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**VERIFICATION REPORT no. 4623/28.02.2022**

**OBJECT OF VERIFICATION: GEOTECHNICAL STUDY: 69/2022**

**PHASE: UNIQUE**

At the request of the beneficiary, in accordance with the reference number NP 074/2014, the geotechnical documentation verification report was drawn up by geologist Balaneanu Ecaterina, authorized by MDLPL no. 07796, certified in the Af field – MECHANICAL RESISTANCE AND STABILITY OF THE FOUNDATION SOIL OF BUILDINGS AND EARTH MASSIVES.

Following the analysis of the geotechnical study, the following subsections of the normative framework were verified:

**1.**

**GENERAL DATA**

**1.1. TITLE OF THE WORK: "Rehabilitation and modernization of the Lucian Blaga Theoretical High School and adjacent streets"**

**1.2. ADDRESS: Strada Aleea Baisoara, nr. 2 si nr. 4, Cluj - Napoca, Judetul Cluj The location is according to the plans.**

**1.3. Beneficiary: THEORETICAL HIGH SCHOOL "Lucian Blaga" CLUJ-NAPOCA, based in Cluj-Napoca, Cluj county**

**1.4. GENERAL DESIGNER: -**

**1.5.**

THE SPECIALTY DESIGNER FOR THE GEOTECHNICAL STUDY: **S.C. SoilTesting S.R.L.** , Str. Donath, nr. 114, 4009001 Cluj-Napoca, Phone 0758655552

**1.6. NAMES AND ADDRESSES OF ALL UNITS THAT PARTICIPATED IN THE INVESTIGATION OF THE FOUNDATION LAND:**

**1.6.1. Engineer Ghbech Ali through S.C. SoilTesting S.R.L.**

**1.6.2. Geologist eng. Stefan Apopei through S.C. SoilTesting S.R.L.** Construction analysis and testing laboratory - Grade II - Authorization no. 3150/19.05.16, Str. Donath, no. 114, 4009001 Cluj-Napoca, Phone. 0758655552.

**1.7. TECHNICAL DATA PROVIDED BY THE BENEFICIARY AND/OR DESIGNER REGARDING THE INTENDED CONSTRUCTION SYSTEMS - yes**

**2. DATA REGARDING THE LAND IN THE SITE**

**2.1. DATA REGARDING SEISMIC ZONING**

Geophysical characteristics of the researched land, in accordance with the norm P-100 - 1/2013 are:

Peak value of acceleration  $a_g = 0.10$  g Corner period  $T_c = 0.7$

Frost depth = 0.80 -0.90 m

**2.2. GENERAL GEOLOGICAL DATA - yes**

**2.3. GEOMORPHOLOGICAL, HYDROGRAPHIC AND HYDROGEOLOGICAL FRAMEWORK GEOMORPHOLOGY - yes**

**2.4. LOCATION HISTORY – yes.**

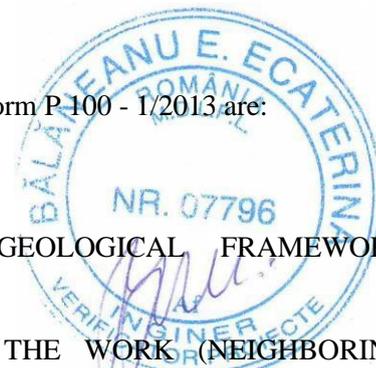
**2.5. CONDITIONS RELATING TO THE NEIGHBORHOOD OF THE WORK (NEIGHBORING BUILDINGS, TRAFFIC, VARIOUS NETWORKS, VEGETATION, DANGEROUS CHEMICALS) - yes**

**2.6. FRAMEWORK OF THE OBJECTIVE IN "RISK ZONES" (EARTHQUAKE, LANDSLIDE, FLOODING) WHICH FORM THE "NATIONAL TERRITORY DEVELOPMENT PLAN - SECTION V - RISK ZONES"**

**The inclusion of the area in P.A.T.N. – THE NATIONAL TERRITORY DEVELOPMENT PLAN**

In accordance with LAW No. 575 of October 22, 2001 regarding the approval of the National Land Development Plan - Section V - Natural Risk Areas, Published in: Official Gazette No. 726 of November 14, 2001, the areas that present a potential for the production of destructive natural phenomena are analyzed and framed.

In the sense of this law, natural risk areas are geographically delimited areas, within which there is a potential for the production of destructive natural phenomena, which can affect the population, human activities, the natural and built environment and can cause damage and human casualties.



**AT THE DATE THE EXPLORATION WORKS WERE PERFORMED, NO ACTIVE DYNAMIC PHENOMENA WERE OBSERVED.**

**3. PRESENTATION OF GEOTECHNICAL INFORMATION**

In order to determine the lithological succession, 1 geotechnical drilling and 2 foundation surveys were performed. Located according to the attached plans.

**3.1. METHODS, EQUIPMENT AND APPARATUS USED**

The drilling is carried out with a GEOTOOL mechanical drill with a diameter of 80, 60, 50 spades provided with sample retainers, a 15 cm<sup>2</sup> recoverable cone, equipped with a RSG 135 heavy dynamic penetrometer.

**3.2. THE CALENDAR DATES BETWEEN WHICH THE FIELD AND LABORATORY WORKS WERE CARRIED OUT:**

1. Field work was carried out in February 2022
2. The laboratory work was completed on 25.02. 2022, according to the attached bulletins.

**3.3. METHODS USED FOR SAMPLE COLLECTION, TRANSPORT AND STORAGE - yes**

**3.4. LAND STRATIFICATION - yes**

**3.5. THE GROUNDWATER LEVEL AND THE CHARACTER OF THE AQUIFER LAYER –** The water was not intercepted during the drilling works.

**3.6. THE AGGRESSIVE CHARACTERISTICS OF UNDERGROUND WATER AND POSSIBLY OF SOME SOIL LAYERS –**

**3.7. NAME OF THE AUTHORIZED LABORATORY THAT PERFORMED THE TESTS/ANALYSIS OF SOILS AND WATER -** The samples were analyzed at: S.C. SoilTesting S.R.L. Construction analysis and testing laboratory - Grade II - Authorization no. 3150/19.05.16, Str. Donath, no. 114, 4009001 Cluj-Napoca, Phone 0758655552.

**3.8. REPORTS ON LABORATORY AND FIELD TESTS INCLUDING TEST REPORTS, DIAGRAMS, GRAPHICS, TABLES REGARDING THE RESULTS OF THE EXPERIMENTAL WORKS - yes**

**3.10 SYNTHETIC SHEETS FOR EACH DRILL - yes**

**3.11 RESULTS OF OPEN POLLS – no**

**3.12 BULLETINS OR CENTRALIZERS FOR CHEMICAL ANALYZES - no**

**3.13 SITUATION PLANS WITH THE LOCATION OF INVESTIGATION WORKS - yes**

**4. EVALUATION OF GEOTECHNICAL INFORMATION**

**4.1. CLASSIFICATION OF THE WORK IN THE GEOTECHNICAL CATEGORY:**

The score awarded in this design phase is as follows:

Factors to Consider	Description	Scoring
Ground conditions	Good lands	2
Groundwater	No depletion	1
Construction classification by category of normal importance	Normal	3
Neighborhoods	Without risk 1	1
Seismic zone	Ag <0.15 g	1
<b>Total score = 8 points</b>		

According to the normative table, the geotechnical risk is low and the geotechnical category is 1..

Item no.	Geotechnical risk		Geotechnical category
	Type	Score limits	
1	Reduced	6.....9	1
2	Moderate	10.....14	2
3	Major	15.....21	3

**4.2. ANALYSIS AND INTERPRETATION OF FIELD AND LABORATORY WORK AND TEST RESULTS, TAKING INTO CONSIDERATION THE SAMPLING, TRANSPORT AND STORAGE METHODS AS WELL AS THE CHARACTERISTICS OF THE APPARATUS AND THE WORKING METHODS USED. IF SOME ANALYSIS ARE IRRELEVANT, COMPROMISED OR INSUFFICIENT, THIS MUST BE MENTIONED - yes**

**4.3. ASSESSMENTS REGARDING THE GENERAL AND LOCAL STABILITY OF THE LAND ON THE SITE**

On the date of carrying out the prospecting works, no active dynamic phenomena were highlighted.

#### 4.4. VALUES OF GEOTECHNICAL DESIGN PARAMETERS

Conventional pressure is calculated in accordance with NP 112-2014 - REGULATION REGARDING THE DESIGN OF SURFACE FOUNDATIONS for foundations with B=1.00 m and foundation depth Df= 2.00 m from the natural ground level.

For other footing widths or other foundation depths, the conventional pressure will be corrected according to the norm mentioned above.

**The values are those given in the geotechnical study.**

#### 4.5. THE NEED FOR THE IMPROVEMENT/CONSOLIDATION OF THE FOUNDATION LAND

It is not considered necessary to carry out stability or consolidation works of the land for the objective mentioned in the geotechnical study and declared by the beneficiary.

**The appearance of some ground movements can be triggered by major changes in climatic and anthropogenic factors - including execution mistakes.**

The documentation has been verified, which contains: 25 pages of written parts and ANNEXES

#### CONCLUSIONS

This verified geotechnical documentation: **“Rehabilitation and modernization of the Lucian Blaga Theoretical High School and adjacent streets” – Strada Aleea Baisoara, nr. 2 si nr. 4, Cluj - Napoca, Judetul Cluj** – complied with the requirements of the code: **NP 074/2014 – REGULATION REGARDING THE PREPARATION OF GEOTECHNICAL DOCUMENTATION FOR CONSTRUCTION.**

The verified documentation is valid for the objective mentioned in the content - being stamped in compliance with **MDLPA ORDER no. 817 of JUNE 23, 2021 – APPROVAL OF THE PROCEDURE REGARDING THE CERTIFICATION OF PROJECT CHECKERS AND TECHNICAL EXPERTS, published in the OFFICIAL GAZETTE no. 667 of JULY 6, 2021.**

**On the occasion of the excavation works for the foundations, namely immediately before pouring the concrete in the foundations, the geotechnical designer will be called to the site to check the foundation elevation, the nature of the land and approve the pouring of concrete in the foundations. It is categorically forbidden to pour concrete in foundations without the approval of the geotechnical designer. This note will be applied to the foundation plan and will be mandatory.**

**In accordance with NP 074/2014, after the design phase in which a geotechnical study is drawn up, the work is monitored during the execution phase by a geologist and a: GEOTECHNICAL EXECUTION MONITORING REPORT is issued, which includes the summary notes of the geotechnical monitoring (primarily the nature and characteristics of the ground encountered and their comparison with the forecasts), as well as notes on the behavior of the work in progress and the neighborhood.**

The geotechnical monitoring program of the execution and the preparation of the geotechnical monitoring report are carried out, by the care of the beneficiary, by the designer of the work as part of the technical assistance activity, together with the developer of the geotechnical study, or, as the case may be, by experts/technical project verifiers, certified for the field of Af.

**DURING THE EXECUTION, THE OBJECTIVE MAY CHANGE ITS GEOTECHNICAL CATEGORY ESTABLISHED IN THE GEOTECHNICAL STUDY.**

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**ALL THE MENTIONS INSCRIBED IN THE RECOMMENDATIONS OF THE PRESENT GEOTECHNICAL STUDY WILL BE TAKEN INTO ACCOUNT.**

This report has 3 pages

**Prepared: Received: 3 copies**

**Project verifier Af**

**Geological engineer BALANEANU ECATERINA signature**

