

GEOIND- PERMIT NO. 6845663/91
Geol. CRUCIAT IONEL
SIBIU, Str. Saliste nr. 2

GEOTECHNICAL REPORT

WORK: BUILDING OF UNDERGROUND CARPARK CIBIN MARKET
LOCATION: right bank of Cibin River
BENEFICIARY: SIBIU MUNICIPALITY
STAGE: FS

I. GENERALE DATA

This geotechnical report was prepared based on the order placed by the beneficiary and the coordinating designer of the works, SC TRIFORELI SRL — arch. Gindila Adrian.

The purpose of the geotechnical report is to specify the stratification of the ground and establish the physical and mechanical characteristics of the rocks in order to document the conclusions in setting out the foundation conditions for the designed facility.

1. Site Location

The investigated site is located in the central part of Sibiu town, on flat stable ground, on the right bank of the Cibin River.

Site neighbors: to the north: str. Tumnlui, to the south - str. Cibin Market, to the west - str Malului and Cibin River and to the east - str. Cîbinului.

2. General Geomorphological and Geological Data

The investigated site is classified, from a geomorphological point of view, as part of the flood area of Cibin River, the permanent bed of which lies 10m west of the site.

In point of stratification, the land under the site is characterised by specific deposits in floodplain areas, forming a criss-cross stratification. Thus, below a layer of earth and asphalt fillings, gravel, bricks lies a layer of mildly clayey, loose fine dusty sand, followed by a layer of medium-coarse sand mixed with pebbles and boulders. The mixed deposits of sand and pebbles and boulders are more than 7m thick and overlay Pontic Age grey marle.

3. Seismicity of the Area. Average Frost Depth.

Regulation P100/92, classifies the investigated site in seismic area “D” with:

- coefficient: $K_s = 0.16$
- corner period : $T_c \sim 0.7 \text{ sec}$.

Average frost depth under STAS 6054/77 is 0.9 m. below the non-covered natural ground.

4. Hydrological and Hydro-Geological Data

The groundwater level is at depths ranging from: 4.0 – 4.5m below the natural ground and depends on the rainfall and the hydro-dynamic level of the Cibi

The main watercourse in the area is Cibi River, located 10m west of the site, running a permanent course, but not posing any flooding risk for the investigated site.

Seepage water from rainfall was not detected, as the formation on the ground stratification are permeable to stormwater in the investigated area.

II. LAND SURVEY.

In establishing the ground stratification and collecting rock samples, we drilled 3 (three) geotechnical boreholes (F1, F2 and F3) and 2 (two) open ditches (S1 and S2).

1. Ground Stratification

Borehole F1 (within the market towards str. Malului)

- 0.00 – 0.25m — Asphalt
- 0.25 – 1.00m. – Fill layer of black sandy earth
- 1.00 – 1.60m. —Topsoil and fill made of debris and broken bricks
- 1.60 – 3.70m. – Dark grey-blackish loose, fine dusty sand, wet, very wet, soft, from -3,20m
- 3.70 – 5.00m. – Gravel and fine-coarse sand and boulders, packed, hard

Borehole F2 (within the market site, corner of Cibi Market to str. Cibiului)

- 0.00 - 0,10m. - Asphalt
- 0.10 – 0.565 m – Earth and broken brick fill
- 0.65 - 1,60m. – Black sandy earth fill
- 1.60 – 2.50m. – Yellow, loose, fine dusty sand, very wet
- 2.501- 5.00m. – Gravel with fine-coarse sand, boulders, grey in colour, packed, saturated with water

Borehole F3 (corner of Cibi bridge with str. Malului)

- 0.00 -- 0.10m. - Asphalt
- 0.10 – 0.60m. – Gravel and packed sand fill

0.60 – 1.80m. – Brown dusty sand fill with sparse gravel
1.80 – 7.00m. – Fine and medium yellow dusty sand with sparse gravel
7.00 – 12.00m – Medium to coarse gravel with sparse boulders and grey coarse sand, saturated with water

Ditch S1

0.00 – 0.10m. - Asphalt
0.10 – 0.60m. – Fill consisting of gravel, sand, broken stone, old asphalt
0.60 – 1.50m. – Fill consisting of packed gravel, bricks, debris, boulders
1.50 – 2.50m. – Gravel with packed yellowish grey dusty sand

Ditch S2

0.00 – 0.60m. - Asphalt and broken stone, with sand
0.60 – 1.20m. – Fill of packed rolled fine and coarse gravel, with sand.
1.20 – 2.50m. – Grey, loose fine dusty sand

The prospection works undertaken are shown on the attached location plan sunt sc. 1:1000.

Based on the geotechnical survey 2 (two) geotechnical profiles were prepared, in order to show the ground structure under the investigated site.

III. FOUNDATION CONDITIONS

Based on the ground stratification and the physical-mechanical characteristics of the rocks we recommend the following foundation conditions:

- 1.) The good foundation layer: fine, loose, wet yellow and grey dusty sand.
- 2.) Minimum foundation depth $D = -1.80\text{m}$ below current ground level
- 3.) Calculate with $P_{\text{conv.}} = 200 \text{ KPa}$ under STAS 3300/2/85.
- 4.) The hydrostatic level is between $-3.8 - 4.0 \text{ m}$ below current ground level, and water may rise to -3m below current ground level during heavy rainfall episodes

Prepared by:



F3 (410.29) (pavement corner of Cibin Bridge and str. Malului) 40 m

Asphalt, gravel

Dusty sand and sparse gravel fill

Fine and medium sand with sparse gravel

Gravel with sand and spares boulders, saturated with water

S2 (410.15) (by the traffic lights) (SC PIM SA)

60 m

Asphalt

Broken stone

Fill

Dusty sand

S1 (410.05

(at the entrance to SC PIM SA

Asphalt

Broken stone

Dusty sand fill

Gravel and dusty sand

GEOIND - Permit no. 6854663/91 - SIBIU, str. Saliste, no, 2

PLATE - GEOTECHNICAL PROFELE NO. 1 - SC.1:100

WORK - DEVELOPMENT OF UNDERGROUND CIBIN MARKET CAR PARK

BENEFICIARY - SIBIU CITY

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F2 (within the market, corner of Cibir Market and str. Cibirului)

Fine yellow dusty sand

F4 (within the market, str. Malului)

Fine grey dusty sand

Asphalt

Sand fill

Sandy topsoil

Gravel with sand and boulders

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PLATE - GEOTECHNICAL PROFELE NO. 2 - SC.1:100

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GEOIND - Permit no. 6854663/91 - SIBIU, str. Saliste, no, 2

PLATE - LAYOUT PLAN 1 - SC.1:100

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