

**DEVELOPMENT OF PORTION 404 (OF 44) OF THE FARM EVERTON
№ 864 DOVEHOUSE ROAD, KLOOF**

1. INTRODUCTION

High Adventure 147 cc have recently purchased the above residential property for the intention of developing it for eleven dwelling units. This report covers the provision of the civil engineering infrastructure to service the proposed development.

2. THE SITE

2.1 TOPOGRAPHY

The site is located in the north-eastern portion of Kloof off Dovehouse/Neville Road which forms its south-western boundary. It is bordered by existing residential properties to the south and along the opposite side of Dovehouse/Neville Road. To the north and east the adjacent property is vacant and forms a conservation area. The site slopes down from Dovehouse/Neville Road relatively steeply to a valley line in the north and to the top of a virtual cliff face in the east.

A water course along the northern boundary drains eastward discharging into the deep valley east of the site.

2.2 GEOLOGY

The site is underlain by Natal Group Sandstone. Details of the soil conditions are described in the attached geotechnical report prepared by D. Clark & Associates.

3. ROAD INFRASTRUCTURE

3.1 ACCESS

Access to the site is directly off Dovehouse Road which forms its western boundary.

Dovehouse Road functions as a local collector extending from Kloof through to Hillcrest. The local road network is well established and has been constructed to geometric and cross sectional standards prescribed for these types of road.



Situated almost on the boundary between the suburbs of Hillcrest and Kloof, traffic generated by the development is likely to either turn right in proceeding to Hillcrest or any other western destination or left if heading to Kloof or Durban. Assuming 70% of the traffic have the latter destination the peak hour traffic along the road network will increase by about 10 vehicles. Although localised congestion does occur during morning peak periods the road network does have the capacity to accommodate the additional traffic.

Dovehouse Road along the site frontage is 6,5m wide with levelled verges along both edges. The road is on a radius of 85m with the development situated on the outside of the curve. At the southern boundary the road is climbing at 8% to approximately the middle of the site from where the grade increases to 16%. Sight distance from the proposed access in both directions is acceptable.

3.2 INTERNAL ROADS

Access to individual units will be provided by a cul-de-sac spine road extends approximately 280m. Two smaller road cul-de-sacs also extend off the spine road. These roads will be designed as local access roads in accordance with the following:-

Maximum gradient	18% (1 in 5,5)
Road width	4,5m
Verges	1,0m both edges
Horizontal curve radius	15m

4. *SEWAGE DISPOSAL*

Sewer from the dwelling units will be disposed of on site via septic tank/French drain/evapotranspiration areas. The appropriate tests have been undertaken and the length of French drain and evapotranspiration areas determined and marked on the attached plan.

5. *STORMWATER DRAINAGE*

The stormwater drainage system will be designed to accommodate a piped network and overland flow routes for when the capacity of the pipes is exceeded.

The piped system shall be designed to accommodate 5 year return period storms with minimum pipe diameter of 200mm for drainage from buildings and 300mm diameter from roadway areas.

In terms of the eThekweni Municipality's policy for new developments the stormwater runoff from the site post development shall not exceed that from the existing site. Using the Durban Municipality's rainfall charts and the Rational Method the following was determined:-

- Area : Total site area is 5,9. The development will entail hardening approximately 5220m² comprising roadway and roofed or hardened area.
- Runoff Factor : Composite factors were calculated based on open areas 0,45 and hardened surfaces 0,9. The runoff factors (c) are pre development 0,45 and post development 0,49.
- Time of Concentration : Analysis of the flow paths and time of entry indicates that the time of concentration in both pre and post development is 22 min.

The stormwater runoff volumes are as follows:-

Run off	Pre			Post		
	10	20	50	10	20	50
Return period (years)	10	20	50	10	20	50
Intensity (mm/hr)	135	157	195	135	157	195
Q (m ³ /s)	1,00	1,16	1,44	1,09	1,26	1,57

Based on a typical triangular storm the total runoff volume is:-

Run off	Pre			Post		
	10	20	50	10	20	50
Volume (m ³)	1320	1531	1900	1438	1663	2072
	Difference			118	132	172

In order to ensure runoff generated by the 50 year return storm does not exceed that from the site pre development a retention volume of 172m³ must be provided.

It is proposed to provide this retention in three bermed excavations as indicated on the site plan.

- i) Open land in the western portion of the site 35m³ (30m long)
- ii) Below Unit 11 56m³ Berm 30m long
- iii) Below Unit 7 95m³ Berm 63m long

6. WATER SUPPLY

The site is in a well developed area with an existing full pressure water supply. No problems are anticipated with respect to either pressure or capacity as arising from the demands of the development.

7. ELECTRICAL SUPPLY

The area is served by eThekweni Electricity which has a fully developed infrastructure. No problems are anticipated in supplying the power requirements.

8. CONCLUSIONS

The proposed site is located within the well developed residential suburb of Everton. It is proposed that it be developed to accommodate 11 dwelling units. No problems are anticipated with access or bulk services supplies. The civil infrastructure proposed is in accordance with acceptable norms and standards for this type of development.

G.J. PAYNE Pr.Eng.
THEKWINI GEOCIVILS CC