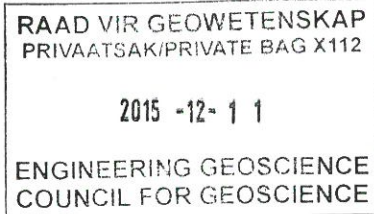


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Council for Geoscience Applied Geoscience Solutions



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No. of Pages: 3

11 December 2015

Emfuleni Local Municipality

Corner Klasie Havenga and Frikkie Meyer Boulevard
Box 3
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Dear Sir/Madame,

UNITAS PARK EXTENSION 17 ON PORTION 224 OF THE FARM HOUTKOP 594-IQ: DOLOMITE STABILITY FEASIBILITY INVESTIGATION

The firm, VGIconsult Projects (VGI) submitted their report, "Gauteng: Emfuleni Local Municipality: Unitas park Extension 17 on Portion 224 of the Farm Houtkop 594-IQ: Dolomite stability feasibility investigation", dated November 2015 on behalf of their client, Schulden Properties (Pty) Ltd, to this office for comments on 3 December 2015. This office acts as an agent to state authorities in reviewing dolomite stability investigations on their behalf. The site is earmarked for commercial development.

The site is located east of Houtkop Road and bordered by Unitas Park Extension 1 to the south-east. Unitas Park Extension 17 is located on Portion 224 of the farm Houtkop 594-IQ in the Emfuleni Local Municipality. The investigation area covers approximately 22,6ha.

The following were noted from the VGI report:

- 1) The site is currently used for agricultural purposes. The site is proposed for commercial development on eighteen stands, including a filling station, builder's yard, shopping mall, service industries and mini storage facilities.
- 2) According to the 1:250 000 scale geology map, the site is underlain by dolomite of the Malmani Subgroup of the Chuniespoort Group, Transvaal Supergroup. The chert and dolomite is overlain by shale, siltstone, sandstone and coal beds of the Vryheid Formation, Ecca Group, Karoo Supergroup.
- 3) A gravity survey on a 30 m grid by Engineering and Exploration Geophysical Services CC. Twelve boreholes were drilled across the site. Two boreholes drilled by Dolomite Technology in 2008 are also present on the site.

4) The boreholes in general encountered thin to absent colluvium overlying thin to very thick residual shale. Thin to intermediate thick horizons of chert residuum are interlayered with the residual shale. Residual dolerite is intercepted in two of the boreholes drilled in the southern portion of the site. Highly weathered soft rock dolerite and hard rock dolerite was encountered at depth. Dolomite residuum is not intercepted in any of the boreholes on site. Quartzite rock of the Black Reef Formation is intercepted at great depth in one borehole. Dolomite bedrock was not intercepted in any of the boreholes drilled to a typical depth of 60m on the site.

5) The site is located in the Klipriver Dolomite Groundwater Sub-Compartment. The regional groundwater elevation is unknown. The compartment is currently not being dewatered.

Groundwater was recorded in ten of the twelve boreholes at a depth of between 11m and 25m (1440m to 1453m AMSL). A groundwater rest level of 20m (or 1445m AMSL) is considered for the dolomite hazard assessment of the site.

6) The site was divided into two Inherent Hazard Class areas, namely:

- **Dolomite Hazard Zone 1: Inherent Hazard Class (IHC) 1//1/4.**
- **Dolomite Hazard Zone 2: IHC 1/4//1/4.**

7) In Section 9.1 of the report VGI Has indicated the following with regard to suitable land uses;

- Dolomite Hazard Zone 1: IHC 1//1/4: Design Hazard Class 1, Dolomite Area Designation D2. Commercial and miscellaneous non-residential usage; C1 (D3+FPI), C2(D3+FPI), C3(D2+FPI), C4(D2+FPI) , C5(D2+DLI), C6(D2+DLI), C7(D2), C8(D2).
- Dolomite Hazard Zone 2: IHC 1/4//1/4: Design Hazard Class 4, Dolomite Area Designation D3. Commercial and miscellaneous non-residential usage; C1 (D3+FPI), C2 (D3+FPI), C3 (D3+FPI), C5 (D3+DLI), C6(D3+DLI), C7(D3 +FPI), C8(D3).

8) VGI recommended that that the foundations design of structures for D2 areas is subject to the geotechnical properties of surficial soils within proposed footprint areas.

The foundations design of structures for D3 areas be designed to withstand a sinkhole of 5 m in diameter.

9) Precautionary measures are discussed from Section 9.4.

10) The Monitoring designation for the site is indicated in Section 9.6.

11) Dolomite Risk management is Discussed from Section 9.7.

This office would like to comment as follows:

- a) This office is broadly in agreement with the classification and assessment of the site. the design hazard classes and Dolomite area designations are supported.
- b) According to SANS 1936-1 (2012) the commercial land uses as specified by VGI in section 9.1 are permissible subject to precautionary measures and in some cases footprint investigators.
- c) This office has no object to foundation recommendations.

This office is therefore in support of commercial township establishment in Unitas Park Extension 17, conditional to the points above and the following:

- A site specific Dolomite Risk Management Plan (DRMP), in accordance with the requirements of SANS 1936-4:2012 should be compiled and implemented for the entire site. The owners/ responsible persons should familiarise themselves with the contents and implementation thereof.
- b) The precautionary measures as set out in SANS 1936 Part 3: Design and construction of buildings, structures and infrastructure, must be studied and implemented for D2 and D3 sites where applicable.
 - c) The Builder must inform the professional team when the service/foundation trenches are open for inspection takes place. The results of these inspections and quality control must be recorded in a construction report (copy to the Local Authority and this Office).
 - d) The professional team involved, including VGI, shall carefully consider the appropriate water precautionary measures and then ensure and finally certify that these have been implemented.
 - e) Wet services should be laid exactly where indicated on the drawings presented to the Local Authority, and to this Office. Wet service may not be laid below structures. The Builder or his appointed professional team should certify that they have been placed as indicated. The Home Owner must also have a copy of the exact plan presented to this Office.
 - f) The Local Authority must implement a risk management system. Commenting on the suitability of sites within its jurisdiction is based on the premise that this system will be implemented.

This letter reflects the Council for Geoscience's view and approach to development on dolomite at this time, as reflected by the above date. These comments may not be viewed as open-ended. If a property changes ownership or land-use changes are made, the comment may in part or wholly no longer apply. This Office should be informed of such changes and the Competent Person responsible for the dolomite stability investigation should be given the opportunity to indicate the influence such changes could have on the overall stability. If you have any further queries, please do not hesitate to contact this office.

Yours faithfully,


S CONSTANTINOU
Engineering Geologist
FOR Dr. S Foya



CC: VGIconsult Projects

ATTENTION: Ms. N Trollip

By email: vgicent@mweb.co.za

