



DG Ref. No: 12022-051C/222 Rev 1

**CIVIL ENGINEERING SERVICES BASELINE REPORT
PROPOSED NEW PRINCESS MKABAYI CITY MIXED-USE
DEVELOPMENT ON ERF 6018 VRYHEID.**



General description & background of the location

This site is situated on the Southern parts of Vryburg which falls under Abaqulusi Municipality. This property are located directly east of Vryheid Airport. The site slopes in a Southern direction towards the existing Wit-mfolozi water stream.

1. ROADS

1.1 Existing roads

The nearest roads, constructed to local authority standard is Oos Street situated along the Eastern boundary of the property. Landdrost Street along the Western boundary line are a sub-standard gravel road and change to tar road further north when entering residential area.

1.2 Proposed new infrastructure

The property will obtain a main primary entrance road bell mouth from Oos street situated on the Eastern boundary & secondary entrance road bell mouth on the North Eastern corner of the development also from Oos street that will mainly cater for delivery vehicles. The necessary approvals to construct the proposed entrance roads will have to be granted by the applicable authorities, based on an approved Traffic impact study.

1.3 Materials and construction

Refer to Abaquluai Municipality latest design standards and details.

2. STORMWATER DRAINAGE – Status and technical requirements

2.1 Existing storm water reticulation

The natural slope of the proposed development drains towards the Southern boundary of the property. Wit-mfoloji water stream are positioned approximately 390m further south of the proposed new development, draining towards the low laying South Western direction.

2.2 Proposed new infra-structure

Major Storm water System

The major storm flow will surface flow via the new internal parking area towards the Southern boundary of the development, where it will overflow into the low laying neighboring property & eventually ending up in the Wit – mfoloji water stream.

Minor Storm water System

Minor storms (1:5 year recurrence interval) will flow on the new parking road surface to the newly designed stormwater inlet structures. We propose to install a new stormwater erf connection link line from the lowest South Western corner of the property up to Wit – mfoloji water stream, whereby we will discharge on the flood line by means of headwall in a controlled manner, with the necessary erosion protection measures in place, according to Abaqulusi Municipality standards.

The necessary approvals to construct the proposed new erf connection link line to discharge position, will have to be granted by the applicable authorities.

Area = 13 ha	Q2 Run off m ³ /s	Q20 Run off m ³ /s
Pre developed	0.509	1.304
Post developed	2.406	4.591

2.3 Servitudes required

New stormwater erf connection link line towards low laying Wit – mfolozi stream to be protected by stormwater servitude to be registered in favor of council.

2.4 Wayleaves

2.4.1 A wayleave application will be lodged for the upgrade or construction of infrastructure within the municipal boundary.

3. SEWAGE RETICULATION

3.1 Existing sewer reticulation

Abaqulusi Municipality to confirm the availability of existing council sewer infrastructure surrounding the proposed new development & if the system do have sufficient capacity to service the development.

3.2 Proposed new infrastructure

New internal 160dia Upvc pipes will be installed on the perimeter of the new building and drain towards the South Western lowest corner of the development. A new 160dia sewer erf connection manhole will be constructed and link to the closest existing municipal sewer main available. (To be confirmed by council).

3.3 Indicative sewage flow calculations

Sewer discharge figures are based on the Guidelines for the Design and Construction of Water & Sanitation systems.

Flow calculation based on Use Zone (Retail):

$$\text{Sewer outflow} = 35\,000\text{m}^2 \times 0.6\text{kl}/100\text{m}^2 = 210\text{kl}$$

$$\text{Sewer outflow} = 210\,000/24 \times 3600 = 2.43\text{l/s}$$

$$\text{Peak demand} = 2.43\text{l/s} \times 2.5 = 6.08\text{l/s}$$

3.4 Materials and construction

It is proposed that the materials, construction and testing of the sewer reticulation comply with all relevant SANS 1200 series of specifications.

The more important materials may be summarized as follows:

- Sewer pipes and fittings to be uPVC (Maincore) (SABS 559).
- Manholes are 1050 mm internal diameter, precast concrete manholes, constructed of dolomite aggregate (SABS 1294), with step irons (BS 1247).

Type 2A (SABS 558) manhole covers will be used for carriageways and Type 4 (SABS 558) for servitudes.

3.5 Servitudes required

No new sewer servitudes to be registered.

3.6 Bulk contributions

3.6.1 Council to confirm if bulk contributions are payable, based on the demand generated by approved property rights.

4. PROVISION OF WATER

4.1 Existing water reticulation

Abaqulusi Municipality to confirm the availability of existing council water infrastructure surrounding the proposed new development & if the system do have sufficient capacity to service the development.

4.2 Proposed new infrastructure

New internal water reticulation system to be installed along the perimeter of the buildings, supplied by a municipal reticulation network & billed thru a water erf connection meter to be installed by council.

4.3 Water demand for this development

Water demand figures are based on the Guidelines for the Design and Construction of Water & Sanitation systems.

Flow calculation based on Use Zone (Retail):

Water demand = 35 000m² x 0.4kl/100m² = 140kl

Water demand = 140 000/24 x 3600 = 1.62l/s

Peak demand = 1.62l/s x 3.3 = 5.35l/s

Fire flow medium risk Industrials = 25 l/s

4.4 Materials and construction

It is proposed that the materials, construction and testing of the water reticulation comply with all relevant SANS 1200 series of specifications.

The more important materials may be summarized as follows:

- Pipe - uPVC Ultratuff Class 12
- Bends - uPVC Superflo
- Fitting: - Cast-iron
- Valves - Class 16 gate valve SABS 664, non-rising spindle, anti clockwise closing

4.5 Servitudes required

No new servitudes will be required.

4.6 Bulk contributions

4.6.1 Council to confirm if bulk contributions are payable, based on the demand generated by approved property rights.

Kind Regards



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