		YES NO	YES NO

BASIC ASSESSMENT REPORT

If you are unsure about any of the above or if you are concerned that any of the above aspects may be an issue of concern in the application, an appropriate specialist should be appointed to assist in the completion of this section. Information in respect of the above will often be available as part of the project information or at the planning sections of local authorities. Where it exists, the 1:50 000 scale Regional Geotechnical Maps prepared by the Council for Geo Science may also be consulted.

4. GROUND COVER

Indicate the types of groundcover present on the site. The location of all identified rare or endangered species or other elements should be accurately indicated on the site plan(s).

Natural veld - good condition ^E	Natural veld with scattered aliens ^E	Natural veld with heavy alien infestation ^E	Veld dominated by alien species ^E	Gardens
Sport field	Cultivated land	Paved surface	Building or other structure	Bare soil

If any of the boxes marked with an “E” is ticked, please consult an appropriate specialist to assist in the completion of this section if the environmental assessment practitioner doesn’t have the necessary expertise.

5. SURFACE WATER

Indicate the surface water present on and or adjacent to the site and alternative sites?

Perennial River	YES	NO	UNSURE
Non-Perennial River	YES	NO	UNSURE
Permanent Wetland	YES	NO	UNSURE
Seasonal Wetland	YES	NO	UNSURE
Artificial Wetland	YES	NO	UNSURE
Estuarine / Lagoonal wetland	YES	NO	UNSURE

If any of the boxes marked YES or UNSURE is ticked, please provide a description of the relevant watercourse.

There are no surface water present on the site, or near the site.

BASIC ASSESSMENT REPORT

6. LAND USE CHARACTER OF SURROUNDING AREA

Indicate land uses and/or prominent features that currently occur within a 500m radius of the site and give description of how this influences the application or may be impacted upon by the application:

Natural area	Dam or reservoir	Polo fields
Low density residential	Hospital/medical centre	Filling station ^H
Medium density residential	School	Landfill or waste treatment site
High density residential	Tertiary education facility	Plantation
Informal residential ^A	Church	Agriculture
Retail commercial & warehousing	Old age home	River, stream or wetland
Light industrial	Sewage treatment plant ^A	Nature conservation area
Medium industrial ^{AN}	Train station or shunting yard ^N	Mountain, koppie or ridge
Heavy industrial ^{AN}	Railway line ^N	Museum
Power station	Major road (4 lanes or more) ^N	Historical building
Office/consulting room	Airport ^N	Protected Area
Military or police base/station/compound	Harbour	Graveyard
Spoil heap or slimes dam ^A	Sport facilities	Archaeological site
Quarry, sand or borrow pit	Golf course	Other land uses (describe)

If any of the boxes marked with an "N" are ticked, how this impact will / be impacted upon by the proposed activity? Specify and explain:

Not applicable

If any of the boxes marked with an "An" are ticked, how will this impact / be impacted upon by the proposed activity? Specify and explain:

Not applicable

If any of the boxes marked with an "H" are ticked, how will this impact / be impacted upon by the proposed activity? Specify and explain:

Not applicable

Does the proposed site (including any alternative sites) fall within any of the following:

Critical Biodiversity Area (as per provincial conservation plan)	YES	NO
Core area of a protected area?	YES	NO
Buffer area of a protected area?	YES	NO
Planned expansion area of an existing protected area?	YES	NO
Existing offset area associated with a previous Environmental Authorisation?	YES	NO
Buffer area of the SKA?	YES	NO

If the answer to any of these questions was YES, a map indicating the affected area must be included in Appendix A.

BASIC ASSESSMENT REPORT

7. CULTURAL/HISTORICAL FEATURES

Are there any signs of culturally or historically significant elements, as defined in section 2 of the National Heritage Resources Act, 1999, (Act No. 25 of 1999), including Archaeological or paleontological sites, on or close (within 20m) to the site? If YES, explain:

	NO
Uncertain	

Not applicable

If uncertain, conduct a specialist investigation by a recognised specialist in the field (archaeology or palaeontology) to establish whether there is such a feature(s) present on or close to the site. Briefly explain the findings of the specialist:

Not applicable

Will any building or structure older than 60 years be affected in any way?
Is it necessary to apply for a permit in terms of the National Heritage Resources Act, 1999 (Act 25 of 1999)?

	NO
	NO

If YES, please provide proof that this permit application has been submitted to SAHRA or the relevant provincial authority.

8. SOCIO-ECONOMIC CHARACTER

a) Local Municipality

Please provide details on the socio-economic character of the local municipality in which the proposed site(s) are situated.

Sol Plaatje municipality comprises of an estimated 60 297 households housing a population of 248 041. One in five people of the province resides in the Sol Plaatje municipality. The current population density is 79 persons per km². The population growth rate over 10 years has been relatively low at 2.04 percent. The average household size is 3.9 persons per household.

Level of unemployment:

Of the economically active people in the municipality, 31.9% are unemployed (narrow definition of unemployment). 41.7% of the economically active youth (15 – 34 years) in the area are unemployed. This figure is compelling enough to direct a special focus on youth employment.

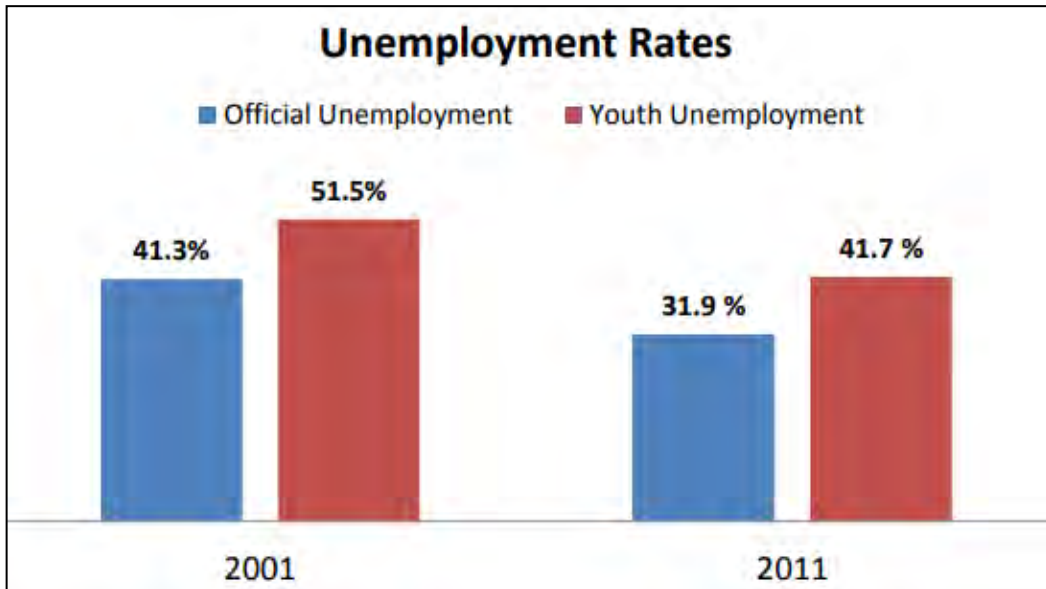


Figure 2. Unemployment rates as per the Sol Plaatje IDP

Therefore, this proposed development could positively contribute to the reduction of unemployment on both a short- and long-term basis. During the construction phase there will be a number of additional short-term employment opportunities, and during the operational phase there will be permanent staff required for the running of the various structures which will generate longer term employment.

Economic profile of local municipality:

The municipality comprises a high number of citizens who are not economically active, as well as unemployed and discouraged work seekers. In addition to this, the monthly income of those employed is mostly between R401 – R6400. This is a lower income bracket.

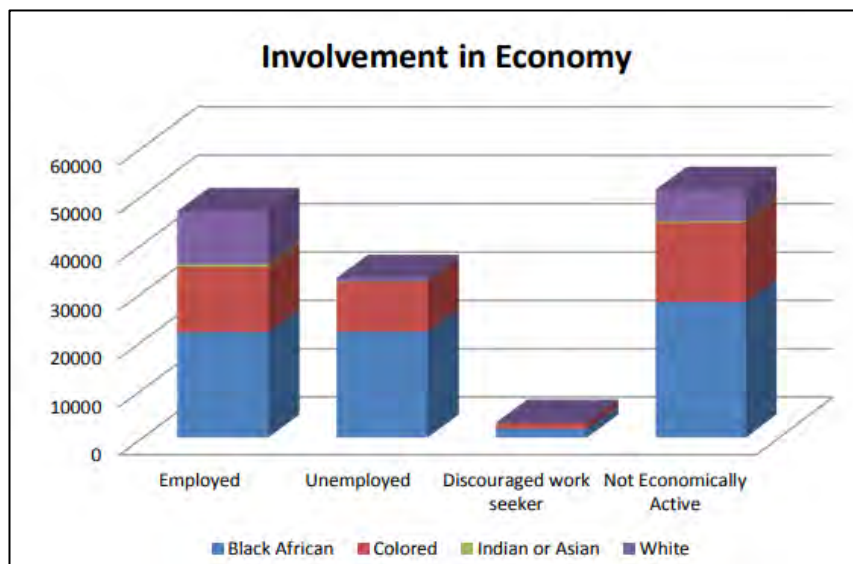


Figure 3: Community involvement in the municipality as per the Sol Plaatje IDP

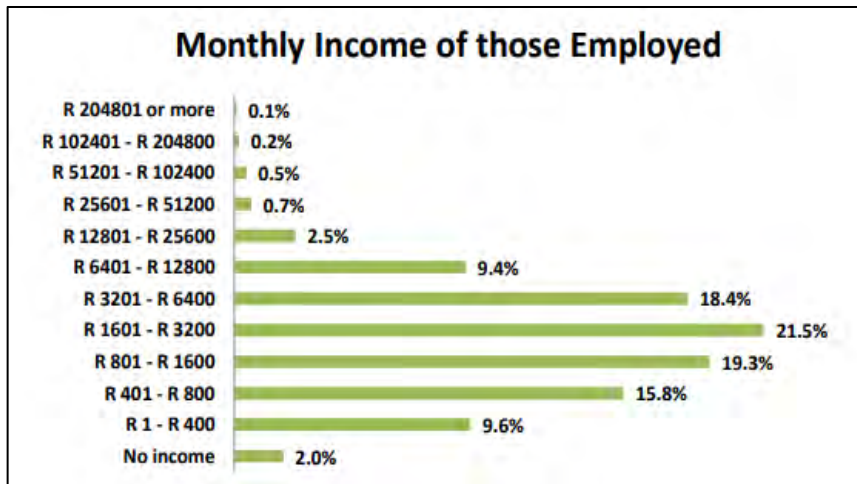


Figure 4: Monthly income in the municipality according to the Sol Plaatje IDP

The establishment of the proposed development will contribute to closing the gap between those with no income and those earning an income. Moreover, it will positively contribute to the overall economic sector of the municipality, as it will bring in travellers and those driving trucks seeking accommodation.

Level of education:

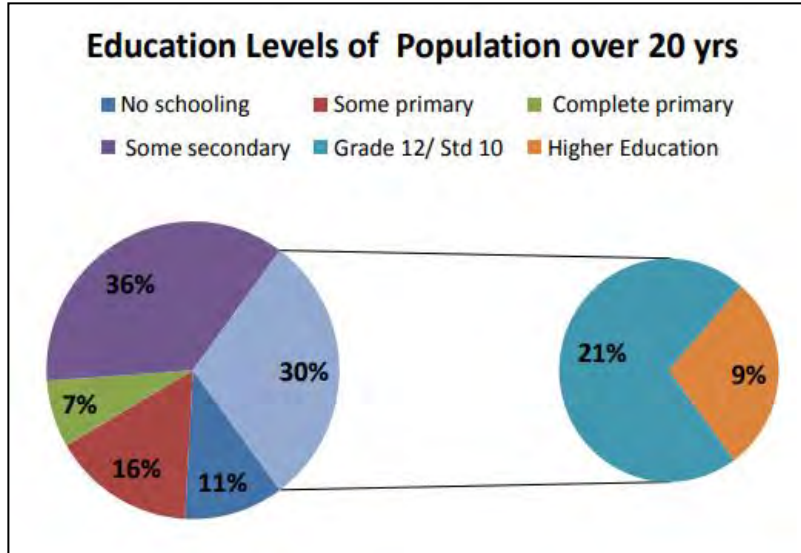


Figure 5: Education levels in the municipality according to the Sol Plaatje IDP

Of the population over 20 years, 30% have matric and higher education, while 10% indicate no schooling. The remaining 60% have some primary schooling and some secondary schooling. This will pose a serious problem for the future economic trajectory as skills will have to be built to suit the economic path and in the short-term skills will have to be brought in from skilled areas. The establishment of this project will contribute knowledge and skills which will specifically address the lower levels of education and thus provide opportunity where previous opportunity may not have existed. This will, in turn, contribute positively to the reduction of poverty in the municipality.

BASIC ASSESSMENT REPORT

b) Socio-economic value of the activity

What is the expected capital value of the activity on completion?	Undetermined	
What is the expected yearly income that will be generated by or as a result of the activity?	Undetermined	
Will the activity contribute to service infrastructure?	YES	NO
Is the activity a public amenity?	YES	NO
How many new employment opportunities will be created in the development and construction phase of the activity/ies?	±10	
What is the expected value of the employment opportunities during the development and construction phase?	Undetermined	
What percentage of this will accrue to previously disadvantaged individuals?	90%	
How many permanent new employment opportunities will be created during the operational phase of the activity?	±12	
What is the expected current value of the employment opportunities during the first 10 years?	Undetermined	
What percentage of this will accrue to previously disadvantaged individuals?	90%	

9. BIODIVERSITY

Please note: The Department may request specialist input/studies depending on the nature of the biodiversity occurring on the site and potential impact(s) of the proposed activity/ies. To assist with the identification of the biodiversity occurring on site and the ecosystem status consult <http://bgis.sanbi.org> or BGIShelp@sanbi.org. Information is also available on compact disc (cd) from the Biodiversity-GIS Unit, Ph (021) 799 8698. This information may be updated from time to time and it is the applicant/**EAP's responsibility** to ensure that the latest version is used. A map of the relevant biodiversity information (including an indication of the habitat conditions as per (b) below) and must be provided as an overlay map to the property/site plan as Appendix D to this report.

a) Indicate the applicable biodiversity planning categories of all areas on site and indicate the reason(s) provided in the biodiversity plan for the selection of the specific area as part of the specific category)

Systematic Biodiversity Planning Category				If CBA or ESA, indicate the reason(s) for its selection in biodiversity plan
Critical Biodiversity Area (CBA)	Ecological Support Area (ESA)	Other Natural Area (ONA)	No Natural Area Remaining (NNR)	

BASIC ASSESSMENT REPORT

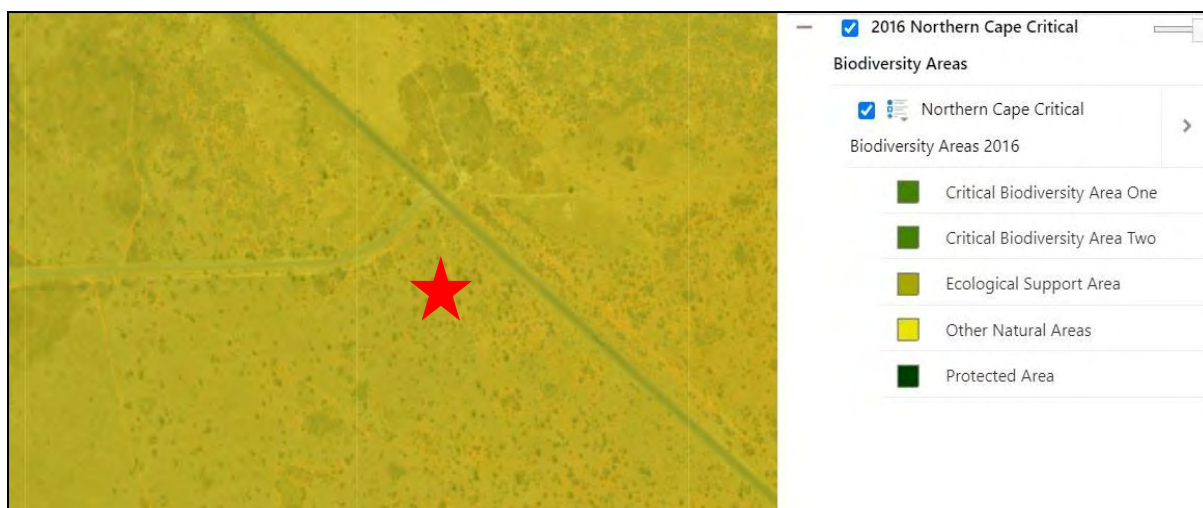


Figure 6: Conservation status of the proposed site area according to the Northern Cape Critical Biodiversity area map

b) Indicate and describe the habitat condition on site

Habitat Condition	Percentage of habitat condition class (adding up to 100%)	Description and additional Comments and Observations (including additional insight into condition, e.g. poor land management practises, presence of quarries, grazing, harvesting regimes etc).
Natural	20%	There are patches of natural vegetation present on the site.
Near Natural (includes areas with low to moderate level of alien invasive plants)	80%	Indications of sparse vegetation and degradation are present on the site.
Degraded (includes areas heavily invaded by alien plants)		
Transformed (includes cultivation, dams, urban, plantation, roads, etc)		

c) Complete the table to indicate:
 (i) the type of vegetation, including its ecosystem status, present on the site; and
 (ii) whether an aquatic ecosystem is present on site.

Terrestrial Ecosystems		Aquatic Ecosystems		
Ecosystem threat status as per the	Critical	Wetland (including rivers, depressions, channelled and	Estuary	Coastline
	Endangered			

BASIC ASSESSMENT REPORT

Terrestrial Ecosystems		Aquatic Ecosystems								
National Environmental Management: Biodiversity Act (Act No. 10 of 2004)	Vulnerable	unchanneled wetlands, flats, seeps pans, and artificial wetlands)								
	Least Threatened									

- d) Please provide a description of the vegetation type and/or aquatic ecosystem present on site, including any important biodiversity features/information identified on site (e.g. threatened species and special habitats)

The vegetation cover for the proposed development area according to Mucina & Rutherford (2006) falls within an area defined as Kimberley Thornveld, which is distributed in North-West, Free State and Northern Cape Provinces: Most of the Kimberley, Hartswater, Bloemhof and Hoopstad Districts as well as substantial parts of the Warrenton, Christiana, Taung, Boshof and to some extent the Barkly West Districts. Also includes pediment areas in the Herbert and Jacobsdal Districts. The area has an altitude ranging from 1050 m to 1400m. The geology and soils for the Kimberley Thornveld features andesitic lavas of the Allanridge Formation in the north and west and fine-grained sediments of the Karoo Supergroup in the south and east. Deep (0.6–1.2 m) sandy to loamy soils of the Hutton soil form (Ae and Ah land types) on slightly undulating sandy plains. Vegetation and landscape features include plains often slightly irregular with well-developed tree layer with *Acacia erioloba*, *A. tortilis*, *A. karroo* and *Boscia albitrunca* and well-developed shrub layer with occasional dense stands of *Tarchonanthus camphoratus* and *A. mellifera*. Grass layer open with much uncovered soil. The conservation status of the Kimberley Thornveld is least threatened, with around 18% already transformed by agricultural practices.

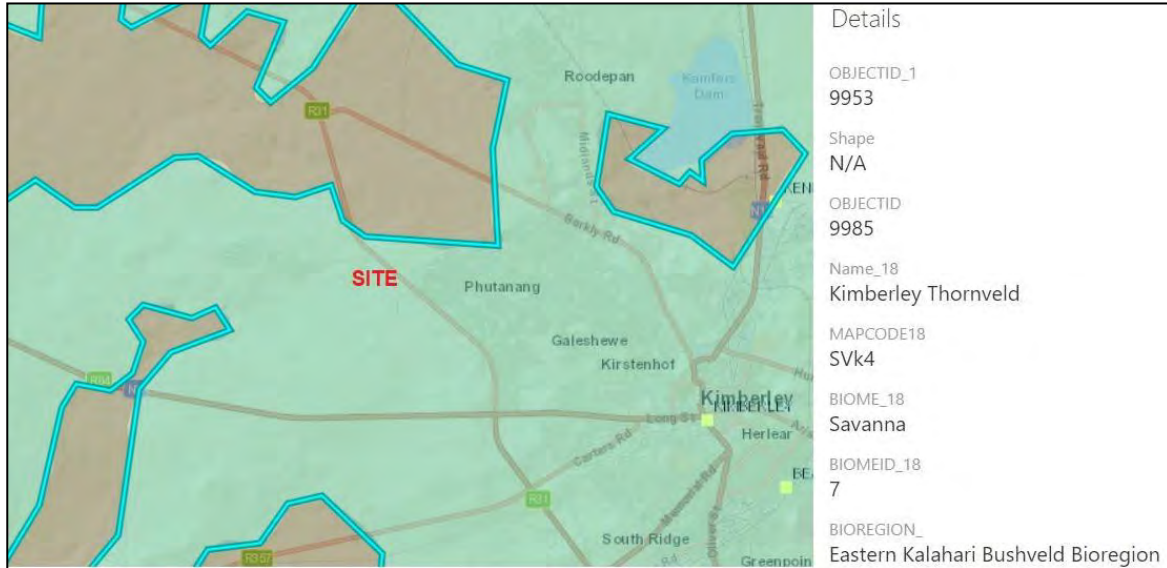


Figure 7: Vegetation type of the proposed site according to SANBI bgis

The geology in the investigated area is underlain by the Allanridge Formation (Ra - Andesite and Quartzite) and the Prince Albert Formation (Ppr - Shale), Overlain by Calcrete, calcified pandune and surface limestone and sand (Qc) (Simlab 2021). According to the Northern Cape Biodiversity Map, the site falls within an “Other Natural Area”, therefore it is not critical for conservation and is suitable for the proposed development.

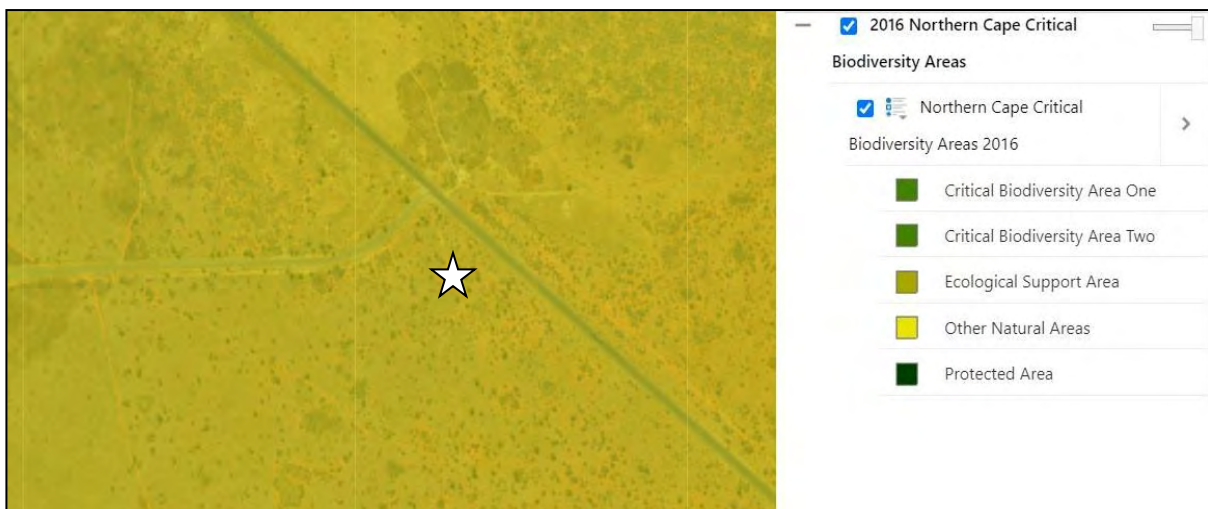


Figure 8: Conservation status of the area according to the Northern Cape Critical Biodiversity Map (SANBI bgis)

BASIC ASSESSMENT REPORT

SECTION C: PUBLIC PARTICIPATION

1. ADVERTISEMENT AND NOTICE

Publication name	Diamond Fields Advertiser	
Date published	4 December 2020	
Site notice position	Latitude	Longitude
Site Notice 01	28° 42' 28.188" S	24° 40' 29.1" E
Site Notice 02	28°42'31.79"S	24°39'32.98"E
Date placed	23 November 2020	

Include proof of the placement of the relevant advertisements and notices in Appendix E1.

2. DETERMINATION OF APPROPRIATE MEASURES

Provide details of the measures taken to include all potential I&APs as required by Regulation 41(2)(e) and 41(6) of GN 733.

Key stakeholders (other than organs of state) identified in terms of Regulation 41(2)(b) of GN 733

Title, Name and Surname	Affiliation/ key stakeholder status	Contact details (tel number or e-mail address)
Mafuta Marenda	!xun and Khwe Leaders	trybyforce90@gmail.com
Antonio Sabao	!xun Chief	jbklttt@gmail.com

Include proof that the key stakeholder received written notification of the proposed activities as Appendix E2. This proof may include any of the following:

- e-mail delivery reports;
- registered mail receipts;
- courier waybills;
- signed acknowledgements of receipt; and/or
- or any other proof as agreed upon by the competent authority.

3. ISSUES RAISED BY INTERESTED AND AFFECTED PARTIES

Summary of main issues raised by I&APs	Summary of response from EAP
None received	None received

4. COMMENTS AND RESPONSE REPORT

The practitioner must record all comments received from I&APs and respond to each comment before the Draft BAR is submitted. The comments and responses must be captured in a comments and response report as prescribed in the EIA regulations and be attached to the Final BAR as Appendix E3.

BASIC ASSESSMENT REPORT

5. AUTHORITY PARTICIPATION

Authorities and organs of state identified as key stakeholders:

Authority/Organ of State	Contact person (Title, Name and Surname)	Tel No	Fax No	e-mail	Postal address
Sol Plaatje Local Municipality	Mr. Goolman Akharwaray	053-830 6100	-	gakharwaray@solplaatje.org.za	Private Bag X5030 Kimberley 8300
Frances Baard District Municipality	Ms. Mamikie Bogatsu	053-838 0998	-	fatima.ruiters@fbdm.co.za	Private Bag X6088 Kimberley 8300
Frances Baard District Municipality (Environmental Health)	Mr. Kenneth Lucas (Environmental Health Manager)	053-838 0970	-	kenneth.lucas@fbdm.co.za	Private Bag X6088 Kimberley 8300
Department of Water and Sanitation- Northern Cape	Mr. Gawie van Dyk WUL Officer Northern Cape	053-830 8800	-	vandykg@dws.gov.za	Private Bag X6101 Kimberley 8300
Department of Energy- Northern Cape Province	Mr. Tebogo Lentswe	053-807 4007	-	tebogo.lentswe@energy.gov.za	Private Bag X6093 Kimberley 8300
Northern Cape Department: Roads and Public Works	Ms. Crystal Robertson	053-839 2100	-	crobertson@ncpg.gov.za	PO Box 3132 Kimberley 8300

Include proof that the Authorities and Organs of State received written notification of the proposed activities as appendix E4.

In the case of renewable energy projects, Eskom and the SKA Project Office must be included in the list of Organs of State.

6. CONSULTATION WITH OTHER STAKEHOLDERS

Note that, for any activities (linear or other) where deviation from the public participation requirements may be appropriate, the person conducting the public participation process may deviate from the requirements of that sub-regulation to the extent and in the manner as may be agreed to by the competent authority.

Proof of any such agreement must be provided, where applicable. Application for any deviation from the regulations relating to the public participation process must be submitted prior to the commencement of the public participation process.

A list of registered I&APs must be included as appendix E5.

Copies of any correspondence and minutes of any meetings held must be included in Appendix E6.

SECTION D: IMPACT ASSESSMENT

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

1. IMPACTS THAT MAY RESULT FROM THE PLANNING AND DESIGN, CONSTRUCTION, OPERATIONAL, DECOMMISSIONING AND CLOSURE PHASES AS WELL AS PROPOSED MANAGEMENT OF IDENTIFIED IMPACTS AND PROPOSED MITIGATION MEASURES

Provide a summary and anticipated significance of the potential direct, indirect and cumulative impacts that are likely to occur as a result of the planning and design phase, construction phase, operational phase, decommissioning and closure phase, including impacts relating to the choice of site/activity/technology alternatives as well as the mitigation measures that may eliminate or reduce the potential impacts listed. This impact assessment must be applied to all the identified alternatives to the activities identified in Section A(2) of this report.

BASIC ASSESSMENT REPORT

IMPACT IDENTIFICATION, DESCRIPTION AND ASSESSMENT

Likely impacts associated with the proposed development have been identified through the undertaking of site visits, consultation of published information and independent assessment by the Environmental Project Team. Relevant town planner report and feasibility report was also taken into account.

(i) Methodology

Impacts identified were assessed according to the criteria outlined below. Each impact was ranked according to extent, duration, magnitude and probability. These criteria are based on the Department of Environmental Affairs and Tourism (DEAT) (now the Department of Environmental Affairs) Guideline Document to the EIA Regulations (1998). A significance rating was calculated as per the methodology outlined below. Where possible, mitigatory measures were recommended for the impacts identified.

Impact Assessment Methodology

Table 1: Criteria used to determine the consequence of an impact

Rating	Definition of Rating	Score
A. Extent– the area over which the impact will be experienced		
Site	Within the construction site	1
Local	Within a radius of 2 km of the construction site	2
Regional	Provincial and parts of neighboring provinces	3
National	The whole of South Africa	4
B. Intensity– the magnitude of the impact in relation to the sensitivity of the receiving environment, taking into account the degree to which the impact may cause irreplaceable loss of resources		
Low	Site-specific and wider natural and/or social functions and processes are negligibly altered	1
Medium	Site-specific and wider natural and/or social functions and processes continue albeit in a modified way	2
High	Site-specific and wider natural and/or social functions or processes are severely altered	3
C. Duration– the timeframe over which the impact will be experienced and its reversibility		
Short-term	Up to 2 years and reversible	1
Medium-term	2 to 15 years and reversible	2
Long-term	More than 15 years and irreversible	3

The combined score of these three criteria corresponds to a *consequence rating*, as set out in Table 2.

Table 2: Method used to determine the consequence rating.

Combined score (A+B+C)	3-4	5	6	7	8-9
Consequence rating	Very Low	Low	Medium	High	Very High

Once the consequence is derived, the probability of the impact occurring is considered, using the probability classifications presented in Table 3 below.

Table 3: Probability classification

Probability – the likelihood of the impact occurring	
Improbable	<40% chance of occurring
Possible	40% - 70% chance of occurring
Probable	>70% - 90% chance of occurring
Definite	>90% chance of occurring

The overall significance of an impact is determined by considering the consequence rating and the probability classification using the rating system prescribed in Table 4 below.

Table 4: Impact significance rating

Probability

		Improbable	Possible	Probable	Definite
Consequence	Very Low	INSIGNIFICANT	INSIGNIFICANT	VERY LOW	VERY LOW
	Low	VERY LOW	VERY LOW	LOW	LOW
	Medium	LOW	LOW	MEDIUM	MEDIUM
	High	MEDIUM	MEDIUM	HIGH	HIGH
	Very High	HIGH	HIGH	VERY HIGH	VERY HIGH

Finally, the impact is also considered in terms of its status (positive or negative) and the confidence in the ascribed impact significance rating.

The prescribed system for considering impact status and confidence (in the assessment) is laid out in Table 5 below.

Table 5: Impact status and confidence classification

Status of Impact	
Indication whether the impact is adverse (negative) or beneficial (positive).	+ ve (positive – a ‘benefit’)
	- ve (negative – a ‘cost’)
Confidence in the assessment	
The degree of confidence in predictions based on available information, Green-Box Consulting judgment and/or specialist knowledge.	Low
	Medium
	High

The impact significance rating should be considered by authorities in their decision-making process based on the implications of ratings ascribed below:

- **INSIGNIFICANT:** the potential impact is negligible and will not have an influence on the decision regarding the proposed activity/development.
- **VERY LOW:** the potential impact is very small and should not have any meaningful influence on the decision regarding the proposed activity/development.
- **LOW:** the potential impact may not have any meaningful influence on the decision regarding the proposed activity/development.
- **MEDIUM:** the potential impact should influence the decision regarding the proposed activity/development.
- **HIGH:** the potential impact will affect the decision regarding the proposed activity/development.
- **VERY HIGH:** The proposed activity should only be approved under special circumstances.

Practicable mitigation and optimization measures are recommended, and impacts are rated in the prescribed way both without and with the assumed effective implementation of the recommended mitigation (and/or optimization) measures. Mitigation and optimization measures are either:

- **Essential:** measures that must be implemented and are non-negotiable; or
- **Best Practice:** recommended to comply with best practice, with adoption dependent on the proponent’s risk profile and commitment to adhere to best practice, and which must be shown to have been considered and sound reasons provided by the proponent if not implemented.

Impacts will then be collated into the EMPr and these will include the following:

- Quantifiable standards for measuring and monitoring mitigatory measures and enhancements will be set. This will include a programme for monitoring and reviewing the recommendations to ensure their ongoing effectiveness.
- Identifying negative impacts and prescribing mitigation measures to avoid or reduce negative impacts. Where no mitigatory measures are possible this will be stated.
- Positive impacts will be identified and augmentation measures will be identified to potentially enhance positive impacts where possible.

Other aspects to be taken into consideration in the assessment of impact significance are:

- **Impacts will be evaluated for the construction and operation phases of the development. The assessment of impacts for the decommissioning phase will be brief, as there is limited understanding at this stage of what this might entail. The relevant rehabilitation guidelines and legal requirements applicable at the time will need to be applied;**
- **Impacts will be evaluated with and without mitigation in order to determine the effectiveness of mitigation measures on reducing the significance of a particular impact;**
- **The impact evaluation will, where possible, take into consideration the cumulative effects associated with this and other facilities/projects which are either developed or in the process of being developed in the local area; and**
- **The impact assessment will attempt to quantify the magnitude of potential impacts (direct and cumulative effects) and outline the rationale used. Where appropriate, national standards are to be used as a measure of the level of impact.**

BASIC ASSESSMENT REPORT

1. PLANNING AND DESIGN PHASE

Proposal					
Planning Phase:					
<u>Activity:</u>	Potential impacts:	Significance rating of impacts (positive or negative):	Proposed mitigation:	Significance rating of impacts after mitigation:	Risk of the impact and mitigation not being implemented
Environmental Legal and Policy compliance	<u>Direct Impacts:</u> Failure to adhere to existing policies and legal obligations could lead to the project conflicting with local, provincial, and national policies, legislation etc. This could result in lack of institutional support for the project, overall project failure and undue disturbance to the natural environment.	Low-negative	The planning and design of the township formalization and expansion must comply with all relevant legislation and Policies.	Very Low-negative	Significant risk of a lack of institutional support for the project, overall project failure and undue disturbance to the natural environment.
	<u>Indirect Impacts</u>				
	<u>Cumulative Impacts</u> Improper planning will place a further burden and negative impact on the surrounding land uses and existing infrastructure services.	Medium-negative	The planning and design of the proposed development must comply with all relevant legislation and Policies.	Low-negative	Significant risk of further pressure on the surrounding environment and existing infrastructure leading to potential system failure

BASIC ASSESSMENT REPORT

Bulk Services	<u>Direct Impacts:</u> Insufficient capacity of municipal sewage works to treat sewage from the development.	Low-negative	Confirmation from the municipality must be sought to ensure the municipal sewage works can treat the amount of sewage generated by the proposed development, and if not, what measures is in place to upgrade capacity.	Very Low-negative	Significant risk for increased pressure on sewage management systems
	<u>Indirect Impacts</u>				
	<u>Cumulative Impacts:</u>				
No-go option					
Should the No-go option be implemented this activity would per definition not entail any construction impacts.	<u>Direct Impacts:</u> Invasion of alien plant species would continue unchecked. Loss of opportunities in terms of potential short- and long-term employment.	Medium-negative	Alien plants should be cleared. Alien invasive plants should be cleared. The local authority's LED policy would be tested to find replacement employment opportunities. Increased burden on state for social security.		

BASIC ASSESSMENT REPORT

2. CONSTRUCTION PHASE

Proposal						
Construction Phase:						
<u>Activity:</u>	<u>Potential impacts:</u>	<u>Significance rating of impacts (positive or negative):</u>	<u>Proposed mitigation:</u>	<u>Significance rating of impacts after mitigation:</u>	<u>Risk of the impact and mitigation not being implemented</u>	
Groundwater contamination	<p><u>Direct Impacts:</u></p> <p>Contamination of the environment, specifically the soil and groundwater could arise during the construction phase.</p> <p>The potential exists for construction activities, workers and materials to transfer contaminants to the surrounding environment.</p> <p>This could arise as a result of, for example, inadequate ablution facilities, spillage of hazardous substances stored on the site, inappropriate responses to hazardous spills and improper waste handling, storage and disposal.</p>	Medium-negative	<ul style="list-style-type: none"> •A storm water and erosion control plan must be implemented across the entire development site to prevent and control erosion impacts. •Construction vehicles must make use of designated access routes and should not be permitted to drive over the entire site, so as to minimize compaction impacts, also in regard to the western area which will not be developed. •All construction vehicles will be properly maintained to prevent leaks. •Cement mixing must be confined to a designated area and must be done on an impervious surface. •Any fuel stored on site must be kept in a bunded containment area. •Drip trays are to be utilised during daily greasing and re-fuelling of machinery and to catch incidental spills and pollutants. •Drip trays are to be inspected on a weekly basis for leaks and effectiveness and emptied when necessary. This is to be closely monitored during rain events to prevent overflow. 	Low-negative	Significant risk of a lack of institutional support for the project, overall project failure and undue disturbance to the natural environment.	
	<u>Indirect Impacts</u>					
	<u>Cumulative Impacts</u>					

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Traffic	<p>Direct Impacts: <ul style="list-style-type: none"> •Increased traffic volumes will be generated, including heavy vehicles delivering materials to the site. This could cause slight delays in existing traffic operations on the R31 road from Kimberley in the direction towards the site. </p>	Low-negative	Slipways on the R31 and Platfontein road will accommodate traffic towards the filling station development (as per proposed SDP)	Very-low negative	Delays in traffic on the R31 between Barkley West and Kimberley, and on the Platfontein road.
	Indirect Impacts				
	Cumulative Impacts:				
Dust and Emissions	<p>Direct Impacts: <ul style="list-style-type: none"> •Fugitive dust may become a nuisance for surrounding land users and occupants. •Dust may create a hazard for drivers on the R31 and Platfontein road and must therefore be tightly controlled. •Exhaust emissions from construction vehicles and the plant will be present </p>	Low-negative		Very-low negative	
	Indirect Impacts				
	Cumulative Impacts				
Noise	<p>Direct Impacts: Noise impacts will arise as a result of the use of construction vehicles and machinery on the development site. These noise impacts may be a nuisance to surrounding land users and occupiers</p>	Low-negative	<ul style="list-style-type: none"> •Construction activities should be limited to normal working hours (08:00 – 17:00) and limited to weekdays, and deviation should be clearly communicated by the appointed contractor/s. •No work should occur on weekends or on public holidays. •The contractor will adhere to local authority by-laws relating to noise 	Very-low negative	
	Indirect Impacts				
	Cumulative Impacts				

BASIC ASSESSMENT REPORT

	<p>It must be noted that the significance of the nuisance is reduced by the location of the proposed development site surrounded mostly by vacant areas.</p> <p>It is not anticipated that the construction activities will contribute significantly to ambient noise levels, as the facility is located next to the N31 which has 24/7 heavy vehicle traffic traveling along the route.</p>		<p>control.</p> <ul style="list-style-type: none"> •Mechanical equipment with lower sound power levels must be selected to ensure that the permissible occupation noise-rating limit of 85 dBA is not exceeded. •Equipment must be fitted with silencers as far as possible to reduce noise. •All equipment to be adequately maintained and kept in good working order to reduce noise. •Neighbouring landowners should be informed prior to any very noisy activities e.g. high intensity drilling. A grievance procedure will be established whereby noise complaints can be received, recorded, and responded to appropriately. •Construction workers and personnel will wear hearing protection when required. •Noise levels must comply with the SANS 100103 – 0994 (recommended noise levels). 		
<u>Indirect Impacts</u>					
<u>Cumulative Impacts</u>					
Visual	<p><u>Direct Impacts:</u> Visual impacts will be caused by construction-related activities such as the stockpiling of material, trucks, construction offices, excavation and storage of construction materials and equipment. This impact will be</p>	Low- negative	<ul style="list-style-type: none"> •The construction site, material stores, stockpiles and lay-down area should be kept tidy. •Measures to control wastes and litter should be included in the contract specification documents. •Wind-blown dust from stockpiles and construction activities, should be controlled. 	Very-low negative	

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	<p>temporary in nature, being limited to the construction phase. The area currently has demolished structures and several areas applicable which also affects the visuals of the area.</p>				
<u>Indirect Impacts</u>					
<u>Cumulative Impacts</u>					
<p>Socio-economic</p>	<p>Direct Impacts: Based on the anticipated value of construction, it is projected construction-phase jobs would be created. These positions may, however, be filled at various times by numerous people on a part-time basis, increasing the actual number of jobs created.</p> <p>The contractor/s which will be appointed for the construction activities are likely to utilise existing, skilled staff. However, should the need for unskilled, short term labour arise, these workers would, most likely, be sourced from the local community and / or areas within the Northern Cape Province.</p> <p>The construction phase will provide job security for the existing employees of the appointed contracting company.</p>	<p>Medium- positive</p>			

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	<p>Indirect Impacts The proposed development is predicted to provide an input stimulus into the local economy.</p> <p>The impact on the economy of construction spending and labourer/employee spending, could result in growth in the local economy.</p> <p>The extent to which the local Sol Plaatje Local Municipality would benefit from construction phase spending would depend on the extent to which construction goods and labour are sourced from local suppliers and communities.</p>				
	<u>Cumulative Impacts</u>				
No-go option					
<p>Should the No-go option be implemented this activity would per definition not entail any construction impacts.</p>	<p>Direct Impacts: Loss of opportunities in terms of potential short- and long-term employment. No additional stimulus into the local economy will be provided.</p>	<p>Medium-negative</p>	<p>The local authority's LED policy would be tested to find replacement employment opportunities. Increased burden on state for social security.</p>		

BASIC ASSESSMENT REPORT

3. OPERATIONAL PHASE

Proposal					
Operational Phase:					
<u>Activity:</u>	Potential impacts:	Significance rating of impacts (positive or negative):	Proposed mitigation:	Significance rating of impacts after mitigation:	Risk of the impact and mitigation not being implemented
<p>Soil and Groundwater contamination</p>	<p>Direct Impacts: There is potential for soil and/or groundwater contamination during the operation phase, as a result of accidental spills or leaks from the underground fuel storage and handling infrastructure, including pipework and underground storage tanks.</p> <p>Contamination could furthermore arise as a result of the spillage of hazardous substances, inappropriate responses to hazardous spills, improper waste handling, storage and disposal, and the failure of the effluent management system or storm water management system.</p> <p>It is very important that these impacts be prevented from arising as a number of the surrounding landowners and residents are reliant on these groundwater (boreholes) reserves to supply water for domestic and business use,</p>	<p>High- negative</p>	<ul style="list-style-type: none"> •Monitoring wells should be installed in each corner of any underground storage tank excavations in line with the requirements of the SABS, and should be monitored regularly, as an early warning leak detection system. Underground storage tanks should also be fitted with automatic leak detectors that alert management to a leak. •Sanitation facilities should be well maintained and serviced, any breakages or leaks should be fixed immediately to prevent loss of containment. •Storm water management from the forecourt area should be designed to collect all runoff which should pass through an oil/water separator prior to being discharged. •As a first response, emergency spill kits on site are a necessity for handling any minor spills that may impact on the water resources for emergency response to any surface spills. 	<p>Medium-negative</p>	<p>Potential for soil and/or groundwater contamination, thus polluting the groundwater reserves various land users and occupants are reliant on for domestic and business use.</p>

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	<p>tanks must be inspected monthly in order to detect any leakages.</p>		<ul style="list-style-type: none"> •Refuse handling areas should be confined to concrete lined facilities that are covered to prevent ingress of rainfall. •Baseline water quality of the nearby boreholes should be established. •Any significant spills or leak incidents must be reported in terms of the National Environmental Management Act, 1998 and the National Water Act, 1998. •Fuel dispenser pumps must be located on a hardened surface to contain spillages. •The accumulated contents of the oil/water separator must be removed by an accredited company. •The oil/water separator must be inspected regularly to ensure that it is functioning at all times. •Overfill and spillages during tanker refuelling and fuel dispensing should be prevented by the installation of automatic cut off devices. •Tanker delivery drivers must be present during delivery of fuel with the emergency cut off switch. •In the event of the pump dispenser or the hoses being knocked over or ripped off, the fuel supply must be cut off by shear-off valves. 		
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			<ul style="list-style-type: none">•All forecourt staff must undergo appropriate training, which must include training to prevent spillages during fuel dispensing.•The underground storage tanks, pipelines and other associated infrastructure must be inspected regularly for leaks and to ensure structural integrity.•A closed coupling must be used when fuel is being transferred from the bulk delivery vehicle to the underground storage tanks.•An Emergency Response Plan must be in place for the site, this must clearly describe emergency procedures and include emergency contact numbers.•If contamination or leakage is detected, this Emergency Response Plan must be followed.•Following a leak or accidental spill, a remediation plan must be compiled and executed.•Accidental spills that may occur on the forecourt must be cleaned up immediately using a spill absorbent, which must then be removed by a licensed contractor.•Fuel stock must be monitored on a daily basis and these records must		
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			<p>be kept on site.</p> <ul style="list-style-type: none"> •USTs must have corrosion protection and secondary containment. •Inspection wells will be installed within the underground storage tank containment area, at all four corners of the containment area. These wells must be inspected on a monthly basis so that leaks can be detected early. •The forecourt must have an impervious surface, such that fuel and oil products will not leak into the soil. •All pipework will be double walled and comply with SANS 62- 1 and 2, SANS 1132 (pipework). •The underground storage tank installation must comply with SANS 10089 part 1 (storage of dangerous goods in underground storage tanks). •Monitoring of the quality of groundwater should be undertaken on a regular basis. 		
	<u>Indirect Impacts</u>				
	<u>Cumulative Impacts</u>				

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Traffic	<p>Direct Impacts: The operational filling station will result in an increase in traffic volumes on the R31 and Platfontein road surrounding the site.</p>	Low-negative	<ul style="list-style-type: none"> •Slipways on the R31 and Platfontein road will accommodate traffic towards the filling station development (as per proposed SDP) •Separate turning lanes should be used by motorist and trucks, as to not obstruct traffic flow •Sufficient parking and loading bays must be provided on the site, as well as overnight facilities and stopping facilities for trucks making use of the facility. 	Very low-negative	
	<u>Indirect Impacts</u>				
	<u>Cumulative Impacts:</u>				
Emissions	<p>Direct Impacts: Impacts on air quality will arise due to exhaust fumes from motor vehicles, emissions from vent pipes and the release of VOCs during fuel transfer.</p> <p>The VOCs released during fuel transfer and from vents will dissipate into the atmosphere shortly after being released and are not likely to travel to the surrounding areas.</p>	Low-negative	<ul style="list-style-type: none"> •The underground storage tanks must be designed and installed in accordance with the SABS 089-3-1999, Third Edition. Code of practice - The petroleum industry, Part 3: The installation of underground storage tanks, pumps/dispensers and pipework at service station and consumer installations). SANS standards adequately address various potential air quality impacts via the implementation of required engineering measures. •Underground storage tanks must be fitted with breather pipes. •Vent pipes are to be fitted such that they face away from neighbouring residential areas. 	Very low-negative	

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			<ul style="list-style-type: none"> •All fuel delivery vehicles must be adequately maintained to reduce exhaust emissions. 		
	<u>Indirect Impacts</u>				
	<u>Cumulative Impacts</u>				
Noise	<p>Direct Impacts: During operation, noise that may be associated with the service station may include music broadcast over speakers in the forecourt, staff talking amongst one another, and vehicles revving as they leave the service station</p>	Low- negative	<ul style="list-style-type: none"> •A grievance procedure will be established whereby noise complaints can be received, recorded and responded to appropriately. •Equipment such as mechanical equipment, extraction fans, refrigerators that are fitted with noise reduction facilities (e.g. side flaps, silencers etc.) must be used as per operating instructions and maintained properly. •Noise levels should comply with the SANS Code of Practice 100103 – 0994 (recommended noise levels). •Local by-laws for noise levels must be adhered to 	Very low-negative	Noise that may be associated with the service station may include music broadcast over speakers in the forecourt, staff talking amongst one another, and vehicles revving as they leave the service station may be of nuisance
	<u>Indirect Impacts</u>				
	<u>Cumulative Impacts</u>				
Visual	<p>Direct Impacts: The presence of the service station along the N12 road will have a visual impact in the area, particularly for the neighbouring landowners.</p> <p>For the service station to attract customers, there is a</p>	Low- negative	<ul style="list-style-type: none"> •Building and landscaping should receive on-going maintenance to avoid visual decay. •Litter and waste should be effectively managed to avoid visual problems in the area. •All yards and storage areas to be 	Very low-negative	

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	<p>need for identifiable corporate and direction signage, most of which will be illuminated at night. The lighting used for signage will increase the visual impact of the facility during the night time for both neighbours and road users</p>		<p>enclosed by masonry walls or screens.</p> <ul style="list-style-type: none"> •The forecourt apron and parking bays should be paved with brick or other unit pavers to minimise expansive asphalt areas. •External lighting should be confined to the dispensing forecourt, commercial outlets and other essential areas. •Lights should be low-level, where possible, and fitted with reflectors to avoid light spillage. •Lights and signage should be fixed to buildings or walls, where possible, to avoid unnecessary masts and visual clutter. •Signage related to the enterprise should be confined to the tower, canopy and entrances. Other corporate or advertising signage and flags should be avoided or restricted. 		
<u>Indirect Impacts</u>					
<u>Cumulative Impacts</u>					
<p>Socio-economic</p>	<p><u>Direct Impacts:</u> Based on the anticipated value of the project, should the need for unskilled, short term labour arise, these workers would, most likely, be sourced from the local community and / or areas within the Northern Cape Province.</p>	<p>Medium- positive</p>			

BASIC ASSESSMENT REPORT

	The operational phase will provide job short- and long-term security for the employees appointed.				
	Indirect Impacts The proposed development is projected to provide an input stimulus into the local economy	Medium-positive			
	Cumulative Impacts				
No-go option					
Should the No-go option be implemented this activity would per definition not entail any operational impacts.	Direct Impacts: Loss of opportunities in terms of potential short- and long-term employment. No additional stimulus into the local economy will be provided.	Medium-negative	The local authority's LED policy would be tested to find replacement employment opportunities. Increased burden on state for social security.		

4. DECOMMISSIONING AND CLOSURE PHASE

Proposal					
Decommissioning and Closure Phase:					
Activity:	Potential impacts:	Significance rating of impacts (positive or negative):	Proposed mitigation:	Significance rating of impacts after mitigation:	Risk of the impact and mitigation not being implemented
Soil and Groundwater contamination	Direct Impacts: There is potential for soil and groundwater contamination as a result of accidental spills and leakages from underground storage tanks and associated infrastructure that may have	High- negative	<ul style="list-style-type: none"> Residual product must be removed from the underground storage tanks and associated infrastructure. Underground storage tanks must be degassed before removal. 	Medium-negative	Potential for soil and/or groundwater contamination, thus polluting the groundwater reserves various land users and occupants

BASIC ASSESSMENT REPORT

	<p>occurred during the operation phase.</p> <p>Hydrocarbon contamination may persist in the subsurface for an extended period before degradation takes place.</p>		<ul style="list-style-type: none"> •Soil samples must be taken from the base and sides of the underground storage tank excavation to determine whether or not the soil has been impacted during the lifespan of the underground storage tank. Groundwater samples must be taken to determine whether or not the groundwater has been impacted during the lifespan of the underground storage tank. •Excavated soil will be screened with a PID to ensure appropriate handling of impacted soil (i.e. bioremediation at an appropriately licensed facility) or reuse of the soil as backfill onsite. •Should it be determining that the site has been impacted and the soil and/or groundwater have been contaminated, a Remediation Action Plan must be developed and implement by appropriately qualified personnel. 		<p>are reliant on for domestic and business use.</p>
	<u>Indirect Impacts</u>				
	<u>Cumulative Impacts</u>				
Traffic	<p><u>Direct Impacts:</u> Vehicle traffic around the site may increase during the decommissioning phase and impact the natural traffic flow around the site.</p>	Low-negative	<ul style="list-style-type: none"> •Co-ordination of movement of vehicles on and off site to reduce risks and prevent congestion on roads in the vicinity of the site. •No vehicles or machinery should be serviced or refuelled onsite. •Peak traffic hours should be 	Very-low negative	.

BASIC ASSESSMENT REPORT

			<p>avoided.</p> <ul style="list-style-type: none"> •Large vehicle turning must take place onsite and not in the adjacent roads. •In cases where activities may obstruct traffic, local traffic officials must be contacted. 			
<u>Indirect Impacts</u>						
<u>Cumulative Impacts:</u>						
Emissions	<p><u>Direct Impacts:</u> There is potential for the air quality to be impacted through the decommissioning activities that may generate dust through excavation activities and disturbing the ground.</p> <p>Exhaust emissions produced by construction equipment will be dispersed and it is not anticipated that they will cause a nuisance to surrounding landowners.</p>	Low- negative	<ul style="list-style-type: none"> •Dust suppression methods, such as wetting or laying straw, should be applied where there are large tracks of exposed surfaces. •Stockpiles and soil heaps must be covered with tarpaulins or straw to prevent fugitive dust. •All construction vehicles must be appropriately maintained to minimise exhaust emissions 	Very low-negative		
	<u>Indirect Impacts</u>					
	<u>Cumulative Impacts</u>					
Noise	<p><u>Direct Impacts:</u> Vehicles and other machinery required for decommissioning will increase the noise levels during working hours.</p> <p>Decommissioning activities which are likely to cause vibrations include gaining</p>	Low- negative	<ul style="list-style-type: none"> •The contractor will adhere to local authority by-laws relating to noise control. •Decommissioning activities will be restricted to regular working hours, i.e. Monday to Friday (08:00 – 17:00). 	Very low-negative		
	<u>Indirect Impacts</u>					
	<u>Cumulative Impacts</u>					

BASIC ASSESSMENT REPORT

	<p>access to the underground tanks through the demolition of concrete by excavation machinery; and entry and use of construction vehicles as well as cranes on site.</p>		<ul style="list-style-type: none"> •Mechanical equipment with lower sound power levels will be selected to ensure that the permissible occupation noise-rating limit of 85 dBA is not exceeded. •Equipment will be fitted with silencers as far as possible to reduce noise. •All equipment to be adequately maintained and kept in good working order to reduce noise. •Neighbouring landowners should be informed prior to any very noisy activities e.g., high intensity drilling. •A grievance procedure will be established whereby noise complaints can be received, recorded, and responded to appropriately. •Workers and personnel will wear hearing protection when required. 		
<u>Indirect Impacts</u>					
<u>Cumulative Impacts</u>					
Visual	<p><u>Direct Impacts:</u> The presence of the service station along the N12 road will have a visual impact in the area, particularly for the neighbouring landowners.</p> <p>For the service station to attract customers, there is a</p>	Low- negative	<ul style="list-style-type: none"> •Building and landscaping should receive on-going maintenance to avoid visual decay. •Litter and waste should be effectively managed to avoid visual problems in the area. •All yards and storage areas to be 	Very low- negative	

BASIC ASSESSMENT REPORT

	<p>need for identifiable corporate and direction signage, most of which will be illuminated at night. The lighting used for signage will increase the visual impact of the facility during the night time for both neighbours and road users</p>		<p>enclosed by masonry walls or screens.</p> <ul style="list-style-type: none"> •The forecourt apron and parking bays should be paved with brick or other unit pavers to minimise expansive asphalt areas. •External lighting should be confined to the dispensing forecourt, commercial outlets and other essential areas. •Lights should be low-level, where possible, and fitted with reflectors to avoid light spillage. •Lights and signage should be fixed to buildings or walls, where possible, to avoid unnecessary masts and visual clutter. •Signage related to the enterprise should be confined to the tower, canopy and entrances. Other corporate or advertising signage and flags should be avoided or restricted. 		
<u>Indirect Impacts</u>					
<u>Cumulative Impacts</u>					
<p>Loss of employment</p>	<p><u>Direct Impacts:</u> The closure of the service station will mean that those employed at the service station will no longer be required, and their employment may be terminated.</p>	<p>Medium- negative</p>	<ul style="list-style-type: none"> •Existing employees may be transferred to another service station if feasible. •Employees must be given adequate notice prior to closure, to allow them time to seek alternative employment. •Service station management must 	<p>Low- negative</p>	

BASIC ASSESSMENT REPORT

			supply employees with a letter of recommendation and certificate of skills to assist them with future job applications.		
	Indirect Impacts The proposed development will no longer provide an input stimulus into the local economy	Medium-negative		Low- negative	
	Cumulative Impacts				
No-go option					
Should the No-go option be implemented this activity would per definition not entail any operational impacts.	Direct Impacts: Loss of opportunities in terms of potential short- and long-term employment. No additional stimulus into the local economy will be provided.	Medium-negative	The local authority's LED policy would be tested to find replacement employment opportunities. Increased burden on state for social security.		

2. ENVIRONMENTAL IMPACT STATEMENT

Taking the assessment of potential impacts into account, please provide an environmental impact statement that summarises the impact that the proposed activity and its alternatives may have on the environment after the management and mitigation of impacts have been taken into account, with specific reference to types of impact, duration of impacts, likelihood of potential impacts actually occurring and the significance of impacts.

Alternative A (preferred alternative)

The proposed development of a filling station, truck stop and related structures on Portion on the farm Wildebeest Kuil 69, situated north-west of the town of Kimberley, Northern Cape Province, will have both positive well as negative effects on the environment. The findings and truck stop concluded in the Impact Assessment noted that job creation will be simulated through the new filling station facility, both during the construction as well as during the operational phases. Individuals of previously disadvantaged backgrounds will be appointed and will be affected positively during both phases of the proposed filling station. This is seen as a major positive impact on the local community and the wider Northern Cape Province, especially because of the high levels of unemployment of the area.

The effects on groundwater can be seen as a potential high-risk impact, however with proper mitigation and monitoring of the underground tanks the significance of the impact can be reduced. It is imperative that the proper monitoring of boreholes in close proximity to the filling station is undertaken to provide information on the status of the groundwater of the area. The installation of appropriate monitoring devices for the tanks will also aid in the early detection of possible leaks, so too will the installation of modern leak-proof tanks which are much less prone to erosion underground.

The generation of traffic both during the construction, and operational phases will see additional traffic in the areas around the filling station, as the R31 and Platfontein road are the roads used to access the filling station. The construction of slipways on the R31 and Platfontein road will aid in the flow of traffic. The construction of internal road networks within the filling station / truck stop area will aid heavy / oversized vehicles making use of the facility. The generation of traffic will only be potentially problematic until the slipways has been constructed and traffic can flow freely from the aforementioned roads to the new facility.

Noise and visual impacts will be present, but proper mitigation can farther reduce the effects these will have on the adjacent areas to the filling station. The area where the proposed filling station is situated is located within an area which is mostly vacant, with some land occupation around the proposed site.

No substantial negative impacts have been identified that, in the opinion of the Environmental Practitioner, **should be considered as "fatal flaws" from the environmental perspective necessitating** substantial re-design or termination of the project. Based on the findings of this Basic Assessment, it is the opinion of the EAP that the project benefits outweigh the negative environmental impacts, and that the project will make a positive contribution to steering South Africa forward. Provided that the specific mitigation measures are applied effectively, it is proposed that the project should receive environmental authorization in terms of the EIA Regulations promulgated under the National Environmental Management Act (NEMA), (2014). Furthermore, to avoid and/or manage the potential negative impacts and enhance the benefits, an Environmental Management Programme (EMPr) has been compiled. The EMPr is a dynamic document that should be updated regularly and provide clear and implementable measures for the establishment and operation.

Alternative B

Not applicable

Alternative C

Not applicable

No-go alternative (compulsory)

This option assumes that a conservative approach would ensure that the environment is not impacted upon

BASIC ASSESSMENT REPORT

any more than the current state. It is important to state that this assessment is informed by the current conditions of the area. Should the Competent Authority **decline the application, the 'No-Go' option will be followed, and the status quo of the site will remain.**

SECTION E. RECOMMENDATION OF PRACTITIONER

Is the information contained in this report and the documentation attached hereto sufficient to make a decision in respect of the activity applied for (in the view of the environmental assessment practitioner)?

YES

If "NO", indicate the aspects that should be assessed further as part of a Scoping and EIA process before a decision can be made (list the aspects that require further assessment).

-

If "YES", please list any recommended conditions, including mitigation measures that should be considered for inclusion in any authorisation that may be granted by the competent authority in respect of the application.

Filling Station Layout and Design

- The final, detailed design and construction of the proposed filling station truck stop and associated infrastructure must comply fully with the relevant standards and guidelines in place to guide the design and installation of underground storage tanks, pumps and / or dispensers and related pipework at petrol filling stations.
- The layout and design of the facility must include a storm water management system that collects and directs all contaminated / potentially storm water runoff from the site into an oil / grease separator and then into the effluent treatment system, prior to discharge to the environment.
- Once completed, a copy of the layout and detailed design for the proposed filling station should be submitted to the local Municipality for review to check compliance with the relevant standards, conditions and by-laws. Any required amendments should be made and approved by these parties prior to the commencement of construction activities for the filling station.
- If a rock pecker is to be utilised for hard excavation, surrounding landowners and occupants must be engaged with before and during the excavation activities, in order to minimise frustration and impacts. If blasting is the proposed hard excavation technique proposed, appropriate applications will need to be made, and surrounding landowners and road authorities will need to be informed and have input to this process.
- An experienced and competent geotechnical engineer should be appointed to inspect the earthworks and foundation excavations during the development of the site to confirm founding depths and bearing pressures.

Construction Phase Management

- The EMPr (attached in Appendix G) must be implemented and complied with to ensure the minimisation, control and mitigation of construction phase impacts.
- Compliance with the EMPr should be evaluated and audited by an independent, appropriately qualified, and experienced ECO, on a monthly basis, as a minimum.
- A detailed Traffic Management Plan should be compiled by the Contractor prior to the commencement of construction activities to ensure that traffic on the local roads is disrupted as little as possible.

- Dust minimisation and control measures will need to be implemented on the site so as to minimise the risk to motorists on the R31 and the Platfontein road, as well as any industrial businesses situated around the proposed filling station site.
- Alien plants must be removed by the Contractor, where these plants establish in the construction
- Construction activities should be limited to normal working hours (08:00 – 17:00) and limited to weekdays. No work should occur on weekends or on public holidays.
- The Contractor must adhere to local authority by-laws relating to noise control.
- If an artefact of potential historical significance is uncovered during construction, the Northern Cape Provincial Heritage Resources Authority (NCHRA) must be notified immediately.

Operational Phase Management

- An operational plan needs to be developed for the facility. This must include an Emergency Response Plan which clearly describes emergency procedures and includes emergency contact numbers. It must also include a Water Quality Monitoring Plan.
- Spill kit stations must be established and maintained on site. Filling Station staff must receive training on the appropriate response to a spill / leak situation. In addition, all forecourt staff must undergo appropriate training to prevent spillages during fuel dispensing.
- Accidental spills that may occur on the forecourt must be cleaned up immediately using a spill absorbent, which must then be removed by a licenced contractor.
- Any significant spills or leak incidents must be reported in terms of the National Environmental Management Act, 1998 and the National Water Act, 1998.
- The underground storage tanks, pipelines and other associated infrastructure must be inspected regularly for leaks and to ensure structural integrity.
- The oil/water separator must be inspected regularly to ensure that it is functioning at all times.
- Fuel stock must be monitored on a daily basis and these records must be kept on site.
- If contamination or leakage is detected, this Emergency Response Plan must be immediately followed.
- Following a leak or accidental spill, a remediation plan must be compiled and executed.

Water Quality Management

- Baseline water quality analysis of surface and groundwater resources must be carried out to ensure accountability is in place as well as to provide a baseline against which operational phase water quality should be measured. This baseline sampling must be undertaken prior to the commencement of construction activities.
- Local landowners who operate boreholes near the site need to be engaged with to determine

BASIC ASSESSMENT REPORT

the use of their resources. In addition, contingencies need to be agreed upon in the event of contamination from the operational filling station arising.

- Monitoring of the quality of groundwater should be undertaken on a regular basis. The results of this monitoring should be compared against the baseline quality conditions. If any contamination is detected, immediate steps must be taken to locate the source of the contamination and to correct it. Until such time as the water is safe for consumption, an alternate water supply will need to be provided for the local community.

Is an EMPr attached?

YES

The EMPr must be attached as Appendix G.

The details of the EAP who compiled the BAR and the expertise of the EAP to perform the Basic Assessment process must be included as Appendix H.

If any specialist reports were used during the compilation of this BAR, please attach the declaration of interest for each specialist in Appendix I.

Any other information relevant to this application and not previously included must be attached in Appendix J.

NAME OF EAP

SIGNATURE OF EAP

DATE

SECTION F: APPENDIXES

The following appendixes must be attached:

Appendix A: Maps

Appendix B: Photographs

Appendix C: Facility illustration(s)

Appendix D: Specialist reports (including terms of reference)

Appendix E: Public Participation

Appendix F: Impact Assessment

Appendix G: Environmental Management Programme (EMPr)

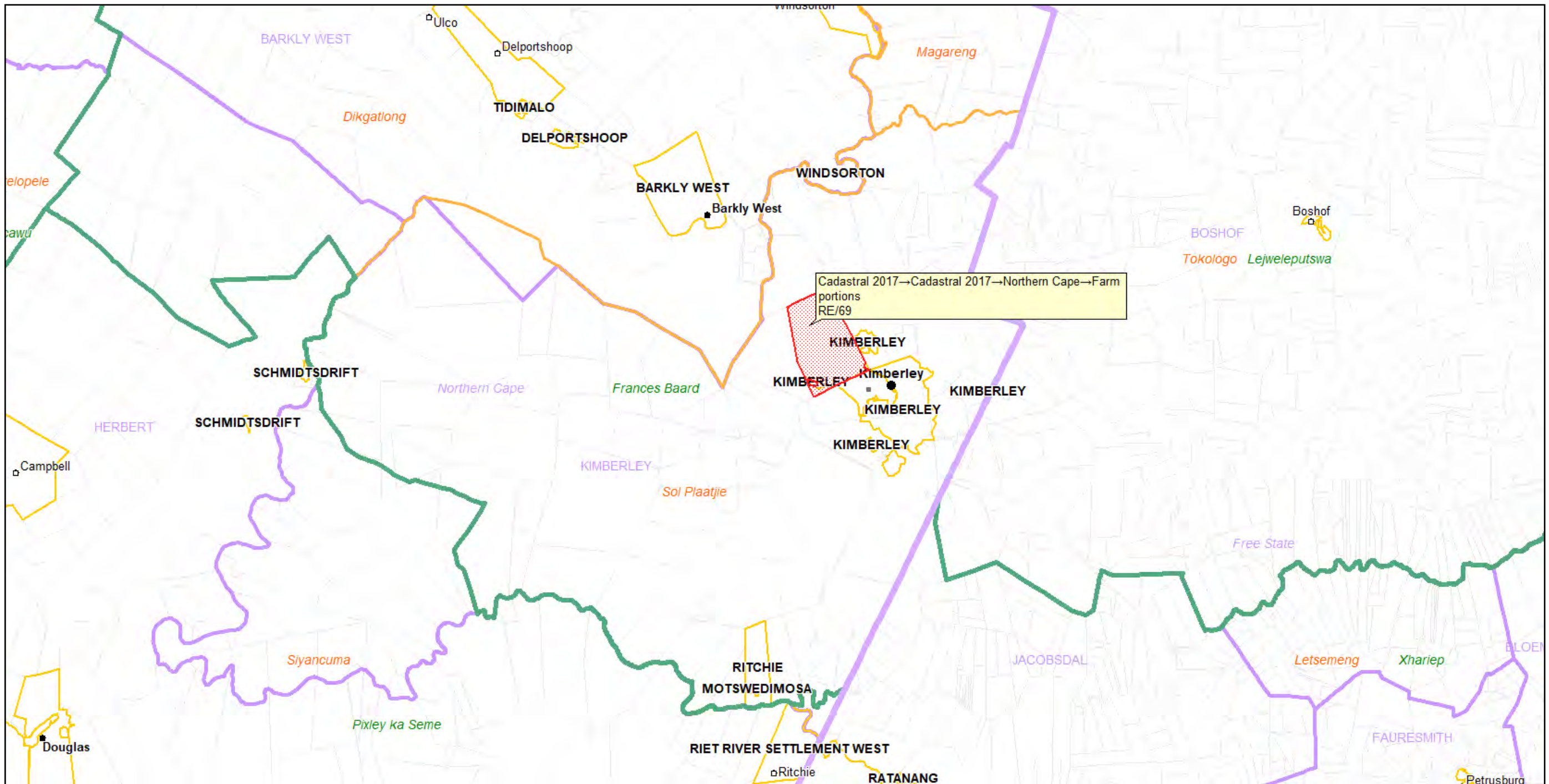
Appendix H: Details of EAP and expertise

Appendix I: Specialist's declaration of interest

Appendix J: Additional Information

Appendix A: Maps

Site Locality Map



Planet GIS Explorer 5.2. (6 May 2021)

Appendix B: Photographs

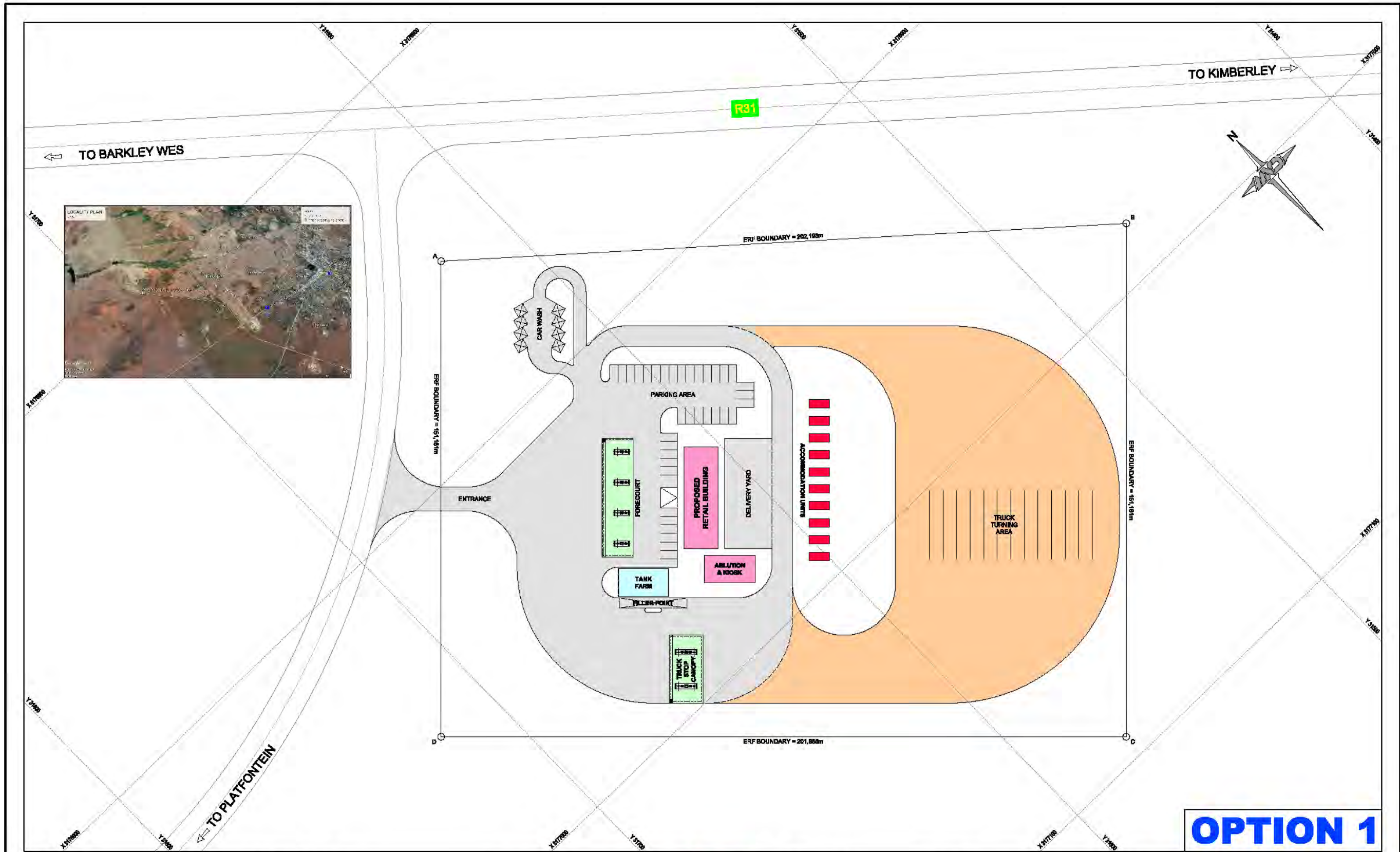


Site photo 1: vegetation cover of the site



Site photo 2: Site from the R31 road

Appendix C: Facility illustration(s) and layout



OPTION 1

NOTE/NOTA:
 NO DIMENSIONS ARE TO BE SCALED OFF ANY DRAWINGS. ALL DIMENSIONS ARE TO BE RATIFIED ON SITE PRIOR TO ANY CONSTRUCTION.
 GEEN AFMETINGS MAG VAN TEKENINGE GESKAAL WORD NIE. ALLE AFMETINGS MOET OP TERREIN NABEGAAAN WORD VOOR KONSTRUKSIE.

NO. NR.	DATE DATUM	AMENDMENTS WYSGRINGS
A1		BEFORE CONTRACT COMMENCES. VOOR KONTRAK IN AANWAG NIEK. AFTER CONTRACT HAS COMMENCED. NA KONTRAK IN AANWAG GEESEM NIEK.

MVD Kalahari
 Consulting Engineers and Town Planning/Raadgewende ingenieurs en Stadsbeplanning.

CESA
 Chartered Professional Engineers

Du Tollgating 598 / Du Tollgating Road
 Postbus P.O. Box 680, Kimberley 6800
 Tel: (053) 831 1888/80

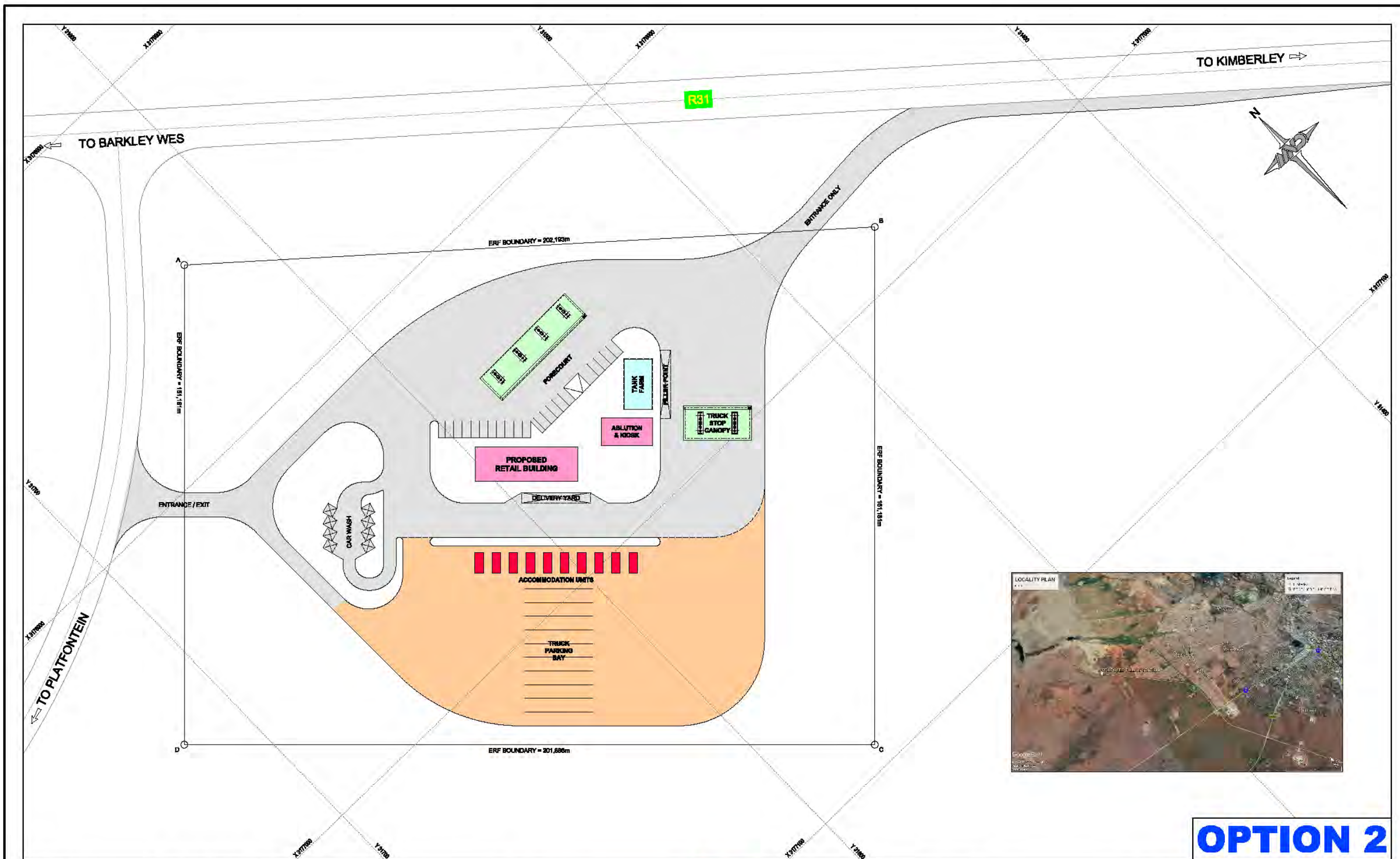
E-Mail: admin@mvd-kalahari.co.za
www.mvd-kalahari.co.za
 Level 2 B-BBEE Contributor

DESIGN ONTWERP	W. Karsten
DRAWN GETEKEN	H. Leemans
CHECKED NAGEGAAN	
CLIENT KLIENT	
DATE DATUM	June 2020

PROJECT/PROEJ
**PLATFONTEIN R31
 NEW FILLING STATION**

CLIENT/KLIENT			
DRAWING DESCRIPTION/TEKENING BESKRYWING	SITE DEVELOPMENT PLAN		
PAPER SIZE/PAPIER GROTER	SCALE/SKAAL	DRAWING NO./TEKENING NO.	REV. NO.
A1	1:500	10731	-

DRAFT



OPTION 2



NOTE/NOTA :
 NO DIMENSIONS ARE TO BE SCALED OFF ANY DRAWINGS. ALL DIMENSIONS ARE TO BE RATIFIED ON SITE PRIOR TO ANY CONSTRUCTION.
 GEEN AFMETINGS MAG VAN TEKENINGE GEMAAK WORD NIE. ALLE AFMETINGS MOET OP TERREIN NABEGAAW WORD VOOR KONSTRUKSIE.

A BEFORE CONTRACT COMMENCES. VOOR KONTRAK IN AANVAAG NIEK. AFTER CONTRACT HAS COMMENCED. NA KONTRAK IN AANVAAG GEBEEN HET.
 COPYRIGHT IS YESIED IN MVD KALAHARI IN TERMS OF THE COPYRIGHT ACT, (ACT 98 OF 1978). Outeursreg is oewesig in MVD KALAHARI. Kragters die wet of Outeursreg. (WET 98 VAN 1978).

NO. NR.	DATE DATUM	AMENDMENTS WYKORREKS

MVD Kalahari
 Consulting Engineers and Town Planning/Raadgewende ingenieurs en Stadsbeplanning.
 Du Toitpanweg 188 / Du Toitpan Road
 Pretoria / P.O. Box 690, Kimberley 6800
 Tel: (053) 851 1898/90

CESA
 Consulting Engineers South Africa

DESIGN ONTWERP	W. Karsten
DRAWN OETREK	H. Leemans
CHECKED NAGEGAAN	
CLIENT KLENT	
DATE DATUM	June 2020

PROJECT/PROEJ
**PLATFONTAIN R31
 NEW FILLING STATION**

CLIENT/KLENT	
DRAWING DESCRIPTION/TEKENING BESKRYWING	SITE DEVELOPMENT PLAN
PAPER SIZE/PAPIER GROTER	A1
SCALE/SKAAL	1:500
DRAWING NUMBER/TEKENING NO.	10731
REV NO.	

DRAFT

Appendix D: Specialist reports

None Applicable

Appendix E: Public Participation

Interested and Affected Parties

Identified relevant authorities, adjacent landowners and other stakeholders also known as Interested and Affected Parties (I & APs) were informed about the development and given an opportunity to comment and/or object against the proposed development. Below is a list of stakeholders identified, as well as a list of all registered interested and/or affected parties and comments that were raised.

The following was conducted:

- ❖ Placement of an advertisement in the Diamond Fields Advertiser

**EIA PUBLIC PARTICIPATION
PROCESS NOTICE**

Call for Interested and Affected Parties to register and comment on the EIA Process for the proposed Platfontein Truck Stop / Filling Station development, Kimberley

Notice is hereby given in terms of Section 24 (5) of the National Environmental Management Act (NEMA, 107 of 1998) and Environmental Impact Assessment Regulations, 2014 (as amended) in respect of activities identified in terms of Regulations No. 325 (2014, as amended) of the Act. This application is subject to a Basic Assessment -and public participation process in terms of Regulation 41 of the EIA Regulations, 2014 (as amended) commencing with this call.

Background on activity: The project entails the development of a truck stop / filling station with associated infrastructure on a ± 3ha land parcel.

Relevant listed activity Regulation GN 327 (Listing Notice 1):
Activity no. 14 and 27

Location: Portion of the RE of the farm Wildebeest Kuil 69, Kimberley (C/O the R31 and Platfontein road)(site coordinates: 28° 42' 29.49"S, 24° 40' 36.14"E)

Proponent: Plaatpal Pty Ltd

Environmental Assessment Practitioner: Green-Box Consulting- P.O. Box 37738, Langenhovenpark 9330, Cell: 082 435 2108, e-mail: info@green-box.co.za

In order to ensure that you are registered as an Interested and Affected Party, please send your details, motivation for participation and inputs in written format via email or post to Green-Box Consulting. Written inputs to reach us before 11 January 2021.

Only registered Interested and Affected Parties will receive further notifications of the EIA application process.



Legals & Tenders

LOST OR DESTROYED DEED

Notice is hereby given in terms of Regulation 68 of the Deeds Registries Act, 1937, of the intention to apply for the issue of a certified copy of Certificate of Right of Leasehold Number L813/1985 passed by SOL PLAATJE MUNICIPALITY in favour of TERO JAMES PAULLUS and in respect of certain Erf 7524 Galesheuw, Situated in the Sol Plaatje Municipality, District of Kimberley, Province Northern Cape which has been lost or destroyed.

All interested persons having objection to the issue of such copy are hereby required to lodge the same in writing with the Registrar of Deeds at Kimberley within two weeks from the date of publication of this notice.

Dated at Kimberley on this 30TH day of November 2020.

Hugo, Mathewson & Oosthuizen inc.
3A Bean Street
Kimberley
053 831 3221
Elaw@hmoosttoomeys.co.za
Ref: PAU38/0001

LOST OR DESTROYED DEED

NOTICE IS HEREBY GIVEN IN TERMS OF REGULATION 68 OF THE DEEDS REGISTRIES ACT, 1937, OF THE INTENTION TO APPLY FOR THE ISSUE OF A CERTIFIED COPY OF

Deed of Transfer number T3289/2000 passed by The Municipality of the city Kimberley in favour of Henry Williams and Sylvia Minam Williams in respect of certain Erf 32436 Kimberley Situated in the Sol Plaatje Municipality, district Kimberley, province Northern Cape which has been lost or destroyed.

All interested persons having objection of issue of such copy are hereby required to lodge the same in writing with the Registrar of Deeds at Kimberley within two weeks from the date of the publication of this notice.

Dated at Kimberley
This 2nd day of December 2020
Duncan & Rothman
PO Box 64, Kimberley, 8300
yolande@duncan-rothman.co.za
Tel nr 053 8384700
File Ref WIL169/0002/LA/rg

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053 832 6261

IN THE HIGH COURT OF SOUTH AFRICA

NORTHERN CAPE HIGH COURT, KIMBERLEY

CASE NO: 979/20

In the matter between:

NEBANK LIMITED

APPLICANT

and

U & M BELEGONS CC

RESPONDENT

COURT ORDER

KINDLY TAKE NOTE that the Applicant hereby amends the matter for 2 OCTOBER 2020 at 09:30 or as soon thereafter as Counsel for the Applicant may be heard for an order in terms of the following:-

- The Respondent is provisionally wound up and placed in the hands of the Master of the High Court in Gaborone.
- That a rule nisi is issued, calling upon the Respondent and all interested persons to show cause, if any, to His Honourable Court, on 11 DECEMBER 2020 at 9:30, as to why the following order should not be granted:
 - That the Respondent be placed under final liquidation;
 - That the costs of this application shall be costs in the liquidation;
- That service of the provisional order shall be effected:
 - By the Sheriff on the Respondent at its registered address;
 - By one publication in each Diamond Fields Advertiser and Government Government Gazette newspaper;
 - By hand on the South African Revenue Service;
 - By hand on the Master of the High Court;
 - The employees, if any, of the Respondent on a notice board or through gate;
 - Through notices of the employees of the Respondent, if any.

ENGELSMAN MORGAN INC.
ATTORNEY FOR APPLICANT
Bishop's Court
9 Bishop's Avenue, Labrian
KIMBERLEY

8301
TEL: 053 832 8194
FAX: 053 832 2362
E-mail: janine@engelsman.co.za
REF: JA SYDERS/NE/20/0014/N/173

IN THE HIGH COURT OF SOUTH AFRICA (NORTHERN CAPE DIVISION, KIMBERLEY)

Case no: 1630/2020

In the matter between:

ABRAHAM GERT WILLEMVERMEULEN
(Identity number: 8109165108 089)

APPLICANT

and

CK VERVOER EN LEMENDE HAWES (PTY) LTD
(Registration number: 2015/14334/07)

RESPONDENT

COURT ORDER

IT IS ORDERED THAT:

- The estate of the Respondent is placed under provisional liquidation in the hands of the Master of this Court.
- A rule nisi is issued, calling upon all persons concerned to appear and show cause, if any, on 11 DECEMBER 2020 at 09:30, or so soon thereafter as the matter may be heard, as to why:
 - A final liquidation order should not be granted
 - A copy of this order shall be served on:
 - The Respondent at The Valley Estate 1048, Jan Kempdorp, Northern Cape Province;
 - The employees of the Respondent;
 - The South African Revenue Service, and
 - The Master.
 - A copy of this order shall be published in:
 - The Government Gazette, and
 - A local newspaper circulating in the area of Jan Kempdorp.
 - The costs will be costs in the liquidation.

ENGELSMAN MORGAN INC.
SHROPSHIRE COURT
BISHOP'S AVENUE, LABRIAN
KIMBERLEY
TEL: 053 832 8194
FAX: 053 832 2362
E-MAIL: janine@engelsman.co.za
REF: JA SYDERS/NE/20/124/0001/2021

EIA PUBLIC PARTICIPATION PROCESS NOTICE

Call for Interested and Affected Parties to register and comment on the EIA Process for the proposed Platfontein Truck Stop / Filling Station development, Kimberley

Notice is hereby given in terms of Section 24 (5) of the National Environmental Management Act (NEMA), 107 of 1998 and Environmental Impact Assessment Regulations, 2014 (as amended) in respect of activities identified in terms of Regulations No. 325 (2014, as amended) of the Act. This application is subject to a Basic Assessment - and public participation process in terms of Regulation 41 of the EA Regulations, 2014 (as amended) commencing with this call.

Background on activity: The project entails the development of a truck stop / filling station with associated infrastructure on a 2-hectare land parcel.

Relevant listed activity: Regulation GN 327 (Listing Notice 1): Activity no. 14 and 27

Location: Portion of the RE of the farm Wildebeest Nul 68, Kimberley (C/O the R31 and Platfontein road) (site coordinates: 28°42'29.49"S, 24°40'36.14"E)

Proponent: Platpal Pty Ltd

Environmental Assessment Practitioner: Green-Box Consulting, PO Box 37738, Langenhovenpark 8330, Cell: 082 485 2108, e-mail: info@green-box.co.za

In order to ensure that you are registered as an Interested and Affected Party please send your details, motivation for participation and inputs in written format via email or post to Green-Box Consulting. Written inputs to reach us before 11 January 2021.

Only registered interested and Affected Parties will receive further notifications of the EA application process.

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Classified offers the options to warm up your search

Classifieds

053 832 6261

PUBLIC CONSULTATION PROCESS - WATER USE LICENSE AMENDMENT

Notice is hereby given of an application for the amendment to the Water Use License ("WUL") to the Department of Water and Sanitation ("DWS") in terms of Regulation 16 of GN. R. 267 (24 March 2017) under the National Water Act ("NWA"), 1998 (Act No. 36 of 1998) to license the following water uses in terms of Section 21 of the NWA: Section 21(a) - Taking water from a water resource; Section 21(b) - Storing of water.

Roopoori Developments (Pty) Ltd ("the Applicant") has a WUL for the abstraction of 248 000 m3 of water per annum from the Vaal River for diamond mining activities. The mining activities and water uses take place on the following 5 properties in the Kimberley District, Northern Cape province: Zand Plaats 102/5, Vogelstruispan RE/101, Vogelstruispan RE/98, Kipfontein RE/99 and Bergplaats RE/100. The application for amendment, if licensed, will allow for an increase in the volume of water to be abstracted from the river to 672 000 m3/annum. The amendment will also specify additional abstraction points in the Vaal River. The Applicant uses zinc dams with a storage capacity of 212 m3 each for purposes of storage and balancing of the water abstracted from the river on the various mining areas. The application will also provide for 4 such reservoirs to be used.

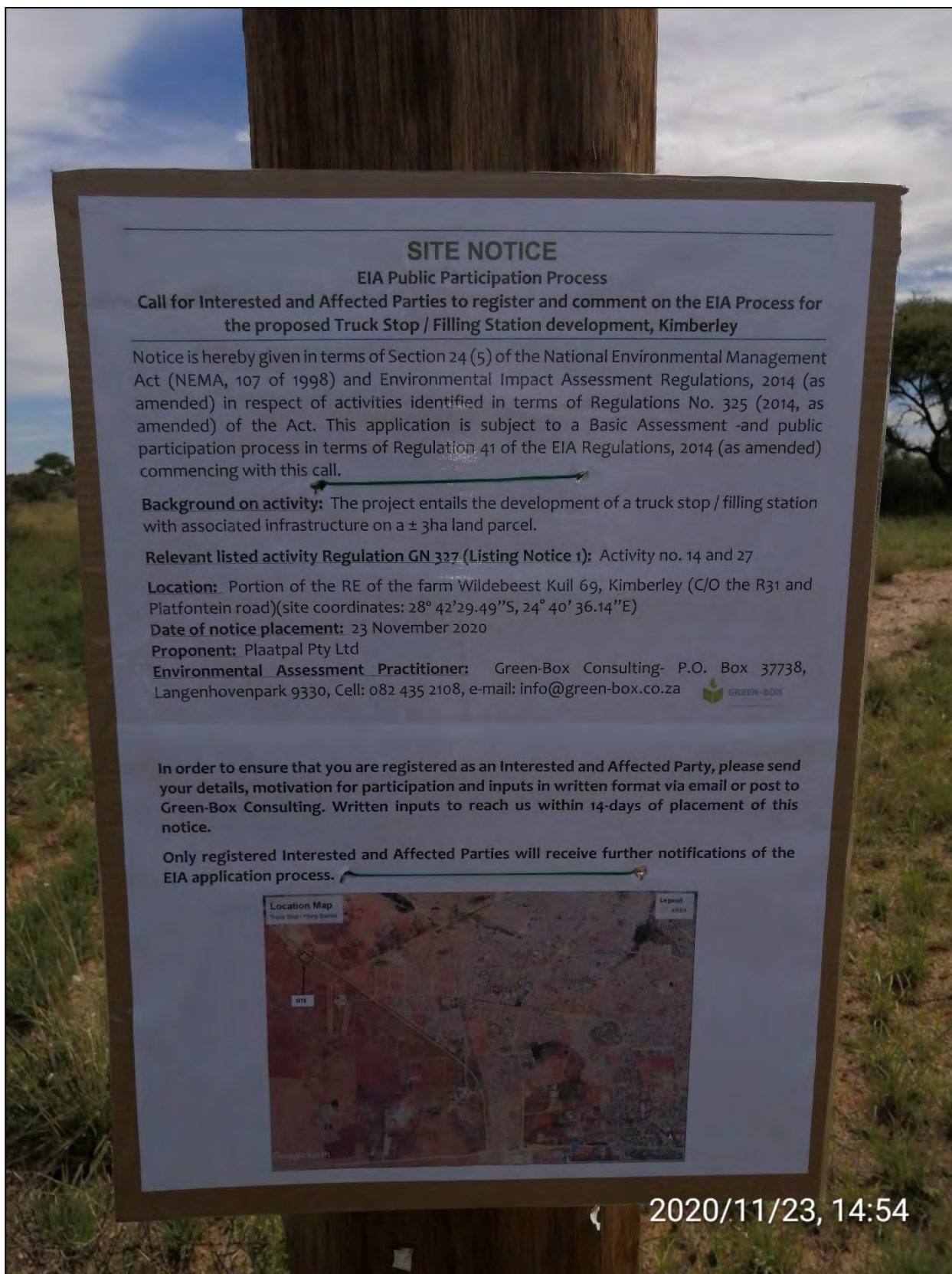
You are requested to send any issues and/or concerns regarding the proposed project to Turn 180 Environmental Consultants at Suite 221, Private Bag X01, Brandhof, 9324 or 072 873 6865 (T) or 072 838 8189 (C) or ansune@turn180.co.za / admin@turn180.co.za (e-mail) within 30 days of the date of this advertisement (on or before 31 January 2021).

BASIC ASSESSMENT REPORT

- ❖ Placement of two (2) site notice. The first site notice was placed at the entrance to the proposed site and the second in Platfontein
- ❖ Registered notices issued the relevant Authority / Organs of State including:
 - Sol Plaatje Local Municipality;
 - Frances Baard District Municipality;
 - Frances Baard District Municipality (Environmental Health);
 - Department of Water and Sanitation- Northern Cape;
 - Department of Energy- Northern Cape Province;
 - Northern Cape Department: Roads and Public Works.



Site notice 1: placed at 28° 42' 28.188" S 24° 40' 29.1" E



Site notice 2 placed at: 28° 42'31.79"S; 24° 39'32.98"E

BASIC ASSESSMENT REPORT

Authorities and Organs of State Identified as Key Stakeholders


Authority/Organ of State	Contact person (Title, Name and Surname)	Tel No	Fax No	e-mail	Postal address
Sol Plaatje Local Municipality	Mr. Goolman Akharwaray	053-830 6100	-	gakharwaray@solplaatje.org.za	Private Bag X5030 Kimberley 8300
Frances Baard District Municipality	Ms. Mamikie Bogatsu	053-838 0998	-	fatima.ruiters@fbdm.co.za	Private Bag X6088 Kimberley 8300
Frances Baard District Municipality (Environmental Health)	Mr. Kenneth Lucas (Environmental Health Manager)	053-838 0970	-	kenneth.lucas@fbdm.co.za	Private Bag X6088 Kimberley 8300
Department of Water and Sanitation- Northern Cape	Mr. Gawie van Dyk Northern Cape	053-830 8800	-	vandykg@dws.gov.za	Private Bag X6101 Kimberley 8300
Department of Energy- Northern Cape Province	Mr. Tebogo Lentswe	053-807 4007	-	tebogo.lentswe@energy.gov.za	Private Bag X6093 Kimberley 8300
Northern Cape Department: Roads and Public Works	Ms. Crystal Robertson	053-839 2100	-	crobertson@ncpg.gov.za	PO Box 3132 Kimberley 8300

Title, Name and Surname	Affiliation/ key stakeholder status	Contact details (tel number or e-mail address)
Mafuta Marenda	Ixun and Khwe Leaders	trybyforce90@gmail.com
Antonio Sabao	Ixun Chief	jbktlitt@gmail.com

Registered I&APs

1. Antonio Sabao, Executive Chief !xun community)

LETTER OF OBJECTION

 James Jamie <jbktlitt@gmail.com>
To: info@green-box.co.za

 You replied to this message on 08 Dec 2020 09:01.



Dear Sir / Madam

I hereby would like to send my greetings to you and your office.

Hope everything is going well with you. Attached is my letter of objection.

Kindly let me know when you recieved the letter.

Forward all correspondance to this email or feel free to contact me on attached number.

With thanks

Antonio Sabao

Executive chief of the! Xun community



Tue 08 Dec 2020 07:58

LETTER OF OBJECTION

Green-Box Consulting
P.O Box 37738
Langenhoven Park
9330

**RE: NOTICE OF OBJECTION TO THE PROPOSED REZONING OF PORTION OF FARM
WILDBEES KUIL 69 KIMBERLEY (C/O THE R31 AND PLATFONTEIN ROAD)**

DEAR SIR/MADAM

I Antonio Sabao chief of the !Xun community in Platfontein Kimberley hereby object to the application for development of a truck stop on the corner of r31 and Platfontein road. Reasons will be provided as soon as the meeting pertinent to this objection is held.

I reserve the right to amplify and expand upon the formal objection contained in this correspondence at later stage and in the appropriate forum necessary while I have many more concerns that can be tabled at this time, I reserve the right to express them during the hearing.

Please advise me of the date and time of any hearings and/or meetings pertinent to this objection.

Yours truly

A. Sabao

Antonio Sabao (Executive Chief !xun community)

Platfontein Kimberley

079 825 9874

2. Mafuta Marenda, !xun and khwe leader, trybyforce90@gmail.com

Objection on petrol refilling station at Platfonfein !xun and khwe Community:



Mafuta Marenda <trybyforce90@gmail.com>
To info@green-box.co.za

 You forwarded this message on 02 Dec 2020 21:05.

 Reply  Reply All  Forward 

Wed 02 Dec 2020 20:35

We the concerned !xun and khwe leaders herewith objecting the project as it was never on a public participation for their intervening until far invesiygation and processing thereof. The names of leaders as follows:

- A. Chief A. Sabao
- B. Chief N. Tenda
- C. Chief M. Mukau
- D. Chief V. Serneo
- E. Chief J.M. Marenda
- F. Chief N. Anderson
- G. Chief x. Petrus
- I. Chief W. Katjara
- J. Chief S. Kavadama
- K. Chief S. Dixon

Hope we understand each

By exco of the house

BASIC ASSESSMENT REPORT

Comments and Response Report

Authority/Organ of State	Contact person (Title, Name and Surname)	Comment	Response
Sol Plaatje Local Municipality	Mr. Goolman Akharwaray	<i>No comments or feedback received</i>	<i>None given</i>
Frances Baard District Municipality	Ms. Mamikie Bogatsu	<i>No comments or feedback received</i>	<i>None given</i>
Frances Baard District Municipality (Environmental Health)	Mr. Kenneth Lucas (Environmental Health Manager)	<i>No comments or feedback received</i>	<i>None given</i>
Department of Water and Sanitation- Northern Cape	Mr. Gawie van Dyk Northern Cape	<i>No comments or feedback received</i>	<i>None given</i>
Department of Energy- Northern Cape Province	Mr. Tebogo Lentswe	<i>No comments or feedback received</i>	<i>None given</i>
Northern Cape Department: Roads and Public Works	Ms. Crystal Robertson	<i>No comments or feedback received</i>	<i>None given</i>

Title, Name and Surname	Comment	Response
Mafuta Marena Ixun and khwe leader, trybyforce90@gmail.com	<i>Registered as I&AP, on 02 December 2020, and objected to the application with a list of Chiefs, from the Ixun and khwe leaders.</i>	<i>Mafuta Marena was registered as a I&AP. The Draft Basic Assessment Report was made available for 30 days and made an opportunity available for him to comment and provide reasons for his objection. No was however received during the 30 days public participation period.</i>
Antonio Sabao Executive Chief Ixun community Cell: 0798259874	<i>Notice of objection received on the 08th of December 2020. (see above). No reasons for the objection were given, it was indicated that reasons will be given as soon as a meeting is held.</i>	<i>Antonio Sabao was registered as an I&AP. The Draft Basic Assessment Report was made available for 30 days and made an opportunity available for him to comment and provide reasons for his objection. No was however received during the 30 days public participation period.</i>

Proof of Email Distribution

Request for comments: Proposed Truck Stop/Filling Station, Kimberley



Danie Krynauw <danie@green-box.co.za>
To 'James Jamie'

Reply Reply All Forward ...

Wed 25 Aug 2021 20:53



Dear Mr. Sabao

You have registered as an Interested and Affected Party in the EIA process for the proposed Platfontein Truck Stop/Filling Station in

Request for comments: Proposed Truck Stop/Filling Station, Kimberley

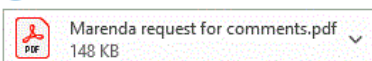


Danie Krynauw <danie@green-box.co.za>
To 'trybyforce90@gmail.com'

Reply Reply All Forward ...

Wed 25 Aug 2021 20:52

You forwarded this message on 25 Aug 2021 20:53.



Dear Mr. Marenda

You have registered as an Interested and Affected Party in the EIA process for the proposed Platfontein Truck Stop/Filling Station in

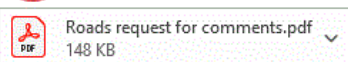
Request for comments: Proposed Truck Stop/Filling Station, Kimberley



Danie Krynauw <danie@green-box.co.za>
To 'crobertson@ncpg.gov.za'

Reply Reply All Forward ...

Wed 25 Aug 2021 20:51



Dear Interested and Affected Party

You have been identified as an Interested and Affected Party in the EIA process for the proposed Platfontein Truck Stop/Filling Station in

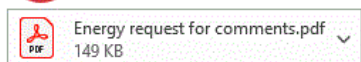
Request for comments: Proposed Truck Stop/Filling Station, Kimberley



Danie Krynauw <danie@green-box.co.za>
To 'tebogo.lentswe@energy.gov.za'

Reply Reply All Forward ...

Wed 25 Aug 2021 20:50



Dear Interested and Affected Party

You have been identified as an Interested and Affected Party in the EIA process for the proposed Platfontein Truck Stop/Filling Station in

Request for comments: Proposed Truck Stop/Filling Station, Kimberley



Danie Krynauw <danie@green-box.co.za>
To 'Van Dyk Gawie (KBY)'

Reply Reply All Forward ...

Wed 25 Aug 2021 20:48



Dear Interested and Affected Party

You have been identified as an Interested and Affected Party in the EIA process for the proposed Platfontein Truck Stop/Filling Station in Kimberley.

BASIC ASSESSMENT REPORT

Request for comments: Proposed Truck Stop/Filling Station, Kimberley



Danie Krynauw <danie@green-box.co.za>
To 'kenneth.lucas@fbdm.co.za'

[Reply](#) [Reply All](#) [Forward](#) [...](#)

Wed 25 Aug 2021 20:48



Dear Interested and Affected Party

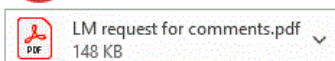
You have been identified as an Interested and Affected Party in the EIA process for the proposed Platfontein Truck Stop/Filling Station in
Request for comments: Proposed Truck Stop/Filling Station, Kimberley



Danie Krynauw <danie@green-box.co.za>
To 'gakharwaray@solplaatje.org.za'

[Reply](#) [Reply All](#) [Forward](#) [...](#)

Wed 25 Aug 2021 19:42



Dear Interested and Affected Party

You have been identified as an Interested and Affected Party in the EIA process for the proposed **Platfontein** Truck Stop/Filling Station in Kimberley.

Request for comments: Proposed Truck Stop/Filling Station, Kimberley

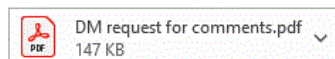


Danie Krynauw <danie@green-box.co.za>
To 'fatima.ruiters@fbdm.co.za'

[Reply](#) [Reply All](#) [Forward](#) [...](#)

Wed 25 Aug 2021 17:46

[i](#) You forwarded this message on 25 Aug 2021 20:52.



Dear Interested and Affected Party

You have been identified as an Interested and Affected Party in the EIA process for the proposed **Platfontein** Truck Stop/Filling Station in Kimberley.

Appendix F: Impact assessment

Impact Assessment Methodology

Table 1: Criteria used to determine the consequence of an impact

Rating	Definition of Rating	Score
A. Extent– the area over which the impact will be experienced		
Site	Within the construction site	1
Local	Within a radius of 2 km of the construction site	2
Regional	Provincial and parts of neighboring provinces	3
National	The whole of South Africa	4
B. Intensity– the magnitude of the impact in relation to the sensitivity of the receiving environment, taking into account the degree to which the impact may cause irreplaceable loss of resources		
Low	Site-specific and wider natural and/or social functions and processes are negligibly altered	1
Medium	Site-specific and wider natural and/or social functions and processes continue albeit in a modified way	2
High	Site-specific and wider natural and/or social functions or processes are severely altered	3
C. Duration– the timeframe over which the impact will be experienced and its reversibility		
Short-term	Up to 2 years and reversible	1
Medium-term	2 to 15 years and reversible	2
Long-term	More than 15 years and irreversible	3

The combined score of these three criteria corresponds to a *consequence rating*, as set out in Table 2.

Table 2: Method used to determine the consequence rating.

Combined score (A+B+C)	3-4	5	6	7	8-9
Consequence rating	Very Low	Low	Medium	High	Very High

Once the consequence is derived, the probability of the impact occurring is considered, using the probability classifications presented in Table 3 below.

Table 3: Probability classification

Probability – the likelihood of the impact occurring	
Improbable	<40% chance of occurring
Possible	40% - 70% chance of occurring
Probable	>70% - 90% chance of occurring
Definite	>90% chance of occurring

The overall significance of an impact is determined by considering the consequence rating and the probability classification using the rating system prescribed in Table 4 below.

Table 4: Impact significance rating

		Probability			
		Improbable	Possible	Probable	Definite
Consequence	Very Low	INSIGNIFICANT	INSIGNIFICANT	VERY LOW	VERY LOW
	Low	VERY LOW	VERY LOW	LOW	LOW
	Medium	LOW	LOW	MEDIUM	MEDIUM
	High	MEDIUM	MEDIUM	HIGH	HIGH
	Very High	HIGH	HIGH	VERY HIGH	VERY HIGH

Finally, the impact is also considered in terms of its status (positive or negative) and the confidence in the ascribed impact significance rating.

The prescribed system for considering impact status and confidence (in the assessment) is laid out in Table 5 below.

Table 5: Impact status and confidence classification

Status of Impact	
Indication whether the impact is adverse (negative) or beneficial (positive).	+ ve (positive – a 'benefit')
	- ve (negative – a 'cost')
Confidence in the assessment	
The degree of confidence in predictions based on available information, Green-Box Consulting judgment and/or specialist knowledge.	Low
	Medium
	High

The impact significance rating should be considered by authorities in their decision-making process based on the implications of ratings ascribed below:

- **INSIGNIFICANT:** the potential impact is negligible and will not have an influence on the decision regarding the proposed activity/development.
- **VERY LOW:** the potential impact is very small and should not have any meaningful influence on the decision regarding the proposed activity/development.
- **LOW:** the potential impact may not have any meaningful influence on the decision regarding the proposed activity/development.
- **MEDIUM:** the potential impact should influence the decision regarding the proposed activity/development.
- **HIGH:** the potential impact will affect the decision regarding the proposed activity/development.
- **VERY HIGH:** The proposed activity should only be approved under special circumstances.

BASIC ASSESSMENT REPORT

Practicable mitigation and optimization measures are recommended, and impacts are rated in the prescribed way both without and with the assumed effective implementation of the recommended mitigation (and/or optimization) measures. Mitigation and optimization measures are either:

- **Essential:** measures that must be implemented and are non-negotiable; or
- **Best Practice:** recommended to comply with best practice, with adoption dependent on the proponent’s risk profile and commitment to adhere to best practice, and which must be shown to have been considered and sound reasons provided by the proponent if not implemented.

Impacts will then be collated into the EMPr and these will include the following:

- Quantifiable standards for measuring and monitoring mitigatory measures and enhancements will be set. This will include a programme for monitoring and reviewing the recommendations to ensure their ongoing effectiveness.
- Identifying negative impacts and prescribing mitigation measures to avoid or reduce negative impacts. Where no mitigatory measures are possible this will be stated.
- Positive impacts will be identified and augmentation measures will be identified to potentially enhance positive impacts where possible.

Other aspects to be taken into consideration in the assessment of impact significance are:

- Impacts will be evaluated for the construction and operation phases of the development. The assessment of impacts for the decommissioning phase will be brief, as there is limited understanding at this stage of what this might entail. The relevant rehabilitation guidelines and legal requirements applicable at the time will need to be applied;
- Impacts will be evaluated with and without mitigation in order to determine the effectiveness of mitigation measures on reducing the significance of a particular impact;
- The impact evaluation will, where possible, take into consideration the cumulative effects associated with this and other facilities/projects which are either developed or in the process of being developed in the local area; and
- The impact assessment will attempt to quantify the magnitude of potential impacts (direct and cumulative effects) and outline the rationale used. Where appropriate, national standards are to be used as a measure of the level of impact.

Impact Significance Breakdown:

Impact Significance (Planning Phase):

Activity	Direct Impact		Indirect Impact	Cumulative Impact	
Environmental Legal and Policy compliance	Significance rating of impact			Significance rating of impact	
	Extent, Intensity, Duration of impact	2;2;2		Extent, Intensity, Duration of impact	2;2;3
	Consequence rating	Medium		Consequence rating	High

BASIC ASSESSMENT REPORT

	Probability of Impact Occurrence	Possible	N/A	Probability of Impact Occurrence	Possible
	Impact Significance Rating prior to mitigation	Low		Impact Significance Rating prior to mitigation	Medium
	Status of impact (positive/negative)	Negative		Status of impact (positive/negative)	Negative
	Confidence in the assessment	High		Confidence in the assessment	High

Activity	Direct Impact		Indirect Impact	Cumulative Impact
Bulk Services	Significance rating of impact		N/A	N/A
	Extent, Intensity, Duration of impact	2;2;2		
	Consequence rating	Medium		
	Probability of Impact Occurrence	Possible		
	Impact Significance Rating prior to mitigation	Low		
	Status of impact (positive/negative)	Negative		
	Confidence in the assessment	High		

Activity	Direct Impact		Indirect Impact	Cumulative Impact
No-go option	Significance rating of impact		N/A	N/A
	Extent, Intensity, Duration of impact	2;1;3		
	Consequence rating	Medium		
	Probability of Impact Occurrence	Probable		
	Impact Significance Rating prior to mitigation	Medium		
	Status of impact	Negative		

BASIC ASSESSMENT REPORT

	(positive/negative)	High		
	Confidence in the assessment	High		

Impact Significance Rating (Construction Phase):

Activity	Direct Impact		Indirect Impact	Cumulative Impact
Groundwater contamination	Significance rating of impact		N/A	N/A
	Extent, Intensity, Duration of impact	2;2;3		
	Consequence rating	High		
	Probability of Impact Occurrence	Possible		
	Impact Significance Rating prior to mitigation	Medium		
	Status of impact (positive/negative)	Negative		
	Confidence in the assessment	High		

Activity	Direct Impact		Indirect Impact	Cumulative Impact
Traffic	Significance rating of impact		N/A	N/A
	Extent, Intensity, Duration of impact	2;2;2		
	Consequence rating	Medium		
	Probability of Impact Occurrence	Possible		
	Impact Significance Rating prior to mitigation	Low		
	Status of impact (positive/negative)	Negative		
	Confidence in the assessment	High		

BASIC ASSESSMENT REPORT

Activity	Direct Impact		Indirect Impact	Cumulative Impact
Dust and Emissions	Significance rating of impact		N/A	N/A
	Extent, Intensity, Duration of impact	2;2;2		
	Consequence rating	Medium		
	Probability of Impact Occurrence	Possible		
	Impact Significance Rating prior to mitigation	Low		
	Status of impact (positive/negative)	Negative		
Confidence in the assessment	High			

Activity	Direct Impact		Indirect Impact	Cumulative Impact
Noise	Significance rating of impact		N/A	N/A
	Duration of impact	2;1;2		
	Consequence rating	Low		
	Probability of Impact Occurrence	Probable		
	Impact Significance Rating prior to mitigation	Low		
	Status of impact (positive/negative)	Negative		
Confidence in the assessment	High			

Activity	Direct Impact		Indirect Impact	Cumulative Impact
Visual	Significance rating of impact			
	Duration of impact	2;1;2		
	Consequence rating	Low		

BASIC ASSESSMENT REPORT

	Probability of Impact Occurrence	Probable	N/A	N/A
	Impact Significance Rating prior to mitigation	Low		
	Status of impact (positive/negative)	Negative		
	Confidence in the assessment	High		

Activity	Direct Impact		Indirect Impact	Cumulative Impact
Socio-economic	Significance rating of impact		N/A	N/A
	Duration of impact	3;2;2		
	Consequence rating	High		
	Probability of Impact Occurrence	Possible		
	Impact Significance Rating prior to mitigation	Medium		
	Status of impact (positive/negative)	Positive		
	Confidence in the assessment	High		

Activity	Direct Impact		Indirect Impact	Cumulative Impact
No-go	Significance rating of impact		N/A	N/A
	Duration of impact	3;3;2		
	Consequence rating	High		
	Probability of Impact Occurrence	Possible		
	Impact Significance Rating prior to mitigation	Medium		

BASIC ASSESSMENT REPORT

	Status of impact (positive/negative)	Negative		
	Confidence in the assessment	High		

Impact Significance Rating (Operational Phase):

Activity	Direct Impact		Indirect Impact	Cumulative Impact
Soil and groundwater contamination	Significance rating of impact		N/A	N/A
	Duration of impact	3;3;3		
	Consequence rating	Very High		
	Probability of Impact Occurrence	Possible		
	Impact Significance Rating prior to mitigation	High		
	Status of impact (positive/negative)	Negative		
	Confidence in the assessment	High		

Activity	Direct Impact		Indirect Impact	Cumulative Impact
Traffic	Significance rating of impact		N/A	N/A
	Duration of impact	2;1;2		
	Consequence rating	Low		
	Probability of Impact Occurrence	Probable		
	Impact Significance Rating prior to mitigation	Low		
	Status of impact (positive/negative)	Negative		
	Confidence in the assessment	High		

BASIC ASSESSMENT REPORT

Activity	Direct Impact		Indirect Impact	Cumulative Impact
Emissions	Significance rating of impact		N/A	N/A
	Duration of impact	2;1;1		
	Consequence rating	Low		
	Probability of Impact Occurrence	Probable		
	Impact Significance Rating prior to mitigation	Low		
	Status of impact (positive/negative)	Negative		
	Confidence in the assessment	High		

Activity	Direct Impact		Indirect Impact	Cumulative Impact
Noise	Significance rating of impact		N/A	N/A
	Duration of impact	1;2;2		
	Consequence rating	Low		
	Probability of Impact Occurrence	Probable		
	Impact Significance Rating prior to mitigation	Low		
	Status of impact (positive/negative)	Negative		
	Confidence in the assessment	High		

Activity	Direct Impact		Indirect Impact	Cumulative Impact
Visual	Significance rating of impact		N/A	N/A
	Duration of impact	1;2;2		
	Consequence rating	Low		
	Probability of Impact Occurrence	Probable		

BASIC ASSESSMENT REPORT

	Impact Significance Rating prior to mitigation	Low		
	Status of impact (positive/negative)	Negative		
	Confidence in the assessment	High		

Activity	Direct Impact		Indirect Impact		Cumulative Impact
Socio-economic	Significance rating of impact		Significance rating of impact		N/A
	Duration of impact	2;2;2	Duration of impact	2;2;2	
	Consequence rating	Medium	Consequence rating	Medium	
	Probability of Impact Occurrence	Probable	Probability of Impact Occurrence	Probable	
	Impact Significance Rating prior to mitigation	Medium	Impact Significance Rating prior to mitigation	Medium	
	Status of impact (positive/negative)	Positive	Status of impact (positive/negative)	Positive	
	Confidence in the assessment	High	Confidence in the assessment	High	

Activity	Direct Impact		Indirect Impact		Cumulative Impact
No-go	Significance rating of impact		N/A		N/A
	Duration of impact	2;1;3			
	Consequence rating	Medium			
	Probability of Impact Occurrence	Probable			
	Impact Significance Rating prior to mitigation	Medium			
	Status of impact (positive/negative)	Negative			
	Confidence in the assessment	High			

BASIC ASSESSMENT REPORT

Impact Significance Rating (Decommissioning and Closure Phase)

Activity	Direct Impact		Indirect Impact	Cumulative Impact
Soil and groundwater contamination	Significance rating of impact		N/A	N/A
	Duration of impact	3;3;3		
	Consequence rating	Very High		
	Probability of Impact Occurrence	Possible		
	Impact Significance Rating prior to mitigation	High		
	Status of impact (positive/negative)	Negative		
	Confidence in the assessment	High		

Activity	Direct Impact		Indirect Impact	Cumulative Impact
Traffic	Significance rating of impact		N/A	N/A
	Duration of impact	2;1;2		
	Consequence rating	Low		
	Probability of Impact Occurrence	Probable		
	Impact Significance Rating prior to mitigation	Low		
	Status of impact (positive/negative)	Negative		
	Confidence in the assessment	High		

Activity	Direct Impact		Indirect Impact	Cumulative Impact
Emissions	Significance rating of impact			
	Duration of impact	2;1;1		
	Consequence rating	Low		

BASIC ASSESSMENT REPORT

	Probability of Impact Occurrence	Probable	N/A	N/A
	Impact Significance Rating prior to mitigation	Low		
	Status of impact (positive/negative)	Negative		
	Confidence in the assessment	High		

Activity	Direct Impact		Indirect Impact	Cumulative Impact
Noise	Significance rating of impact		N/A	N/A
	Duration of impact	2;1;1		
	Consequence rating	Low		
	Probability of Impact Occurrence	Probable		
	Impact Significance Rating prior to mitigation	Low		
	Status of impact (positive/negative)	Negative		
	Confidence in the assessment	High		

Activity	Direct Impact		Indirect Impact	Cumulative Impact
Visual	Significance rating of impact		N/A	N/A
	Duration of impact	2;1;1		
	Consequence rating	Low		
	Probability of Impact Occurrence	Probable		
	Impact Significance Rating prior to mitigation	Low		
	Status of impact (positive/negative)	Negative		

BASIC ASSESSMENT REPORT

	Confidence in the assessment	High		
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Activity	Direct Impact		Indirect Impact		Cumulative Impact
Loss of employment	Significance rating of impact		Significance rating of impact		N/A
	Duration of impact	3;2;2	Duration of impact	3;2;2	
	Consequence rating	High	Consequence rating	High	
	Probability of Impact Occurrence	Possible	Probability of Impact Occurrence	Possible	
	Impact Significance Rating prior to mitigation	Medium	Impact Significance Rating prior to mitigation	Medium	
	Status of impact (positive/negative)	Negative	Status of impact (positive/negative)	Negative	
	Confidence in the assessment	High	Confidence in the assessment	High	

BASIC ASSESSMENT REPORT

Activity	Direct Impact		Indirect Impact	Cumulative Impact
No-go	Significance rating of impact		N/A	N/A
	Duration of impact	2;1;3		
	Consequence rating	Medium		
	Probability of Impact Occurrence	Probable		
	Impact Significance Rating prior to mitigation	Medium		
	Status of impact (positive/negative)	Negative		
	Confidence in the assessment	High		

Appendix G: Environmental Management Programme

Final Environmental Management Programme:

The Proposed Development of a Filling Station, Truck Stop Facility and Related Structures on a Portion of the farm Wildebeest Kuil 69, Kimbrley, Northern Cape Province

For

Plaatpal PTY Ltd

01 October 2021

Report prepared by Green-Box Consulting



GREEN-BOX
CONSULTING

INTEGRATED ENVIRONMENTAL MANAGEMENT

FINAL ENVIRONMENTAL MANAGEMENT PROGRAMME (EMPR)

1. INTRODUCTION

This Environmental Management Programme (EMPr) outlines the mitigation and monitoring measures to be implemented for the Development of a Filling Station, Truck Stop Facility and Related Structures on a portion of the farm Wildebeest Kuil 69, Northern Cape Province. The EMPr specifically identifies measures that can be implemented to reduce potential impacts occurring during the lifetime of the project.

2. AIM AND PURPOSE OF AN ENVIRONMENTAL MANAGEMENT PROGRAMME

The aim of this EMPr is to identify and minimize, as far as possible, potential impacts that the development may have on the surrounding biophysical and socio-economic environment during the following phases:

- Construction;
- Operational.

The purpose of this EMPr is to:

- Encourage good management practices and commitment to environmental issues;
- Define how the management of the environment is reported and performance evaluated;
- Provide rational and practical environmental guidelines to:
 - Minimize disturbance of the natural environment;
 - Prevent or minimize all forms of pollution;
 - Comply with all applicable laws, regulations, standards and guidelines for the protection of the environment; and
 - Adopt the best practicable means available to prevent or minimize adverse environmental impacts.
- Describe all monitoring procedures required to identify impacts on the environment.

3 ENVIRONMENTAL COMPLIANCE

3.1 Responsibilities for environmental management

The Project Manager (PM), Property Owner (PO) will be responsible for environmental management on site during the construction and operational phases of the filling station, and associated infrastructure. Surrounding landowners, business owners, residents or tenants will be notified in advance of any potentially disturbing activities during the project.

3.2 Training of Employees

The PO have a responsibility to ensure that all those people involved in the project are aware of and are familiar with the contents of this EMPr. This EMPr must form part of the Terms of Reference (ToR) for all Sub-contractors, Suppliers, Staff and Visitors. During the construction phase, the Contractor and his Sub-contractors must give assurance that they understand the EMPr and that they comply with the conditions therein. All senior and supervisory staff members must familiarize themselves with the full contents of this EMPr. They must know and understand specifications of the EMPr and be able to assist other staff members in matters relating to the EMPr. During the operational phase, the PM, as well as the PO and all senior and supervisory staff members, must understand and comply fully with the contents of this EMPr. In addition, all other site personnel must be educated in the contents of this document. Before commencing with any work, all staff members will be appropriately briefed about the EMPr and relevant occupational health and safety issues.

3.3 Complaints Register and Environmental Incident Book

All complaints received will be investigated and a response (even if pending further investigation) will be given to the complainant within seven working days. All environmental incidents occurring on site will be recorded. The following information for each incident will be recorded:

- Time, date, location and nature of the incident; and
- Actions taken and by whom.

Any complaints received from the community during the lifetime of the project will be registered and recorded by the PO and / or PM on site. The following information will be recorded:

- Time, date and nature of the complaint;
- Response and investigation undertaken; and
- Actions taken and by whom.

3.4 Environmental Monitoring

Environmental monitoring of the construction and operational phases of the development will be undertaken by the PO. Monitoring will be undertaken to ensure compliance with all aspects of the EMPR. In order to facilitate communication between the PO and senior and supervisory staff members, it is important that a suitable chain of communication is structured that will ensure that the PO recommendations have the full backing of the project team before being conveyed to the necessary person. In this way, penalties as a result of non-compliances with the EMPR may be justified as failure to comply with the EMPR. The Department of Environmental Affairs is the overriding authority regarding environmental compliance for this project.

3.5 Non-Compliance with the EMPR

Difficulties may be encountered with carrying out mitigation measures that could result in future non-compliance. The PO and / or PM shall put in place procedures to motivate staff members to comply with this EMPR, and to deal with acts of non-compliance, or malicious damage to the environment. Penalties for non-compliance will be discussed with the PO and / or PM at the earliest stage.

4 LEGISLATIVE FRAMEWORK

4.1 The Constitution of the Republic of South Africa Act (Act 108 of 1996)

The Constitution of the Republic of South Africa is the legal source of all law, including environmental law, in South Africa. The Bill of Rights is fundamental to the Constitution of the Republic of South Africa and in, Section 24 states that:

Everyone has the right (a) to an environment that is not harmful to their health or well-being; and (b) to have the environment protected, for the benefit of present and future generations through reasonable legislative and other measures that (1) prevent pollution and ecological degradation; (ii) promote conservation; and (iii) secure ecologically sustainable development and use natural resources while promoting justifiable economic and social development.

4.2 National Environmental Management Act (Act 107 of 1998)

The National Environmental Management Act is South Africa's overarching environmental legislation and has, as its primary objective to provide for co-operative governance by establishing principles for decision making on matters affecting the environment, institutions that will promote co-operative governance and procedures for coordinating environmental functions exercised by organs of state and to provide for matters connected therewith (Government Gazette, 1989). The Act provides for the right to an environment that is not harmful to the health and well-being of South African citizens; the equitable distribution of natural resources, sustainable development, environmental protection and the formulation of environmental management frameworks (Government Gazette, 1998). In terms of Section 28 (1) of the NEMA:

*“(1) Every person who causes, has caused or may cause significant pollution or degradation of the environment must take reasonable measures to prevent such pollution or degradation from occurring, continuing or recurring, or, in so far as such harm to the environment is authorized by law or cannot reasonably be avoided or stopped, to minimize **and rectify such pollution or degradation of the environment.** (2)...”*

4.3 Environment Conservation Act, 1989 (ECA)

A major part of the regulations contained in the Environmental Conservation Act (ECA) have been repealed and replaced by NEMA. However, regulations pertaining to noise pollution are still applicable and these are mainly set out and implemented by the provincial government.

4.4 National Environmental Management: Waste Act (NEMWA) 2008 (No. 59 of 2008)

Although this project activity does not require a Waste Management License under the NEMWA, its underlying principles will still apply.

4.5 National Waste Management Strategy

The major objective of the strategy is to establish a waste hierarchy underpinned by integrated waste management planning. The strategy further alludes to sustainable development under the following goals and objectives:

- Achieving integrated waste management planning;
- Avoiding and minimizing the generation of waste;
- Promoting and ensuring the effective delivery of waste services;
- Reducing, re-using, recycling and recovering waste;
- Treating and safely disposing of waste as a last resort; and
- Remediating land where contamination presents a significant risk of harm to health or the environment.

4.6 Sustainable Development

The principle of Sustainable Development has been established in the Constitution of the Republic of South Africa (108 Of 1996) and given effect by NEMA Section 1 (“(i) of NEMA states that:

*“(29)... Sustainable development means the integration of social, economic and environmental factors into the planning, implementation and decision-making process so as to ensure that development serves present and future generations”. Similarly, the guiding principle established in Section 2 (3) of NEMA state that: “**2(3) Development must be socially, environmentally and economically sustainable. (4)(a) Sustainable development requires the consideration of all relevant factors including the following: (i) that the disturbance of ecosystems and loss of biological diversity are avoided, or where they cannot be altogether avoided, or where they can to be altogether avoided, are minimized and remedied... (vii) that negative impacts on the environment and on peoples environmental rights be anticipated and prevented, and where they cannot be altogether prevented, are minimized **and remedied**”.***

Thus, Sustainable Development requires that there is an integration of social, environmental and developmental concerns and that greater attention to each of these aspects of development will lead to the fulfilment of basic needs, improved living standards for all, better protected and managed ecosystems and a safer, more prosperous future (United Nations Department of Economic and Social Affairs, Division of Sustainable Development, 1992).

5 PROJECT DESCRIPTION AND LOCATION

Plaatpal PTY Ltd to conclude the Platfontein Truck Stop/Filling Station Basic Assessment process. The Proponent for the Filling Station is the company Plaatpal Pty Ltd, also the landowner.

Green-Box Consulting has been appointed by Plaatpal PTY Ltd to complete the Platfontein Truck Stop/Filling Station Basic Assessment process. The Proponent for the filling station is the company Plaatpal Pty Ltd, who is also the landowner.

The Proponent proposes the filling station and associated infrastructure on a site situated at the corner of road R31 and the road leading to Platfontein, in Kimberley. This portion is located on the farm Wildebeest Kuil 69 (the project site). The project site is situated approximately 10km north-west of the Kimberley Central Business District (CBD), and falls within the jurisdiction of the Sol Plaatje Local Municipality.

The portion proposed for the township establishment is approximately 2,5ha. The following structures and amenities are proposed:

- Truck stop area: 1666m²
- Truck ablution & attendance building: 120m²
- Truck stop accommodation units: 10 units
- Convenience Store including Fast Food: 300m²
- Retail filling station with supporting facilities: 4443m²
- Car wash with 8 hand wash bays: 701m²

Construction phase

The intention, of providing an EMPR for the construction phase, is merely to provide Management with guidelines to be used in the construction of the facility with its associated infrastructure, to safeguard the environment against negative environmental impacts.

BASIC ASSESSMENT REPORT

Table: Specific Environmental Specifications for the construction of a filling station, Truck Stop and related structures, Platfontein

Construction Phase					
<u>Activity</u>	<u>Possible impact</u>	<u>Mitigation measures</u>	<u>Performance indicators</u>	<u>Responsibility</u>	<u>Timing</u>
Construction activities	Storm water contamination by construction activities.	Objective: To prevent storm water damage, the increase in storm water run-off resulting from construction activities must be estimated and the drainage system assessed accordingly.	Contamination of storm water runoff.	Contractor/Client	Throughout the construction phase

<u>Activity</u>	<u>Possible impact</u>	<u>Mitigation measures</u>	<u>Performance indicators</u>	<u>Responsibility</u>	<u>Timing</u>
Construction activities	Contamination of surface water bodies.	Objective: Untreated run-off from the construction site must not be discharged into natural streams or adjacent properties.	Contamination of surface water bodies.	Contractor/Client	Throughout construction phases

BASIC ASSESSMENT REPORT

Construction activities	Pollution by construction waste material	Objective: The operator must identify disposal sites for the various categories of waste likely to be generated on site and must provide documented proof of the type and volume of waste disposed of at these sites.	Appropriate management of wastes on all work sites, and No complaints from I&APs	Contractor/Client	Throughout construction phases
Construction activities	Pollution of construction site area and its surroundings	Objective: An adequate number of self-contained chemical toilets must be available for the workforce (1 toilet per 20 workers). The contractor must supply toilet paper at all toilets, and will be responsible for their maintenance and servicing.	No urinating, etc in the veld.	Contractor/Client	Throughout construction phase
	Soil erosion	Objective: Site clearing activities should only be conducted immediately prior to construction, to reduce the amount of time topsoil is exposed, and thus the potential for erosion.	No soil erosion	Contractor/Client	Site clearance prior to construction

BASIC ASSESSMENT REPORT

	Visual impacts	Objective: The site is to be kept clean at all times to minimize the visual impacts of the site.	No littering	Contractor/Client	Throughout construction phase.
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<u>Activity</u>	<u>Possible impact</u>	<u>Mitigation measures</u>	<u>Performance indicators</u>	<u>Responsibility</u>	<u>Timing</u>
Communication with I&APs	Misinformed I&APs	Objective: Selected staff are to be made available for formal consultation with I&APs in order to: <ul style="list-style-type: none"> • Explain the construction process; and • To answer any questions. 	Informed I&APs	Contractor/Client	Throughout construction phase

BASIC ASSESSMENT REPORT

Operational phase

The intention, of providing an EMPR for the operational phase, is merely to provide Management with guidelines to be used in the management of the proposed development, to safeguard the environment against negative environmental impacts.

Table: Specific Environmental Specifications for the construction of a filling station, Truck Stop and related structures, Platfontein

Operational Phase					
<u>Activity</u>	<u>Possible impact</u>	<u>Mitigation measures</u>	<u>Performance indicators</u>	<u>Responsibility</u>	<u>Timing</u>
Notifying authorities of commencement of activities	Authorities not aware of activities on site	Objective: To ensure authorities are aware of commencement of project ○ Inform authorities in writing	Authorities advised of intention to start work	Client	One week prior to site establishment

BASIC ASSESSMENT REPORT

<u>Activity</u>	<u>Possible impact</u>	<u>Mitigation measures</u>	<u>Performance indicators</u>	<u>Responsibility</u>	<u>Timing</u>
Operation of proposed facility	Contamination of storm water runoff with suspended solids and / or contaminated water	<p>Objective: contain hazardous and materials within defined areas and prevent contamination of storm water runoff by:</p> <ul style="list-style-type: none"> ○ Disposal of waste material at appropriate waste disposal site, ○ Separation pits for waster and hazardous (oil and fuel) situated at facility ○ Construct a dedicated waste water (grey water) channel with a solids trap to manage facility rinsing water 	Contamination of storm water runoff	Contractor Client	Throughout operational phases
Operation of proposed facility	Pollution by waste material	<p>Objective: to avoid pollution of the environment with waste streams by:</p> <ul style="list-style-type: none"> ○ Provide adequate waste bins, ○ Set up system for regular waste removal and disposal from work site, and ○ Minimize waste by sorting wastes into recyclable and non-recyclable wastes. 	<p>Appropriate management of wastes on all work sites, and</p> <p>No complaints from I&APs</p>	Contractor Client	Throughout operational phase

BASIC ASSESSMENT REPORT

Operation of proposed facility	Preventing suitable conditions for flies to breed.	Objective: to protect the environment from pests as there will be domestic waste stored at the facility for a short amount of time by: <ul style="list-style-type: none"> Weekly removal of domestic waste to ensure pest are not encountered. 	No pests at filling station / truck stop facility	Client	Throughout operational phase
	Waste management	Objective: to prevent solid waste from accumulating by: <ul style="list-style-type: none"> Regular removal of waste. Removal of hazardous waste by approved contractor Register the facility with the provincial department of energy in the Northern Cape. 	No solid waste stored for long periods on the property, and No contamination of the environment by hazardous waste such as diesel / oils No complaints from I & APs	Client	Continuous

BASIC ASSESSMENT REPORT

<p>Operation of the facility</p>	<p>Potential Fire Outbreaks</p>	<p>Objective: to prevent fire outbreaks:</p> <ul style="list-style-type: none"> ○ Ensure adequate emergency equipment (e.g. fire extinguishers) is available. ○ Ensure that all Employees involved have received adequate training with regards to the handling of fires. ○ Notify the local fire department of activity. 	<p>No fire outbreaks</p>	<p>Client</p>	<p>Throughout operational phase</p>
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Appendix H: Details of EAP and expertise

BASIC ASSESSMENT REPORT

DETAILS OF PERSON PREPARING THE BAR AND EMP

REPORT PREPARED BY: Danie Krynauw and Charissa Worthmann

CONTACT DETAILS: Email: danie@green-box.co.za
Email: charissa@green-box.co.za

ENVIRONMENTAL CONSULTING Green Box Consulting
COMPANY: P.O. Box 37738
Langenhovenpark
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QUALIFICATIONS OF EAPs: **Danie Krynauw has a master's degree in Town and Regional Planning (UFS), and completing his dissertation to obtain a master's degree in Environmental Management (UFS). D. Krynauw has over 14 years' experience in the environmental management field. He is registered with EAPASA (2019/1348) and is a member of the International Association of Impact Assessments South Africa.**

Charissa Worthmann has a PG. Dip in Integrated Water Management (*cum laude*) (UFS) and a **master's degree in Environmental Management (*cum laude*) (UFS)** and is a member of the International Association of Impact Assessments South Africa and the Ground Water Division of GSSA.

Appendix I: Specialist's declaration of interest

Not Applicable

Appendix J: Additional Information

1. Bulk Services Report;
2. Traffic Impact Assessment;
3. Feasibility Study; and
4. Geotechnical Report

BASIC ASSESSMENT REPORT

References:

KMA Consulting Engineers. 2021. Establishment of Filling Station: Traffic Impact Assessment.

Mucina, L. and Rutherford, M.C., Eds. (2006) The Vegetation of South Africa, Lesotho and Swaziland. Strelitzia 19, South African National Biodiversity Institute, Pretoria.

MVD Kalahari. 2021. Bulk Services Report: Construction of a Truck Stop in Platfontein.

Simlab. 2021. Report on the Geotechnical/Founding Conditions for the Platfontein R31 Filling Station, Kimberley-Northern Cape Province

End of Report

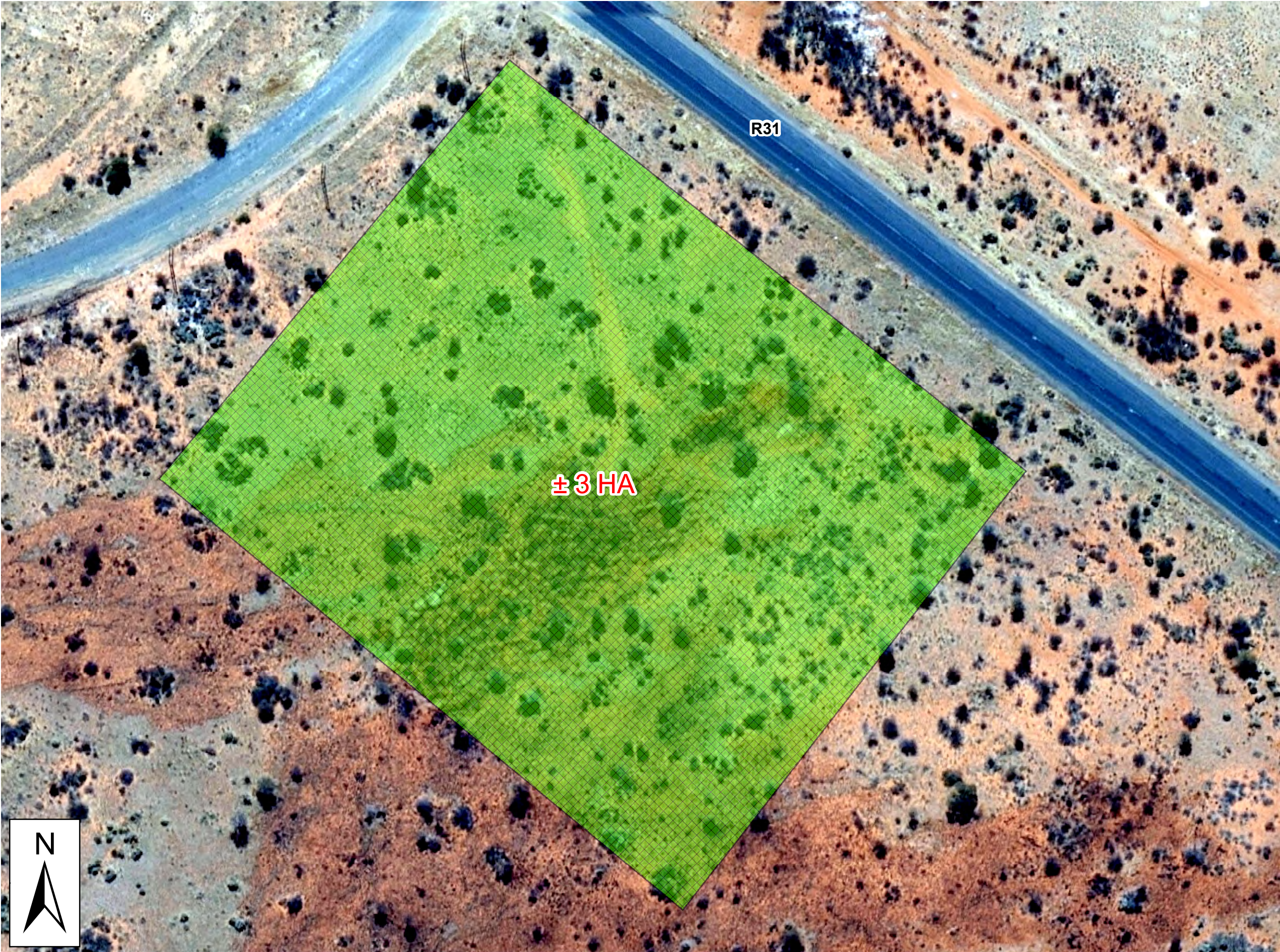


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ANNEXURE 14 – PROPOSED LEASE AREA


PROPOSED LEASE AREA PLAN
PORTION OF THE REMAINDER OF FARM WILDEBEEST KUIL NO. 69; KIMBERLEY



SOL PLAATJE LM



LEGEND

Application
 PTN. OF RE/69

REF: 7474/004



MVD Kalahari
Stads-en Streekbeplanners & Aanverwante Dienste
Town and Regional Planners & Ancillary Services

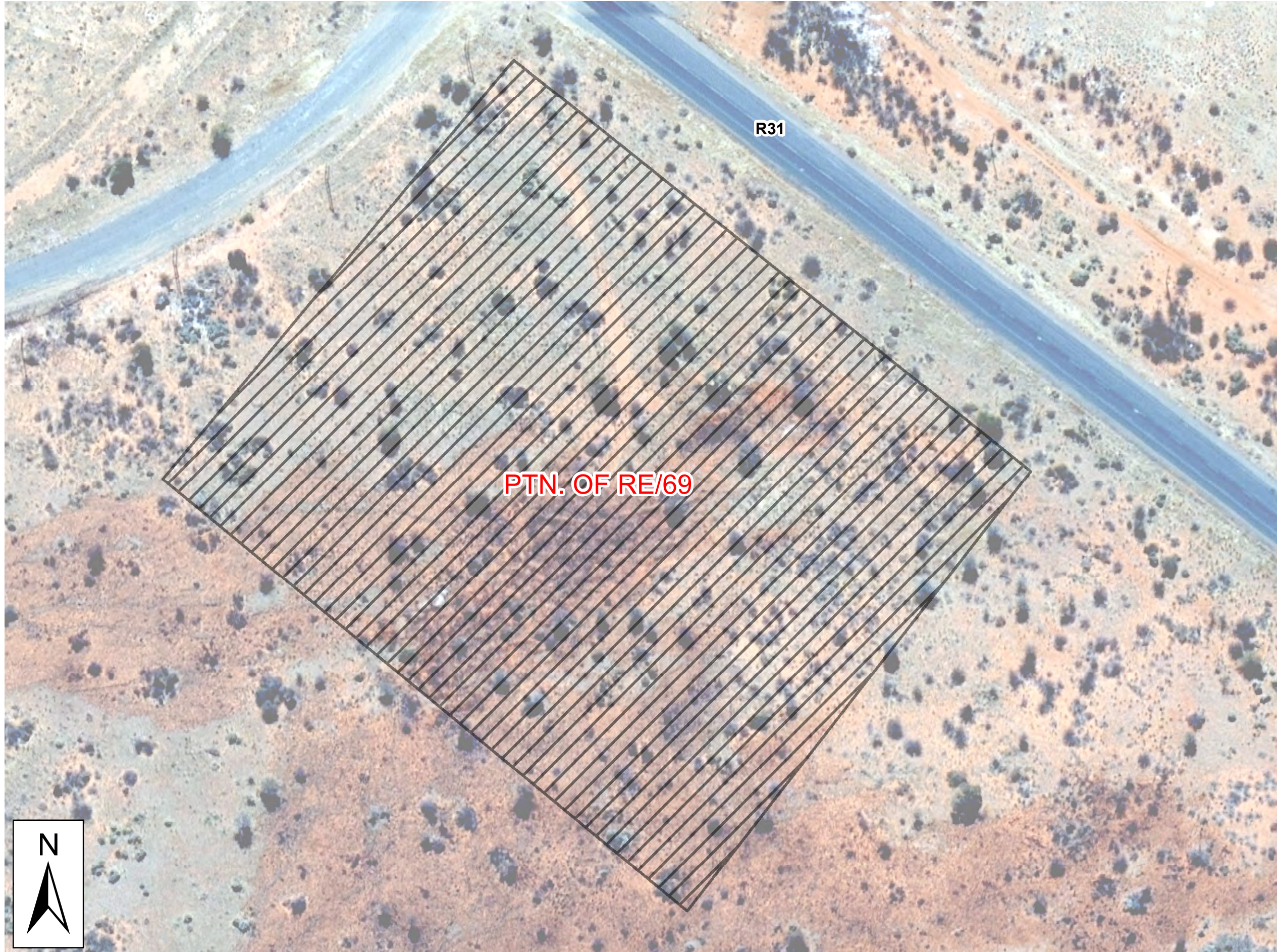
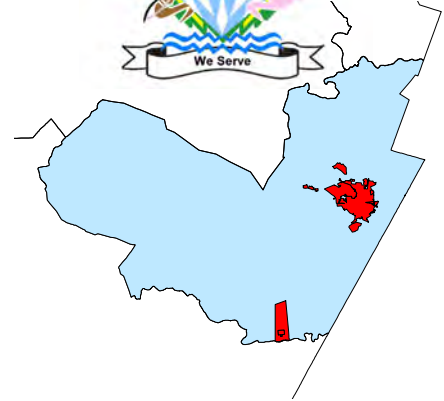
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ANNEXURE 15 – PROPOSED REZONING PLAN

**PROPOSED ZONING PLAN
PORTION OF THE REMAINDER OF FARM WILDEBEEST KUIL NO. 69; KIMBERLEY**

SOL PLAATJE LM



LEGEND

ZONING

 BUSINESS ZONE 1



REF: 7474/005



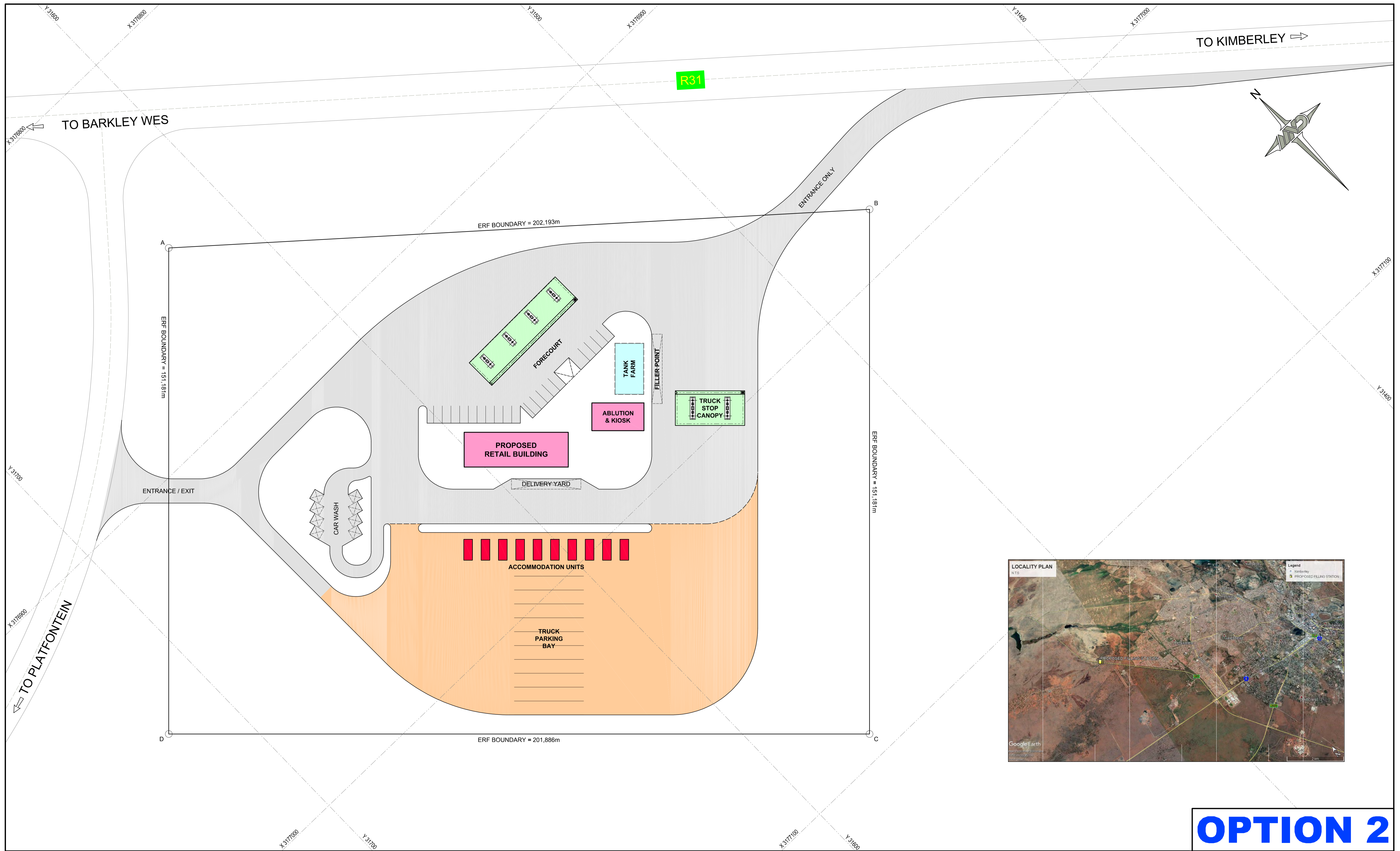
MVD Kalahari

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ANNEXURE 16 – PROPOSED SITE DEVELOPMENT PLAN



OPTION 2

NOTE/NOTA :
 NO DIMENSIONS ARE TO BE SCALED OFF ANY DRAWINGS. ALL DIMENSIONS ARE TO BE RATIFIED ON SITE PRIOR TO ANY CONSTRUCTION.
 GEEN AFMETINGS MAG VAN TEKENINGE GESKAAL WORD NIE. ALLE AFMETINGS MOET OP TERREIN NAGEGAAN WORD VOOR KONSTRUKSIE.

A BEFORE CONTRACT COMMENCES, VOOR KONTRAK IN AANVANG NEEM.
 AFTER CONTRACT HAS COMMENCED, NA KONTRAK IN AANVANG GENEEM HET.
 COPYRIGHT IS VESTED IN MVD KALAHARI IN TERMS OF THE COPYRIGHT ACT. (ACT 98 OF 1978)
 OUTEURSREG IS GEVESTIG IN MVD KALAHARI. KRAGTENS DIE WET OP OUTEURSREG. (WET 98 VAN 1978)

NO. NR.	DATE DATUM	AMENDMENTS WYSIGINGS

MVD Kalahari
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CESA
 Consulting Engineers South Africa

DESIGN ONTWERP	W. Karsten
DRAWN GETEKEN	H. Leemans
CHECKED NAGEGAAN	-----
CLIENT KLIENT	-----
DATE DATUM	June 2020

PROJECT/PROJEK
**PLATFONTEIN R31
 NEW FILLING STATION**

CLIENT/KLIENT	-----
DRAWING DESCRIPTION/TEKENING BESKRYWING	SITE DEVELOPMENT PLAN
PAPER SIZE/PAPIER GROTER	A1
SCALE/SKAAL	1:500
DRAWING No./TEKENING N.	10731
REV No.	--

DRAFT





ANNEXURE 17 – EXTRACT OF SDF

5.3.3 SETTLEMENT AREA STRUCTURING ELEMENTS

The structuring elements affecting the Settlement Area for Economic concentration is dealt with in Chapter 6 of this document.

5.3.3.1 Urban Edge

The Urban Edge for the various settlement areas, not within the settlement area of economic concentration, is as follows:

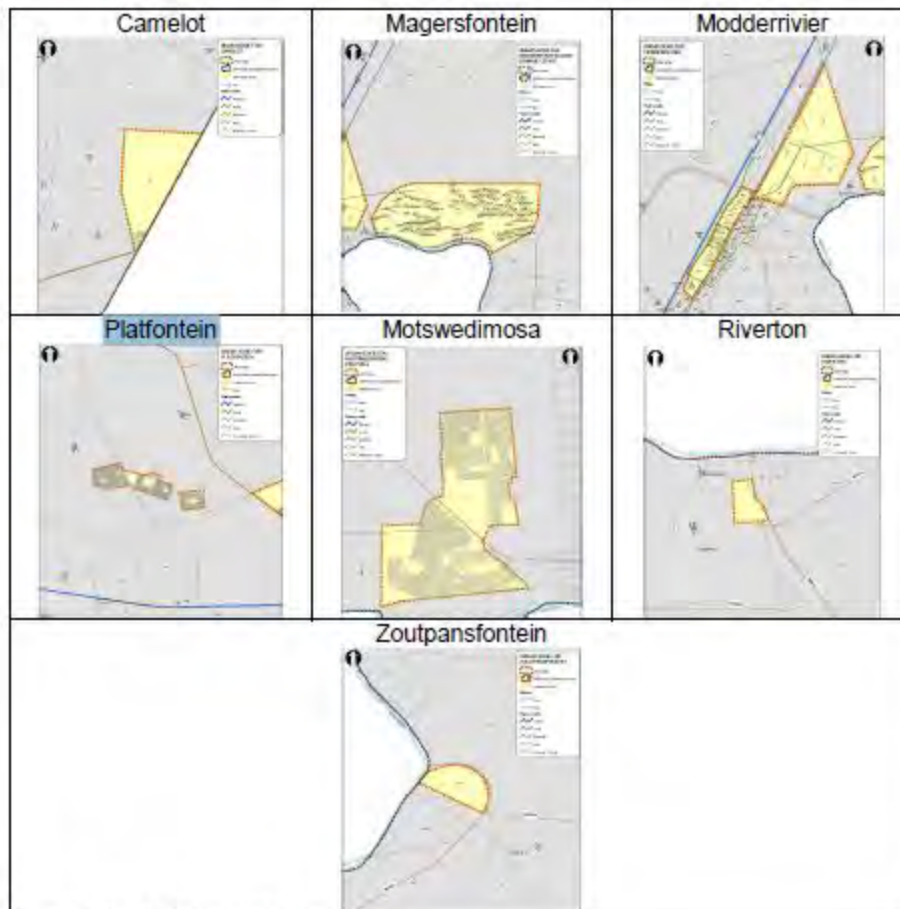


Figure 4: Urban Edge for isolated developments

5.3.3.2 Road System

Other than the demarcated collector and arterial roads all other roads are regarded as normal access roads