

Figure 32: Roads and Transportation

3.5.3 Rail

There are two freight railway lines currently in operation in the precinct:

- The line that passes south of Brits. There are two railway stations in the precinct, namely at Brits Industrial and Brits CBD;
- The second line splits from the east-west line at Brits Industria and extends northwards following the same alignment as the P110 road.

3.5.4 Road Based Public Transport

There are a number of public transport services within the study area. The Brits Taxi Association is the operated taxi association within the area, performing the function of metered taxis/shuttle on request.

The Taxi Rank in Brits is located on the R511 to Hartbeespoort Dam. Some of the taxis do offer their services to tour groups, on request. In addition to this, a variety of bus services are available in the study area.

There are two main public transport routes in the study area, namely:

- D2284 leading past Damonsville, Mothutlung towards Ga-Rankuwa.
- The Fafung-Lethlabile-Brits Public Transport Route (following P63, D1382 and P110). (Lacks direct linkages between Oukasie and Brits)

3.6 Infrastructure

3.6.1 Electricity

3.6.1.1 General

The Local Municipality of Madibeng is supplied from the Eskom network at the Brits Industries substation with a 88kV supply and at the Brits Munic Substation with a 11kV supply.

The electricity supply area of the Local Municipality of Madibeng covers the Brits Precinct Plan from the western side up to and including Damonsville on the eastern side. The area from the east of Damonsville up to the far eastern side of the Brits Precinct Plan is supplied by Eskom.

3.6.1.2 Capacity

Electricity supply to the CBD of Brits

The CBD of Brits is currently supplied from the Local Municipality of Madibeng's Brits Munic main infeed substation in Tom Street via underground and overhead networks. New businesses or residential developments in this area will be supplied with electricity from the existing electricity network. The available capacity for this area is summarized in Table 12.

Table 12: Capacity at Brits Munic Substation

Substation	Equipment Capacity (MVA)	Network Capacity (MVA)	Available Capacity (MVA)
Brits Munic Substation	60	11kV infeed supply from Eskom	8
Sportgronde Substation	N/A	10	0
Graniet Kloof Switching Substation	N/A	5	0
Total			8

It is clear from the table above that a total of 8MVA is available for developments in this area on condition that there is enough network and equipment capacity. The 8MVA that is available at the Brits Munic Substation could be used directly from the substation or from any underground network that is connected to the Sportgronde Switching Substation or from the Granietkloof Switching Substation.

Electricity supply to the North, East and South of the CBD of Brits

The area to the north, east and south of Brits CBD is currently supplied from Madibeng's Brits Industries Substation via underground and overhead networks.

The area north of the Brits CBD is currently supplied from the Local Municipality of Madibeng's Sportgronde Switching Substation in Pistorius Street and the Oukasie Switching Substation in Tambotie Street. New developments in this area will be supplied from the existing underground networks or with new supplies from the 2 switching substations

The area east of the Brits CBD is currently supplied from the Industries Substation between Railway Street and Magaliesberg Street via the Elandsrand Switching Substation at the intersection of Magaliesberg Road and Tafelberg Road.

Agriculture or any other development in this area will be supplied directly from the Elandsrand Switching Substation or from the Brits Industries Substation or from the Damonsville network.

The area south of the Brits CBD is mainly an Industrial and Agriculture area and is currently supplied from the De Kroon Substation in Piet Pretorius Street. All new industrial or agriculture developments will be supplied directly from this substation or from the underground electricity network.

The available capacity for this area is summarized in Table 13.

Table 13: Capacity at Brits Industries Substation

Substation	Equipment Capacity (MVA)	Network Capacity (MVA)	Available Capacity (MVA)
Brits Industries Substation	20	88kV infeed supply from Eskom	2
De Kroon Substation	60	99	0
Oukasie Switching Substation	N/A	6.8	0
Graniet Kloof Switching Substation	N/A	5	0
Total			2

It is clear from the table above that a total of 2MVA is available for developments in this area on condition that there is enough network and equipment capacity. The 2MVA that is available at the Brits Industries Substation could be used directly from the substation or from any underground network that is connected to the De Kroon Substation, Oukasie Switching Substation or from the Granietkloof Switching Substation.

3.6.2 Water Supply

3.6.2.1 General

Brits and the surrounding areas are still expanding at a growth rate above the average growth rate in South Africa as a whole.

This is mainly due to the mining activities in the area and the increase in agricultural and eco-tourism activities in the area.

3.6.2.2 Raw Water Supply

Raw water to Brits and the surrounding areas is supplied from the Crocodile River. The abstraction point is downstream of the Hartbeespoort Dam.

Magalies Water, who is the Implementing Agent, is responsible for the application of the Water Use License (WULA) and all activities associated therewith.

3.6.2.3 Water Purification

The design capacity of the existing Brits Water Purification Works is 60Mℓ/day. The present water demand in the Brits area is however already in the order of 80Mℓ/day.

DWA have already approved the extensions of the works with an additional 20Mℓ/day. Due to the poor water quality in the Hartbeespoort Dam and in the Crocodile River, it was decided on a granular activated carbon water purification process. This process is extremely expensive and the current cost estimate is approximately R391 million. The Local Municipality of Madibeng will contribute R91 million towards the works and the rest will be funded by DWA. A Council Resolution in this regard is however outstanding.

The future phase of 20Mℓ/day is also currently in the planning stages.

3.6.2.4 Storage Capacity

At present there is enough storage capacity available within the area supplied with potable water from the Brits Water Purification Works.

No new reservoirs are planned at this stage.

Details of the reservoirs in the area of the Brits Precinct Plan are shown in Table 14.

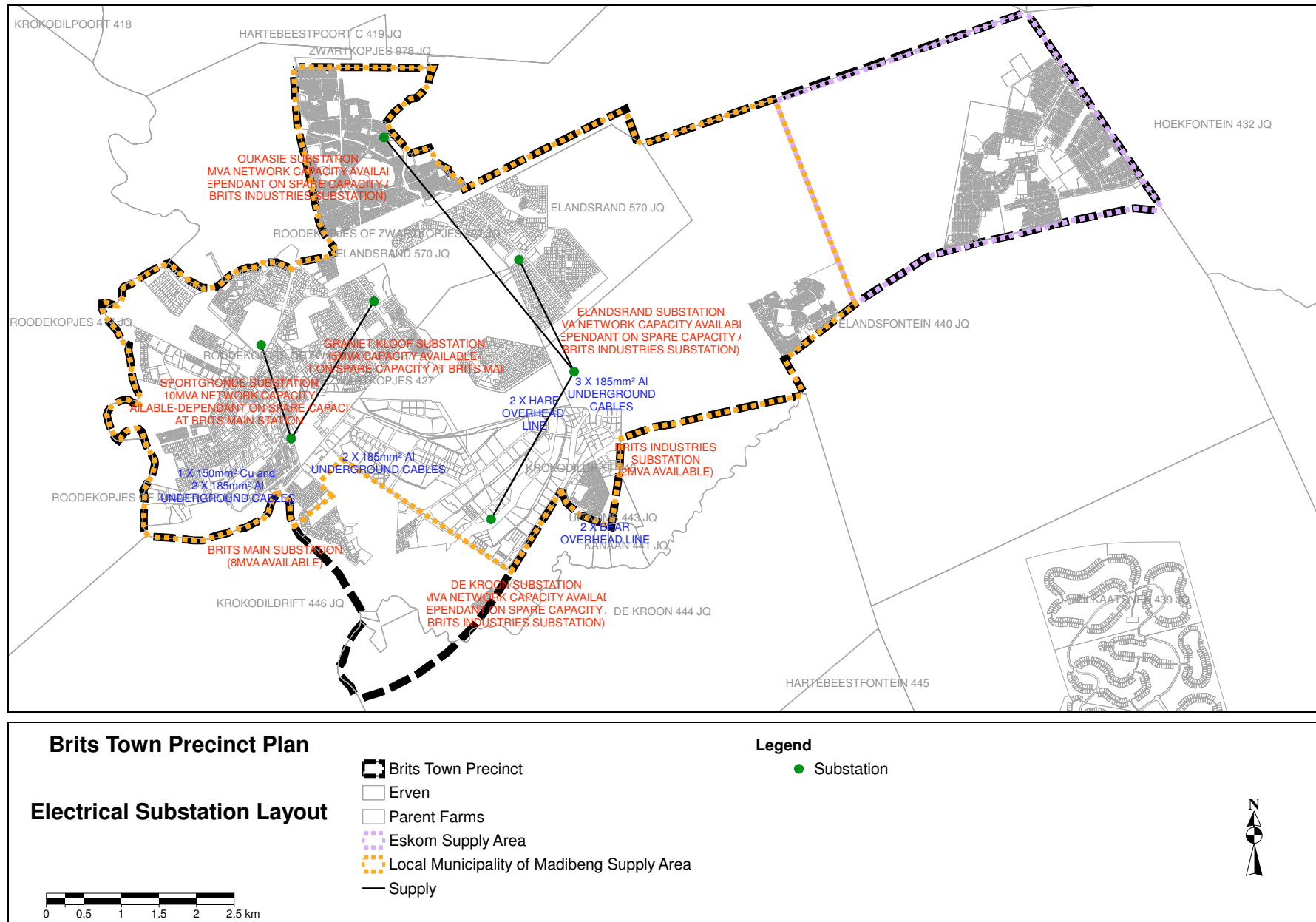


Figure 33: Electrical Substation Layout

Table 14: Reservoirs within the area of the Brits Precinct Plan

Reservoir Characteristics					
Site Name	Capacity (Ml)	Shape	Diameter/Length (m)	Height (m)	Comments
Brits Water Scheme Reservoirs					
Elandsrand	9.62	Circular	35.0	0.0	2 x 23.56Ml Reservoirs
Brits	47.12	Circular	50.0	0.0	
			50.0	0.0	
Mothutlung	11.34	Circular	38.0	0.0	
Damonsville	0.85	Circular	16.6	0.0	
Lethlabile	15.9	Circular	45.0	0.0	
Oskraal	3.71	Circular	18.0	0.0	
			24.9	0.0	
Maboloka	10.05	Circular	40.0	0.0	
Madidi	1.02	Circular	18.0	0.0	
Jericho	1.26	Circular	20.0	0.0	
Madidi 2	0.02	Rectangular	4.0	1.0	
Madidi 3	0.4	Circular	10.0	5.0	
Madidi 4	0.4	Circular	10.0	5.0	
Losperfontein	0.71	Circular	15.0	4.0	
Sonop	3.74	Circular	23.0	4.5	2 x 1.87Ml Reservoirs
			23.0	4.5	
Brits Town Pressure	0.52	Tower	4d1 10d2	9 h1	
Gerrie	0.4	Circular	10.0	5.0	

3.6.2.5 Pumps Stations

Details of the pump stations in the area of the Brits Precinct Plan are shown in Table 15.

Table 15: Pump Stations within the area of the Brits Precinct Plan

Pump Station Characteristics					
Pump Station Site Name	Pump Station Layout	Make	Impeller (mm)	RPM	Comments
Brits Water Scheme Pump Stations					
Raw Water Pump Station	Parallel	KSB	405	1460	2 x 1460RPM Pump Stations
	Parallel	KSB	405	1460	
Lethlabile	Parallel	Ernest Vogel	100	1450	
Lethlabile Tower		KSB	155	1450	
Mothutlung	Parallel	KSB	300	1450	2 x 1450RPM Pump Stations
	Parallel	Ernest Vogel	100	1450	
Brits Town	Parallel	KSB	500	1460	2 x Pump Stations
	Parallel	KSB	500	1450	
Mmakau	Parallel	KSB	250	1450	
Elandsrand Pump Station	Parallel	KSB	330	1460	2 x 1460RPM Pump Stations
	Parallel	KSB	330	1460	
Bapong Pump Station	Parallel	KSB	230	2900	

3.6.2.6 Bulk Supply Pipelines

The upgrading of the bulk water pipeline from the Brits Water Purification Works to Lethlabile/Jericho is presently in the planning process.

The section from Brits to Lethlabile is to be upgraded from a 400mm Ø to a 650mm Ø pipeline. The section from Lethlabile to Jericho is to be upgraded from a 300mm Ø to a 400mm Ø pipeline.

During discussions with officials from the local Municipality of Madibeng it was confirmed that no other new bulk supply pipelines or the upgrading of existing bulk supply pipelines are in the planning at this stage.

3.6.2.7 Brits Water Scheme

The Brits Water Scheme abstracts raw water from the Crocodile River. The raw water is pumped to the Brits Water Treatment Works and is subsequently pumped through three main pump stations in three different directions as follows :

- Brits Town Booster pumps pumping to Brits Reservoir
- Lethlabile Booster pumps pumping north to Lethlabile Reservoir and
- Mothutlung Booster pumps pumping north-east to Damonsville and Mothutlung Reservoirs.

From the Brits Reservoir the water is pumped to Elandsrand Reservoir and gravitates to the districts of Oukasie, Brits and Brits Industrial. Elandsrand reservoir supplies Gerrie Reservoir, a small reservoir that supplies the district of “25 plots” and the district of Elandsrand which subsequently supplies the district of Oukasie East to the north-east.

More detailed information is contained in the engineering report that was drafted for the purpose of this study by Civilconsult Engineers.

3.6.3 Sanitation

3.6.3.1 General

There are two main sewerage drainage areas within the Madibeng Local Municipality namely Brits (which will be mainly focussed on in this report) and Hartbeespoort. The Brits drainage area is divided into four sub drainage areas.

The different sewer schemes within the Brits drainage area and their corresponding treatment works are shown in Table 16.

Table 16: List of main sewer schemes and supply points

Sewer Schemes and Supply Points	
Treatment Works	Sewer Scheme
Brits	Brits Sewer Scheme
Mothutlung	Mothutlung Sewer Scheme
Lethlabile	Lethlabile Sewer Scheme

3.6.3.2 Brits Waste Water Treatment Plant (WWTP)

The design capacity of the Brits WWTP is 14Ml/day. The present sewage flow to the plant is in the order of 9Ml/day.

For the interim there is enough spare capacity at the Brits WWTP and no plans for any upgrades are on the table.

3.6.3.3 Brits Sewer Scheme Network

The Brits WWTP is serving Brits, Damonsville and Oukasie area.

The Brits sewerage scheme is characterized by a large number of pump stations, resulting in increased complexity and operating costs. All the sewage converges at the Brits WWTP.

More detailed information is contained in the engineering report that was drafted for the purpose of this study by Civilconsult Engineers.

3.6.3.4 Sewerage Infrastructure

The Madibeng Local Municipality is in the process to upgrade the sewage pump stations pumping sewage to the Brits WWTP.

3.6.4 Storm Water Drainage

Storm water drainage rates are among the biggest problems associated with urban development and can contribute enormously to human suffering. A large percentage of the existing storm water drainage systems is under capacity due to urban densification and previously accepted but outdated design criteria. The need for proper drainage systems is immense.

3.7 Economy

According to the Madibeng Local Economic Development Strategy, Brits is the largest commercial centre in the municipality. Business developments are characterised by a variety of wholesale and retail trade.

Economic resources within the study area are mainly resource based such as mining, agriculture and tourism.

Manufacturing is regarded as the single most important sector in the local economy of Madibeng, with Brits being the largest contributor. The automotive industry is

predominant in the study area and forms part of the Automotive cluster towards Rosslyn, Gauteng.

The industrial sector is known for its utilisation of the largest diamond saws for granite processing and for having the largest file manufacturer in the country. Categories of industries in the area include:

- Non-metallic mineral products
- Metal Products
- Machinery and household appliances
- Food and beverages
- Tobacco products
- Fuel petroleum, chemical and rubber products
- Transport equipment

3.8 Tourism and Recreation

Aside from a number of local restaurants and accommodation facilities very few tourism-related developments can be found in the precinct area. The tourist attractions in close proximity to the study area include:

- The Hartbeespoort Dam;
- Southern Place Crocodile adventures (located in the study area);
- The Lesedi Cultural Village;
- Granite Works;
- Margaret Roberts Fairy Gallery;
- Vaalkop Dam Reserve; and
- De Wildt Cheetah Centre.

