

## Community-led Urban Strategies in Historic Towns (COMUS)



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### Dusheti Local History Museum Rehabilitation-adaptation project

#### Feasibility study



Dusheti  
Georgia  
2017

## Foreword

The “Community-led Urban Strategies in Historic Towns” (COMUS) is a joint two-year program developed by the European Union and the Council of Europe, which is implemented in five countries: Armenia, Azerbaijan, Georgia, Moldova and Ukraine. COMUS promotes cooperation between Ministries and other local partners of the countries participating in the program to support reinvestment into historic towns. The project is implemented in nine towns where trial target works are performed to improve living conditions of citizens, support social integration and facilitate sustainable development. The activities are based on the principle of inter-disciplinary local development, which does not imply turning the town into a subject of technical conservation or rehabilitation, but converting its capabilities into social and economic resources.

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## 1. Introduction

Dusheti is located in Mtskheta-Mtianeti region and it is an administrative centre of Dusheti municipality. The town is situated 54 km away from the capital of Georgia-Tbilisi. It extends on both banks of the river Dushetiskhevi. From 1801 Dusheti officially holds the status of a town. From that time, it also has a function of an administrative centre of the municipality/district.

Due to the moderate climatic conditions, clean and transparent air, soft relief, surrounding forests, rich history, architectural heritage, cosy scene of the old town, "Boulevard" in the heart of the town, archaeological layers and antiquity, Dusheti has a great power of attraction. The town has a realistic perspective to become a scientific-cultural-educational centre of the region.

Dusheti local history museum, former postal station, so-called "Stantsia" is an outstanding and unique element of cultural heritage of Dusheti on the old route of Georgian Military Road. The former postal station is the only witness to the most important stage of the formation of Dusheti Town, when Georgian Military Road crossed the town, which played a decisive role in its development as an active trade-administrative-transit point.

The building is located in Milakhvriankari settlement near Dusheti, which is located within the administrative boundary of the town. The author of the project is Swedish architect Otto Jakob Simonson, who created almost all projects of all postal stations, so-called "Stantsias" of Georgian Military Road of late 1850's, including a typical project for 8 offices, of which one, a bit changed, is Dusheti postal station. Most of the buildings were built in the early 1860s.

Historical and cultural significance of the building, public function and extremely poor physical condition caused its selection for feasibility study.

The feasibility study consists of five main components and contains detailed description of the facility, characterizing capabilities for further development, project objectives, planned activities and expected impacts, information about the period required for the implementation of the project, basic actuators and project cost estimates. Maps, archival visual materials and photographs of the existing situation accompany the document.

The feasibility study was prepared on the basis of consultations with local field specialists and international experts of the project.

## 2. Description of the facility

### 2.1 Description of the facility and its parts

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Nowadays, only the building of the postal station is left from the complex that used to be quite large. The complex, as well as similar stations on the military road, had recreation rooms for passengers, the function of receiving and sending parcels, public catering, renting carriages and horses and providing services.

The initial design and planning of the main building still preserved to date is ascertained from the author's project maintained in the State Archive (see Annex 3). The project also shows other auxiliary buildings on the background of the main building. The archive photos and publications preserved in the State Archive and the National Library provide interesting information about the volume and territory of the complex.

In the early 1950's, the building underwent significant changes. During the Soviet period, relocation of the Georgian Military Road to the Aragvi Gorge resulted in the abolition of the function of the building and a question of its new function arose. During this period or perhaps earlier, the auxiliary facilities and stables of the complex were destroyed.

At the same time, a decision was made on arranging a Local History Museum in the building. This was followed by the adaptation of the building: the second floor was completely filled, the asymmetric silhouette was ruined, the fronton of the initial two-storied part and the two-pitch roofing, side galleries of the building were ruined and the north-east entrance was filled, internal planning was changed. Nowadays the initial original look of the building is distinguished-by existing on the first floor of the façade of the building, characteristic openings and entrance terrace with columns.

The Local History Museum was opened in 1953 and is still functional, but, due to extremely severe condition of the building in recent years, it is impossible to receive visitors (see Annex 4). Due to the severe physical condition of the building, the artefacts preserved in the building are at risk, the total number of which is 9 485 samples. It is impossible to arrange exhibitions and the materials are kept in three rooms allocated for the fund.

The main reason for the breakdown of the building was the disruption of water catchment system on the roof. During many years, due to water flows the bearing walls of the building have cracked and destroyed, which makes the most part of the building unused. In the beginning of 2017, the geological survey of the foundation



*Pic 1 and 2. Dusheti local history museum in the context of the town and region*



of the building identified the stability of the foundation. Nevertheless, there is a risk of collapse of the building if the problem of roofing, water catchment system and urgent strengthening of walls will not be resolved.

The yard adjoining the building is unused and covered with shrubbery; cypress planted in the soviet period and a small pool have been preserved, but the pool does not function.

## 2.2 Administrative information

- 2.2.1 Country: Georgia
- 2.2.2 Contact person: Tea Patashuri, Director of Dusheti Local History Museum
- 2.2.3 E-mail: [tea\\_patashuri@yahoo.com](mailto:tea_patashuri@yahoo.com),
- 2.2.4 The name and address of the buildings: Dusheti Local History Museum, Milakhvriantkari settlement, Ketevan Tsamebuli str. (Aragvispiri-Dusheti-Bagischala highway)
- 2.2.5 Cadastral numbers of the plot of land: 71.51.01.034
- 2.2.6 Type of the building/monument/sight: a, b, c, d: architectural monument
- 2.2.7 Main dates: the building was constructed in 1850-1860, in 1953 it became Local History Museum.
- 2.2.8 Current use: Local History Museum.
- 2.2.9 Cartographic information:
- 2.2.10 X: 42°08'66.68
- 2.2.11 Y: 44°68'13.35
- 2.2.12 Ownership: Dusheti municipality self-government
- 2.2.13 Main interested parties and responsible bodies:
  - Dusheti Municipality self-government
  - Non-commercial (non-profit) Legal Entity Dusheti Culture and Education Centre and its branch Dusheti Local History Museum
  - National Agency for Cultural Heritage Preservation of Georgia
  - Neighbouring population.

## 2.3 Needs and requirements

The building of the museum requires immediate strengthening and rehabilitation-restoration to ensure safety of museum personnel and exhibits and full functioning of the museum, receiving visitors and developing alternative functions.

### 3 Limitations and potential

#### 3.1 Protection and limitations

The former building of the postal station received the status of cultural heritage (Registry N 6933, 08.01.2014 of Immovable Monuments of Cultural Heritage N 6933, 08.01.2014). Accordingly, any interference in the facility and its surrounding territory shall be carried out in accordance with the Law of Georgia on Cultural Heritage, the rule and conditions of issuance of construction permits and decree N57 of March 24, 2009 of the government of Georgia on permits and International Methodological Standards of rehabilitation and restoration.

The Cultural Heritage Law also provides for the protection of the territory adjacent to the monument automatically, which in this case constitutes the area of physical protection-the height of the monument multiplied by two, but not less than 50 meters radius and visual protection area with 150 meters radius. Article 36 of the Cultural Heritage Law defines the mandatory regimes of these areas.

The National Agency for Cultural Heritage Preservation shall issue a permit for intervention on the building.

#### 3.2 Existing and additional functions

Since 1950s, the former postal station has acquired a new public function and reached the present day functioning as a Local History Museum. Nowadays the museum is officially functional, but due to poor physical condition, it is not possible to receive visitors and operate at full capacity.

Proceeding from the problems which the Local History Museum faces, the concept of transformation of adjoining Chilashvili residence into an archaeological museum, which was developed by the National Museum in 2016, implies the merger of the Local History Museum with the planned archaeological museum and housing of exhibits in Chilashvili residence. In case of implementation of this concept, the former postal station will still remain without function, the authors of the concept did not offer the options of its alternative assignment through private or state investments.

This circumstance is the additional factor for preparation of this feasibility study. Proceeding from its historic and cultural significance, the building has interesting prospects of rehabilitation and development; when these prospects will be reviewed the following criteria should be taken into account: a) high historic and cultural and architectural significance of the building b) public function c) high quality of public access.

Consequently, further development of the museum or its enrichment/replacement with new functions is desirable provided it is maintained in the municipal ownership with preservation and expansion of public function. For this purpose, one of the best options is establishment of the Georgian Military Road Museum. The building and its adjacent courtyard allows for the exhibition space, café, shop of the museum to be housed here along with other functions.



## 4 Description of the project

### 4.1 Content of the project

#### 4.1.1 Objectives and tasks of the project

The objective of the project is to enhance cultural and educational functions and tourism potential of Dusheti through rehabilitation of the former postal station, today's Local Historic Museum of Dusheti.

The target group of the project are people of all ages living and working in the town, as well as visitors and tourists of all ages.

The objectives of the project are:

1. Restoration and rehabilitation of the former postal station building;
2. Presentation and promotion of Dusheti as part of the military road at national and international level;
3. Involvement of Dusheti in regional and international tourist routes and landmark routes.

#### 4.1.2 Expected results

Since there is no museum on such topic in Georgia and in the region, the brand of the military road museum and successful activities in the museum area of Georgia and in the region/world museum landscape will serve as a locomotive for the cultural, social and economic development of the town.

Quantitative indicators:

1. The physical condition of the building is satisfactory for its subsequent exploitation;
2. The dynamics of the visitors of the museum is growing annually;
3. The number of visitors from the capital and other cities of Georgia, as well as foreign visitors is growing;
4. The museum ensures development at its territory of additional cultural and cognitive attractions, services and educational activities for its visitors;
5. The museum partners network extends across the country and beyond its borders;
6. The museum is included in the tourism guide-book and electronic resources of the town as well as the region and the country;

Qualitative indicators:

1. Increased quality of cultural life of the town;
  2. Enhanced knowledge and availability of information about the Georgian Military Road;
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3. Increased image of Dusheti as an important cultural centre.

### 4.1.3 Vision

The project serves the diversity of cultural and educational infrastructure of Dusheti, enhancing the quality of cultural life, which will eventually facilitate the establishment of Dusheti as a cultural and educational centre, attracting and retaining professional staff and arising interest of younger generation.

Since the museum related to Georgian Military Road is no longer functioning in Georgia and in the region, the prospect of successful activities of the museum are huge in the Georgian as well as region/world museum space. The cultural and educational activities of the museum, in the regional and international cooperation projects will significantly help establish Dusheti brand and promote growth of town competitiveness on the tourism market, which, in case of reasonable and sustainable planning will positively affect the town cultural, social and economic development of the town.

## 4.2 Development of the project

### 4.2.1 Technical and economic indicators of the facility:

Rehabilitation of the former postal station is divided into several stages. First of all, it is necessary to study the physical condition of the building and perform full archaeological analysis in order to identify the original and subsequent layers in the building tissue and surrounding areas.

To prepare a detailed cost estimate of rehabilitation, it is necessary to carry out preliminary and project works on the site, whose general description is given in the first and second stages of works (see below). It is assumed that the budgetary funds will be allocated from one of the responsible agencies or donor organizations which will prepare terms of reference for the implementation of preliminary works and service will be procured according to the legislation of Georgia.

According to the preliminary estimation, the development of the rehabilitation project and its highly qualified implementation will take about 36 months. The proposed timeframe and phases as well as the budget are general. To implement the project and rehabilitation works, the general assessment of the necessary funds was made on the basis of study of cost-estimate documentation of similar rehabilitation works implemented earlier, on the basis of consultations with the relevant specialists, according to the buildings and adjacent areas.

**The area of cadastral plot of land** - 3600 m<sup>2</sup> (according to the extract from the unified cadastral database of the National Agency of Public Registry for the year 2007);

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*Note:* It should be taken into account that local population illegally uses the significant part of the mentioned territory. A residential house has been built at the territory adjoining the building of the museum. To specify the actual area owned by the museum, it is necessary to prepare a new, detailed drawing of the cadastral borders of the territory.

**The total area of the existing building:** 484 m<sup>2</sup>. (Based on schematic measurement prepared at the project stage of COMUS in 2016).

*Note:* It should be taken into account that the mentioned indicator does not coincide with the information obtained from the unified cadastral base of the National Agency of Public Registry in 2007, so it will be necessary to re-specify the measurements of the building.

**Number of floors:** two floors.

**Height:** Parapet height +8.30 m.

Maximum level +9.04 m.

**The urbanization parameters approved according to the General Plan for Land Use of Dusheti (2016):**

**The type of functional zone:** public-business zone

**Land Use Intensity Recommendation Data:**

Maximum coefficient of land development (k-1) – 0,6

Maximal coefficient of development intensity (k-2) – 3,0

Minimum coefficient of landscaping (k-3) – 0,1

Number of floors: no more than four floors.

**Basic statistics of museum funds is given in Appendix 4.**

## 4.2.2 Assessment of activities

### 1 Stage: Prefeasibility Study

Term	The 1st-5 <sup>th</sup> months
Description of activities	<p>At this stage the following will be done:</p> <ul style="list-style-type: none"> <li>a) detailed art and archaeological review of the building and territory, dendrologic study to identify and assess initial and subsequent layers in the tissue of the building and its surrounding area.</li> <li>b) detailed archive and bibliographic analysis;</li> <li>c) detailed engineering study and assessment of the building, including laboratory analysis and tests of the materials;</li> <li>d) prepare a detailed survey and topographical plan according to the standards stipulated by the Law on Cultural Heritage;</li> <li>e) develop the concept of Georgian Military Road Museum (search and analysis of materials, evaluation of resources, study of international analogues, etc.);</li> <li>f) prepare detailed terms of reference for the project works of rehabilitation of the building;</li> <li>g) prepare terms of reference for the museographic project;</li> <li>h) determining the cost estimate of the project;</li> </ul>
Result	Pre-feasibility study has been conducted and on its basis detailed terms of references are developed for the purpose of drawing up rehabilitation project and museography project.
Estimated costs	30 000 ₾

### Stage 2: Preparation of rehabilitation project and cost estimate documentation

Term	The 1 <sup>st</sup> -6 <sup>th</sup> months
Description of the activity	<p>At this stage the following will be done:</p> <p>a) complete project for restoration and rehabilitation of the building and its yard in accordance with the Law on Cultural Heritage, including:</p> <ul style="list-style-type: none"> <li>- Project of the structural reinforcement of the building;</li> <li>- Project of restoration and rehabilitation of the building (including intermediate sketches and final working design);</li> <li>- Project of yard landscape design and dendrology, including the project of improvement of adjoining street/territory and elements of the urban design;</li> <li>- Project of installation of engineering services of the building and territory;</li> <li>- Urban scheme of pedestrian and transport communications existing and proposed near the centre of the town and other attractions;</li> <li>- Detailed cost estimate of rehabilitation and improvement works mentioned above.</li> </ul> <p>b) Working design of arrangement of the museum (detailed concept, zoning the use of the building/area, design of exhibition, interior design, detailed cost estimate).</p> <p>c) If the project group will be offered to add a new element at the territory and the design will be agreed by the customer, the National Agency for Cultural Heritage Preservation and the beneficiary, the rehabilitation project should also contain the design documentation of the new element.</p> <p>d) Prepare the terms of reference of the rehabilitation works and arrangement of the museum according to the developed design.</p>
Results	<p>Complete set of project documentation of rehabilitation of the building and surrounding area and arrangement of the museum, the relevant cost estimate are prepared.</p> <p>The terms of reference of rehabilitation works and arrangement of the museum are prepared.</p>

Estimated costs	95 000 ₾
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### Stage 3: Rehabilitation of the building and maintenance of the area

Term	The 1 <sup>st</sup> -12 <sup>th</sup> months
Description of the activities	<p>At this stage the following will be done:</p> <p>a) Restoration and rehabilitation of the building according to the agreed project and designer supervision;</p> <p>b) Improvement of the yard and access way and the landscape design according to the agreed design and under designer supervision;</p> <p>c) Arrangement of interior, heating and ventilation, installation of electric and engineering systems according to the design of the museum.</p>
Result	The building is rehabilitated for the museum function, the yard is improved.
Estimated costs	1 100 000 ₾

*Note: The estimated budget of rehabilitation works is indicated with due account for the current building and area of the territory. In the event that the agreed project envisages any new element, the costs of physical works will increase accordingly, as well as the term of implementation.*

### Stage 4: Arrangement of museum exhibition, equipping space, training and advance training of the employees

Term	The 1 <sup>st</sup> -4 <sup>th</sup> months
Description of the activities	<p>At this stage the following will be done:</p> <p>a) Collecting materials for museum exhibition by the relevant working group of the museum, preparing guidebooks, programs, texts, the museum and visitor management plans.</p> <p>This process should start immediately upon the approval of the project. Depending on the obtained material it is possible to make small amendments to the project of exhibition, which should be implemented by the author of</p>

	<p>the project within the scope of his obligations.</p> <p>b) Equipping the space with the relevant inventory.</p> <p>c) Training of museum personnel, including training guides.</p>
Result	Arrangement of the museum is completed, educational programs are prepared, museum and visitor management plans, existing and new personnel is prepared according to new tasks.
Estimated costs	500 000 ₾

Note: It is assumed that part of the exhibition materials will be transferred to the museum free of charge by the respective State Cultural and Educational Institutions or private individuals, but this amount also includes possible expenditures required for the purpose of purchasing important museum artefacts.

### Stage 5: Museum management

Term	Permanent
Description of the activities	<p>Management of the museum is a complex process that should be implemented according to the Unified Plan of Management developed in accordance with the annual plan; in this process the following is separated:</p> <ul style="list-style-type: none"> <li>a) Regular maintenance of a building/buildings, current repair works and expenses</li> <li>b) Maintenance and protection of the exhibition and funds, including protection of small conservation of artefacts, if required.</li> <li>c) Maintenance of the yard, plants and infrastructure;</li> <li>d) Planning and implementation of educational activities, scientific and cultural programs;</li> <li>e) Implementing and updating Visitor Management Plan;</li> <li>f) Developing and implementing a strategy for promoting communication and popularization, including strategy for search of national and international partnerships in cooperation with other cultural institutions in conformity with the concept of town tourism development;</li> </ul>
Result	The museum is successfully functioning, the building, yard and infrastructure, as well as funds and exhibition are maintained and protected. Number of visitors increases every year.
Estimated costs	100 000-150 000 ₾

Note: The museum operation costs depend on the programs and events envisaged by the Museum and Visitor Management Plans.

Today the number of employees of the museum is 6. Approximately GEL 21000 is allocated for salaries annually. For the successful functioning of the museum, it is necessary to increase the salary fund and budgets of programs according to the museum management plan.



### 4.2.3 Preliminary evaluation of the budget

The total expected cost of stages 1-4 indicated in paragraph 4.2.2 is GEL 2 000 135 (only in case of rehabilitation of the existing building and territory).

The basic costs of the 5<sup>th</sup> stage must be provided annually by the state and local budgets.

### 4.2.4 Possible sources of funding

Funds required to implement the project can be attracted from the following sources:

- Dusheti municipality
- National Agency for Cultural Heritage Preservation
- Ministry of Culture and Monument Protection
- Municipal Development Fund
- Regional Development Fund
- International grants
- Private donations.

### 4.2.5 Description of the investment and ways of its justification

Due to historical and cultural significance of the building and its status of a monument of cultural heritage, the joint obligation of its physical restoration and rehabilitation by the owner and the state is determined by the law. Accordingly, the necessity of investments from the state and self-government cannot be evaluated in terms of cost-effectiveness. The owner and the state must make the investment despite the expected quality of profit.

While developing the offer, the possibility for the development of alternative public functions (e.g. hotel, restaurant, etc.) by the private owner/user in case of alienation/lease of the building was also discussed. However, due to the fact that the building is in a very poor physical condition, the range of interference is limited by the legislation and in case of restoration of its original appearance, its already small volume will become even smaller, it is less likely that a private investor will be interested in making an investment in rehabilitation of this building. At the same time, it should be taken into consideration that the facility is far from the urban part of the town and the historic centre, and it is located quite far from the existing recreational zones (Bazaleti Lake or Kurako Forest). These circumstances constitute considerable negative factors in case of the use of the building as a hotel or a restaurant. Obviously, a positive factor is current rehabilitation project of Chilashvili residence carried out in Milakhvriantkari, however, according to the presented concept, the museum will be quite a self-sufficing unit with its own cafeteria, shop and other auxiliary elements. In this regard, the potential of adjacent MTS complex is to be adopted. Based on the foregoing, it can be assumed that for the building of the former postal station, it

will be much more efficient to offer to visitors the museum-cultural-educational and exclusive in content attraction along with Chilashvili residence, rather than giving it a competitive function, whose more fascinating and affordable competitors can develop successfully in the historic centre in a short time.

In case of rehabilitation of the building with the function of a museum, the relevant tariff policy will be defined for visitors, where for vulnerable people, pupils, visitors of pension age and guests with disabilities relieves can be established. The museum also can get income, by selling and buying printed products (postal cards, brochures, scientific works, souvenirs related to the Georgian Military Road), as well as offering various cultural and scientific packages to visitors (e.g. the horse-riding route of the old Military road, thematic festive services, etc.). Finding international donors and contributors must become an important direction of fund-rising by the museum, for which purpose a club of the friends of the museum, a fund can be established.

#### 4.2.6 Expected impact

- In case of successful communication the museum of Georgian Military Road, as an exclusive offer, can become an important contributing factor for the increase of the flow of visitors to Dusheti and social and economic improvement;
- The successful activities of the museum and increased flows of visitors will have a positive impact on Dusheti, as well as on Milakhvriantkari residence and on those villages, which are located near the river Arakali gorge on the old route of Georgian Military Road;
- Interest increased for rehabilitation of other similar preserved postal stations and assigning new functions to them (Ananuri, Pasanauri, Mleta, Gudauri, etc.). In the settlements where stations have a central location, the profitability of assigning commercial functions to them should be evaluated (e.g. network of small hotels "Stantsia" at the Military Road);
- Professional knowledge about Georgian Military Road and historic events associated with it will increase;
- A new attraction in the sphere of culture and potential for employment will be created for the population of Dusheti;
- Rehabilitation and design works, as well as maintenance works will create additional workplaces for professional architects and restaurateurs, landscape architects, urbanists, historians, museum specialists, designers, craftsmen and other professionals in the town; it will also encourage small businesses in the sphere of tourism services and souvenirs, printed products.

### 4.2.7 Risks

#### *Administrative and financial issues:*

- Failure to persuade the relevant state authorities, including the Municipal Development Fund, in the necessity of the investment;
- Insufficient funds for high quality implementation of the project cannot be mobilized;
- Weak coordination with interested parties and future partners.

#### *During rehabilitation works:*

- Failure to select qualified staff for the performance of project and rehabilitation works;
- Irrelevant, non-documented, irreversible intervention into historic building;
- Unexpected difficulties occur during physical works.

#### *After rehabilitation:*

- Failure to ensure the required annual budget for the efficient implementation of the museum programs in the medium-term perspective;
- Failure to prepare qualified programs and proposals oriented at modern visitors;
- Failure to achieve stable growth in the number of visitors;
- Failure to raise interest in cooperation among young population and specialists of Dusheti.

## 4.3 Development scenarios

Several scenarios of facility development can be considered:

1. Leave as it is: due to poor physical condition of the building the risk of its partial collapsing is high, which threatens the personnel, the artefacts preserved in the building, visitors and the adjacent inhabitants (one family). Leaving the facility unchanged will further increase future rehabilitation costs and, in the absence of financing, the risk of collapse of the building, as a result of which the town will lose a unique historical monument and potential attraction for the visitors. In addition, the neglect of the building will violate the obligations of the owner and the state stipulated by the Law On Cultural Heritage.

2. Closing the museum and emptying the building: will accelerate the physical degradation of the building and eventually cause destruction, which will threaten the surrounding population (one family) and people passing by. Eventually the town will lose a unique historical monument and potential attraction for visitors. In addition, the neglect of the building will violate the obligations of the owner and the state stipulated by the Law On Cultural Heritage.

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**3. Rehabilitation - proposed scenario:** the most significant cultural monument for the history of Dusheti will survive and be preserved. The positive impact on the socio-economic development of the town, indicated in section 4.2.6 will be received.

## 4.4 Management and sustainability:

### 4.4.1 Project management

The planning and management of the rehabilitation project will be implemented by the Integrated Management Group, established under the coordination of the municipality, which will ensure permanent involvement of the National Agency for Cultural Heritage Preservation, the staff of the Local History Museum and other specialists, at all stages of planning, designing and implementing the project. If the World Bank finances the process by the loan allocated to the Government of Georgia for the implementation of the third program of the Regional Development, the Ministry of Regional Development and Infrastructure and the Municipal Development Fund will coordinate the process management. The latter will also ensure the involvement of the self-government, as well as the National Agency for Cultural Heritage Preservation and other relevant parties at all stages of designing and implementing the terms of reference.

### 4.4.2 Future management of the facility

The exploitation expenses of the Georgian Military Road Museum, as an important cultural and educational organization for Dusheti, will be funded from the local budget, from the budget of the Ministry of Culture and Monument Protection, from own revenues and other revenues stipulated by the legislation.

Management of the museum will be carried out in accordance with the legislation of Georgia and the statute of the museum. The director, who should be chosen (for example, for 5 years) on the basis of a competition, will conduct the organizational management of the museum. The competition will be announced in accordance with the program developed with the Culture and Education Centre and museum supporting group (friends of the museum, large donors).

The management of the museum will ensure transparency of management through submittal of annual financial and program reports, statistics and analysis to the higher-level agencies and their placement on the websites and/or in the form of a publication.

The museum should operate in compliance with the universally recognized human rights, proceeding from economic and social interests of Dusheti, in accordance with the Georgian culture policy and the legislation of Georgia at the discretion of the museum management group.

To ensure implementation of democratic principles, the future management of the museum should be carried out with separation of functions of ownership and management from the political hierarchy of the municipality or central government. In order to implement this principle, it is recommended to establish

an umbrella institution of foundation type as part of the existing municipal cultural and educational institutions.

In case of establishment of a foundation, the respective municipal cultural and public property can be transferred to its ownership, which will be managed in accordance with the statute of the foundation, for which a mandatory condition is the prohibition of alienation of the property. Under the statute of the foundation, only the municipality shall have the right to abolish it on the basis of a consent of the central government and Dusheti population. However, even in this case, the abolition of the foundation does not allow for the sale of the museum property in accordance with the legislation of Georgia.

#### 4.4.3 Evaluation of the viability

The Georgian Military Road Museum is a public good, on the one hand as a facility of historical and cultural importance, which itself is sole and unique for Dusheti, and, on the other hand, as a cultural and educational institution, which will promote the formation of Dusheti image at the tourist market, strengthening the identity of local population, employment in the sphere of culture and promotion of the development of creative industries, small businesses.

Given the fact that there is no similar thematic Museum in Georgia, the museum will have the successful business potential. A museum of such profile will strengthen Dusheti at the cultural map of Georgia and the region with a narrow, but internationally significant profile.

The museum will be perfectly integrated into the cultural centre of Dusheti, with the archaeological museum located in Chilashvili residence, Museum of Modern Art, located in the building of MTS, as well as with the library and the cultural centre and other cultural institutions it will address the requirements of Dusheti population, as well as the visitors of the town. The coordinated operation of these institutions will help attract public for each of them, which will have a positive impact on Dusheti economy, improvement of quality of life of the population and formation of the image of the town.

All this will ensure the viability and success of the idea of the museum under the conditions of proper management and adequate financing.

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#### 4.4.4 SWOT analysis

Strengths	Weaknesses
<ul style="list-style-type: none"> <li>- Unique and distinct historic and cultural significance of Dusheti, the only important building associated with the Georgian Military Road;</li> <li>- Connection with Georgian Military Road of international importance;</li> <li>- A sample created by a famous architect of the 19<sup>th</sup> century;</li> <li>- Proximity with other important historic and cultural facilities (Chilashvili residence);</li> <li>- Easy access by road;</li> <li>- Function of the museum and existing personnel;</li> <li>- Support of high level professionals and accumulated knowledge about the facility;</li> <li>- Local community support.</li> </ul>	<ul style="list-style-type: none"> <li>- Poor physical condition;</li> <li>- Lack of care;</li> <li>- Lack of funding;</li> <li>- Lack of knowledge on the importance of the facility at the national level;</li> <li>- Distance from the historic centre of Dusheti, relatively difficult access for pedestrians;</li> <li>- Absence of municipal transport in the town;</li> </ul>
Opportunities	Threats
<ul style="list-style-type: none"> <li>- Location on the highway leading to Bazaleti Lake;</li> <li>- The existence of historic elements of infrastructure-bridges on the old route of the Military Road passing near Dusheti;</li> <li>- An interesting alternative connection through old Military Road route to Ananuri fortress;</li> <li>- Participation of Dusheti in the initiative of creative towns and regions funded by EU;</li> <li>- Dusheti rehabilitation process planned under the World Bank loan and the Regional Development Program implemented by the Government of Georgia;</li> </ul>	<ul style="list-style-type: none"> <li>- In case of failure to attract financing, further degradation and destruction of the building;</li> <li>- Relocation of the existing Local History Museum without determination of the future function of the building and guarantee of its rehabilitation;</li> <li>- Transfer to private ownership without relevant rehabilitation obligations;</li> <li>- Unqualified and irrelevant rehabilitation;</li> </ul>

## 5 Bibliography

- M.Mania (2016), Dusheti: Urban and Architectural Heritage, Tbilisi



- Geography of Georgia, Book I, p. 52, Tb., 2005
- K.Gvasalia, "Herald, History, Archaeology, Ethnography and Art History Series" for Georgian Military Road history, 1972, № 2;
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- R. Kverenchkhiladze, J. Gvasalia, Georgian Soviet Encyclopaedia, v. 9, p. 184, Tb., 1985
- N. Mgaloblishvili, T. Shilakadze, T. Makharashvili (1983), Along the way of friendship, Tbilisi
- G. Khutsishvili, I. Bokogolov (1983), This wonderful Georgian Military Road, Soviet Georgia, Tbilisi

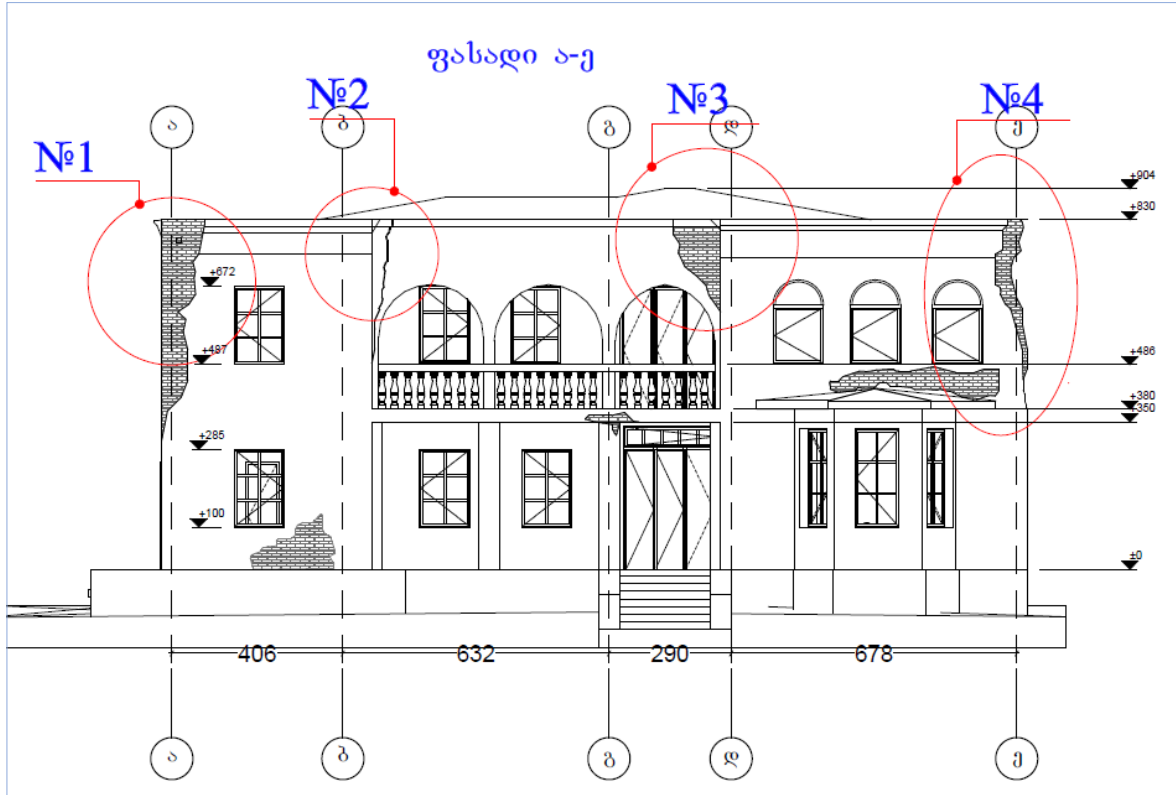
#### **Legislative acts:**

- Law of Georgia on Cultural Heritage;
- Resolution of the Government of Georgia of 24 March 2009 on the rule of issuing the construction permit and the permit conditions.

#### **Archives**

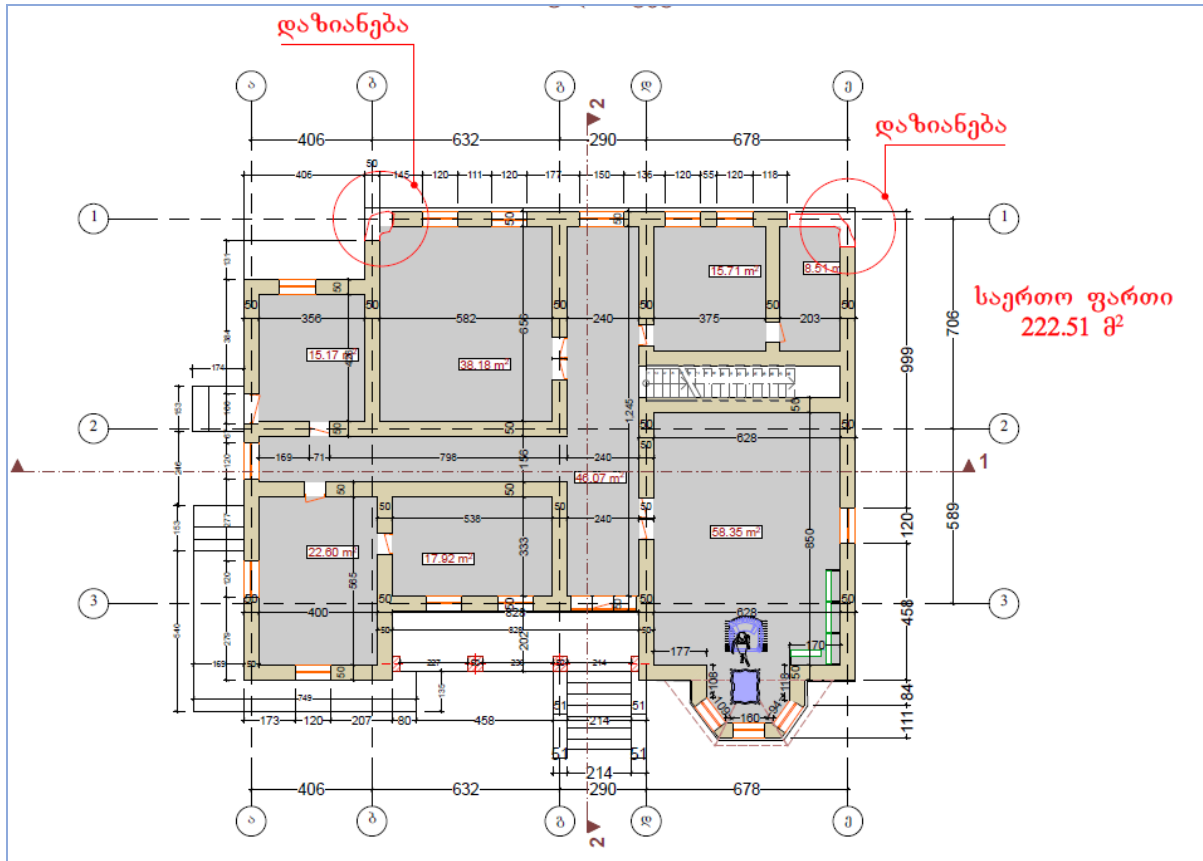
- Copy of the archive project of the building, the National Archives of Georgia (information is obtained by the architect historian Maia Mania, Dusheti: Urban and Architectural Heritage under processing);
- Registration Card of the Building, 2011, Archives of the National Agency for Cultural Heritage Preservation
- Archived photographs are kept in the museum funds of Museum of Literature, National Archives, National Library, National Museum, as well as Dusheti Local History Museum.

### Annex 1: Schematic measurements

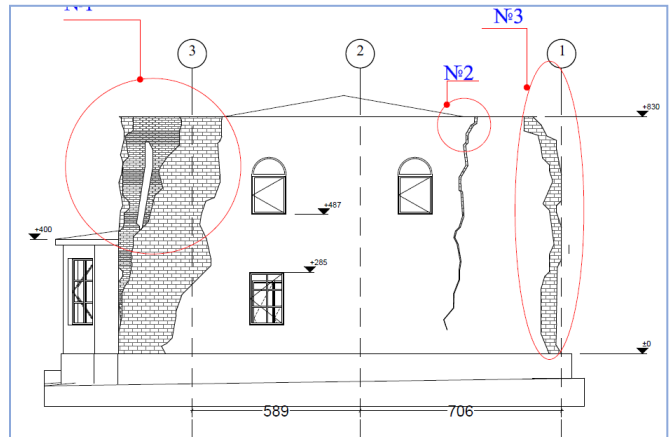
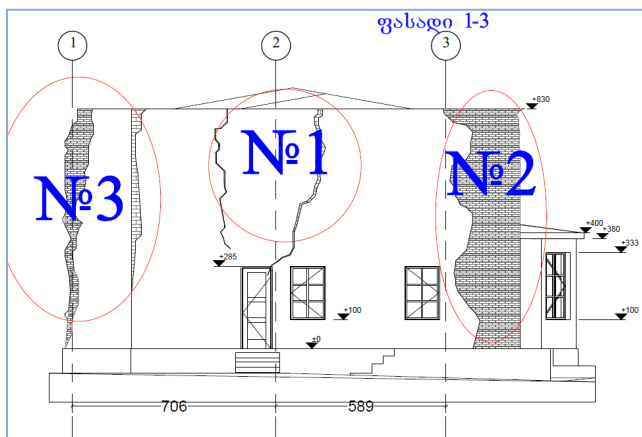


1. Facade a-e, schematic measurement, L. Ketelauri, G. Sinjaradze, 2016

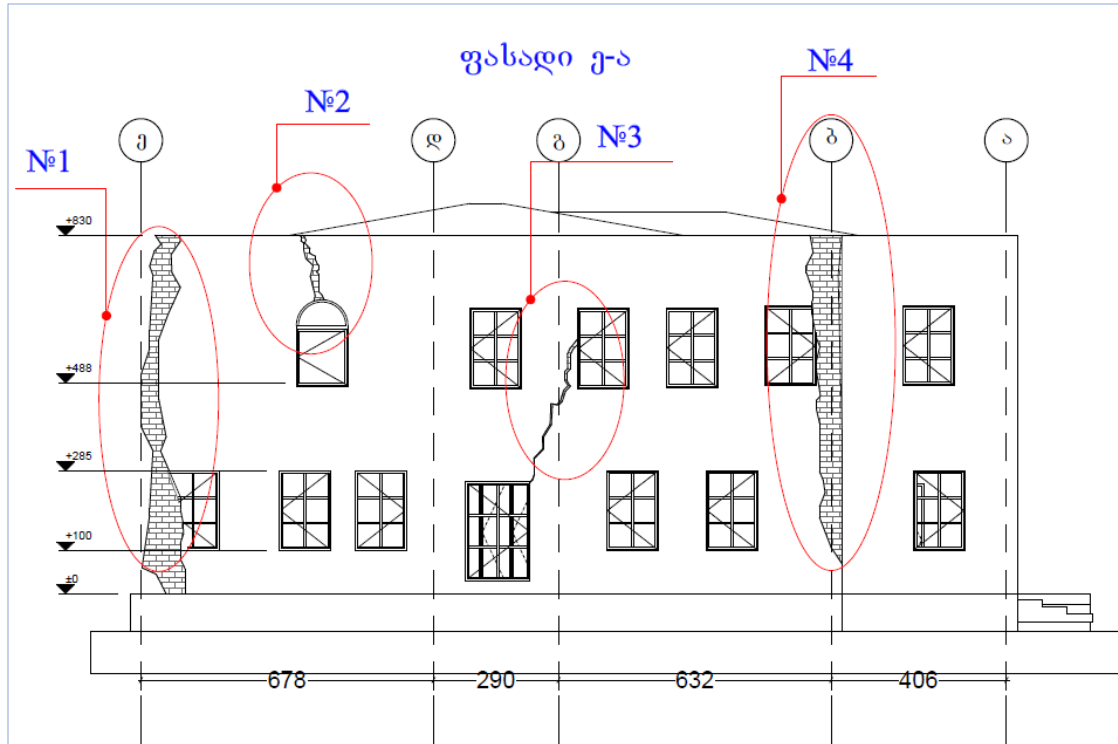




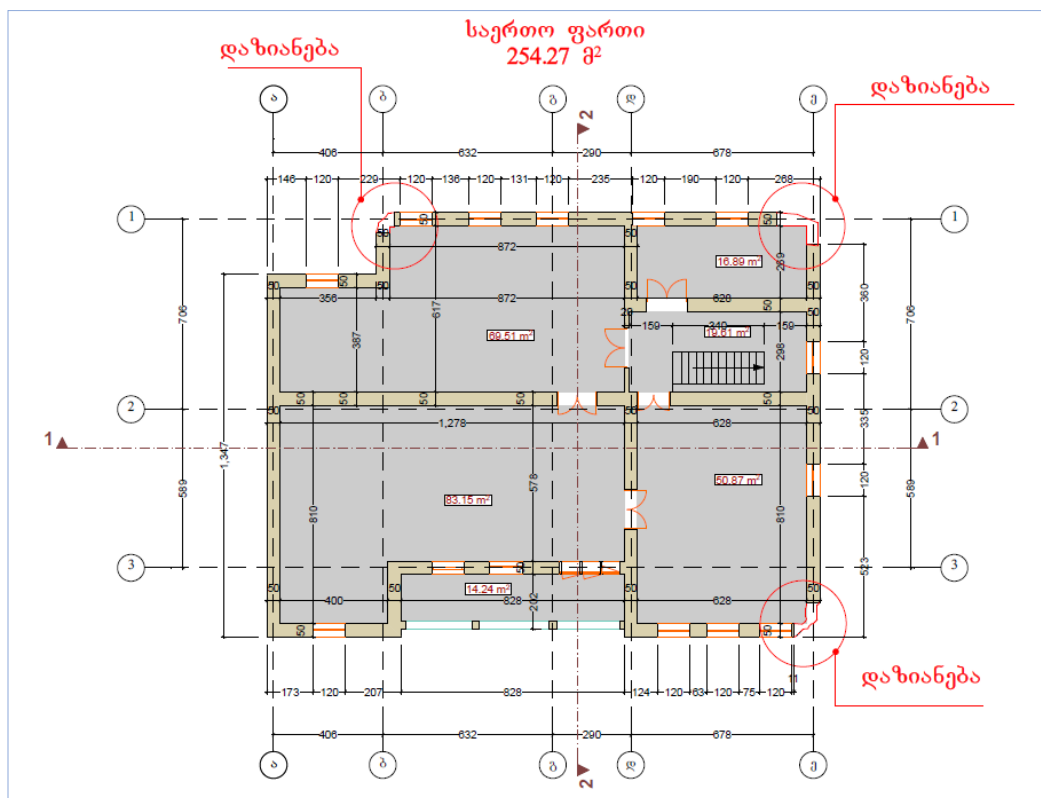
2. First floor plan, schematic measurement, L. Ketelaury, G. Sinjaradze, 2016



2. Facades 1-3 and 3-1, schematic measurement, L. Ketelaury, G. Sinjaradze, 2016



3. Façade e-a, schematic measurement, L. Ketelauri, G. Sinjaradze, 2016



## Annex 2: Current condition

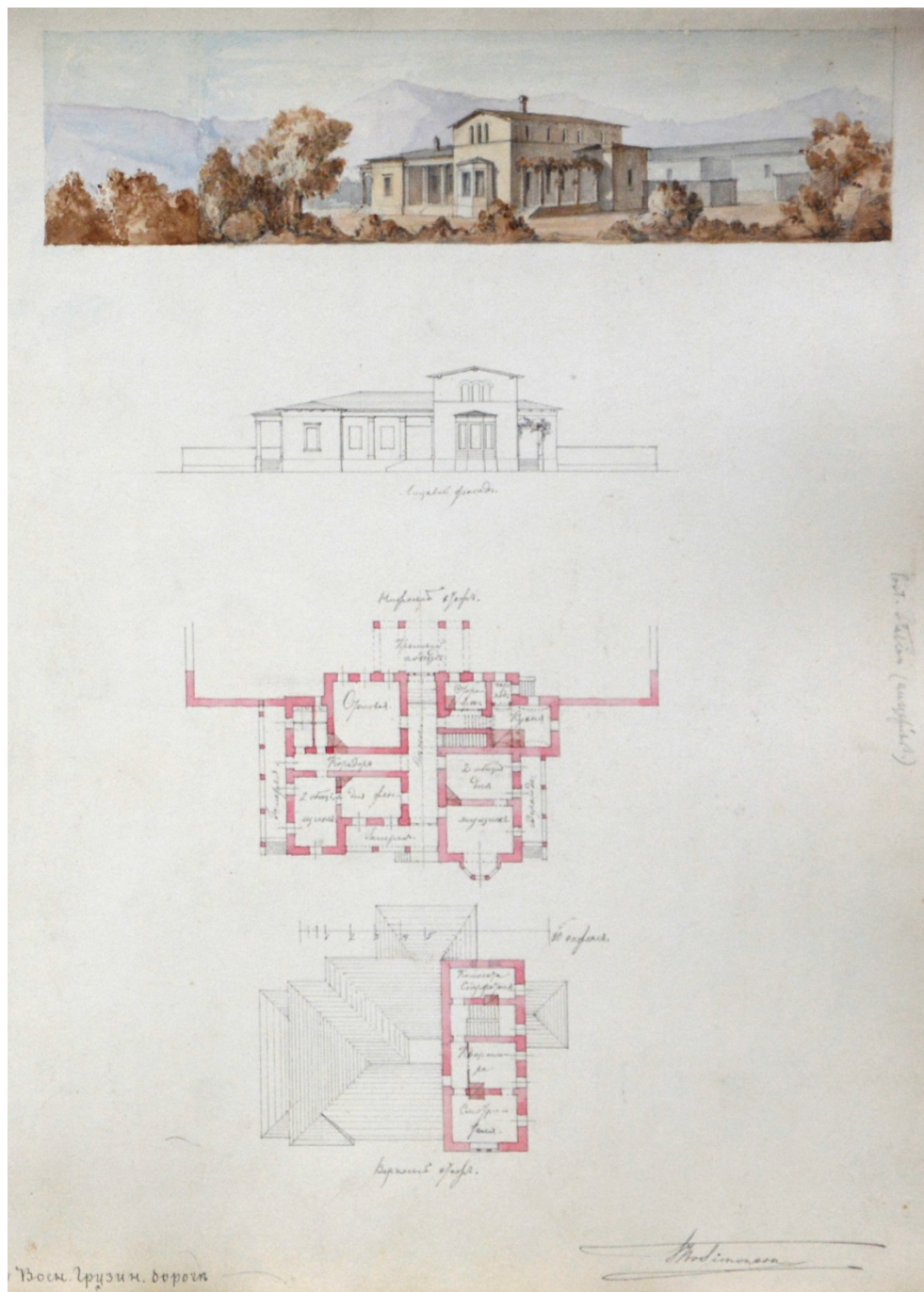








### Annex 3: Archive material



1. The initial project of Stantsia preserved in the State archive, O. Simonson (provided by M. Mania).



*2. Stanzia, archive photo, (provided by Shadi Hadadi).*



*3. Old military road near Dusheti, archive photo (from the book Along the way of friendship, Tbilisi, N.Mgaloblishvili, T. Shilakadze, T. Makharashvili (1983)*



## Annex 4: Statistical data of museum funds and visitors

### a) Materials preserved in the fund of the museum:

By 2017, 9485 artefacts are preserved in Dusheti Local History Museum:

1. Painting - 121
2. Graphics - 89
3. Sculpture - 17
4. Applied Arts - 283
5. Numismatics - 254
6. Archaeology - 135
7. Materials of life and ethnography - 91
8. Photographs - 6984
9. Documents - 212
10. Scientific support materials - 140
11. Old and Precious Metals - 203
12. Memorial objects - 5
13. Church item - 1
14. Natural Sciences - 4
15. Books, magazines and newspapers - 753
16. Movie and musical material - 174
17. Reference materials, invitations - 32.

### b) Visitors' dynamics 2009-2016:

Year	Average number of individual visitors	Number of excursion visitors	Number of excursions	Number of exhibitions
10.04. 2009	1000	300	14	0
18.03. 2010	1000	500	15	1
28.03.2011	1000	300	9	2
27.03.2012	1000	200	6	3



29.04.2013	1000	230	16	4
28.03.2014	1200	150	5	1
03.04.2015	900	80	3	2
23.03.2016	850	30	2	2
19.04.2017	900	81	5	0

## Annex 5: Conclusion on physical condition of Dusheti Municipal Museum building

The building has been studied visually and its physical condition can be noted as follows:

The building was built in the middle of the 19th century, when a famous architect of Tbilisi O.I. Simonson (1832-1914) in 1860 draw up typical projects for Russian Empire postal and military-engineering departments to be introduced in Tbilisi and the Caucasus. The building was built with Russian bricks; in the foundations stone square are used. The plan of the building is designed with longitudinal and transverse wall systems. Roofing between floors is made with wooden bars.

The building is two-story. The roof is also made of wooden structures and is covered with tin. The original plan has been significantly altered: the second floor of the building used to occupy its quarter part. Now the second floor is located on the whole perimeter.

The condition of the building according to §4- 1.1 can be assessed as bad; considering the restoration works of the building according to § 4-1.2, the risk factor is B.

Priority for intervention: a museum building or a tourist hotel.

### §7.3 Vulnerability

The building has experienced significant changes: the expansion of the 2nd floor; after that the changes were made to the stairs leading to the front and side facades; some new openings appeared.

§7.3 As noted above, the technical condition of the building is bad, which is due to:

- \_ Cracks in the walls;
- \_ Fall of corners;
- \_ Ramming of north-west wall by the longitudinal internal wall;



\_ The walls of the building are open, particularly in the corners, which is likely due to intensive yield of the building foundation compared to internal walls.

Structural damage is caused by the influence of atmospheric sediments; as it turns out, the building does not have the protective stone, concrete or asphalt trail to protect the foundations; the rain and snow sediment accumulated in the corners of the building and went into the ribs of the wall, resulting in delamination and fracture of angles.

Unqualified maintenance of the building, or to be more precise, absence of any maintenance, should be noted.

### **Summary of requested repairs**

- \_ Engineering-geological study of the territory adjacent to the building is essential;
- \_ Strengthening and reinforcing of the foundation on the whole outer contour and may be for some internal walls;
- \_ Reinforcement of cracks and coverage of the damaged surfaces with grids and concrete spraying;
- \_ Partial brick laying;
- \_ Arrangement and adjustment of moulding;
- \_ Arrangement of reinforced concrete belt at two levels;
- \_ Replacement of roof structure;
- \_ Removal of flooring and inspection of the condition of roofing rear;
- \_ Renewal of the floor;
- \_ Plastering the ceiling;
- \_ Partial adjustment of internal and external stairs;
- \_ Balconies;
- \_ Doors and windows.

As a result of the works carried out, a perfect building will be delivered.

Project division of  
National Agency of Cultural Heritage Protection of Georgia

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Chief specialist

Gigla Chanukvadze

02.08.2016

## Annex 6: Conclusion on geological conditions of Dusheti municipal museum building

Mtskheta, #50 Aghmashenebeli str.

Tel: 593 61 73 86

2 51 26 52

### Conclusion

Dusheti, Milakhvriantkari settlement, "Local History Museum" results of engineering and geological survey of the existing amortized, two-story building on 3702 ha of non-agricultural plot of land (71.51.01.034) owned by self-government unit of Dusheti municipality.

i/e O. Khizanishvili

2017

## Content

1.	Terms of reference	_3
2.	Program	_4
3.	General part	_6
4.	Special part	_7
5.	Conclusions and recommendations	_9

## Annex

1.	Geological and lithological section of the hole	3 l.
2.	Geological and lithological section of the bore	1 l.

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## Program

Dusheti district, Milakhvriantkari settlement, "Local History Museum", engineering-geological study of sustainability of existing two-storey building, the program is drawn up according to the requirements of C.N. and R. 01.02.07-87 (engineering research construction) 1.15, 1.19, 1.20, 1.21, paragraphs, p.n. 02.01-08 (foundations of Buildings and Structures), PN 01.01-09 "Earthquake-proof construction", .N. and R. IV-5-82 and state standard 25100-82 (grounds, classification).

The purpose of the research is to:

- Determine the conditions for sustainability of the existing two-storey building.

According to the targeted purpose, the following tasks are set for the soil:

1. Study of engineering geological conditions of the study area;
2. Study of the physical and mechanical properties of the soil;
3. Identification and forecasting of geological processes in the study area and its surrounding areas;

To solve the set objectives, the following works should be carried out according to the requirements of .N. and R. 1.02.07-87 «Engineering survey of the construction »:

1. Collect and process the existing library material;
2. Reconnoitre the survey area and surrounding area;
3. Engineering-geological survey of the study area;
4. Removal of remnants after mining activities;
5. Laboratory testing of soil samples and data processing;
6. Conduct of in-office studies;
7. Based on the works carried out by the engineering geologic-technical research a report (conclusion), to be drawn up according to Annex 9 of .N. and R. 1.02.07-87.

## General part

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Customer: Instructed by Dusheti Municipality and the project COMUS, in January 2017 in Dusheti region, at the territory of Milakhvriantkari settlement, I. O. Khizanishvili conducted an engineering and geological survey. The basis for the engineering and geological survey is a program developed on the basis of the terms of reference, which aims to determine sustainability, engineering and geological conditions of the amortized two-storey building existing in the "study area".

The building was built in the middle of the XIXth century, it is a two-storey building constructed with Russian bricks, the second floor was spread at  $\frac{1}{4}$  part of the building. In the 50s of the XXth century, the second floor was extended on the whole perimeter. After the reconstruction, the building has experienced significant changes, which badly reflected on its technical condition.

The roof of the building is constructed of wooden structures and covered with tin. The roof has been damaged for decades, and the water pipes and tunnels are completely destroyed. As a result of atmospheric precipitation, the north and northwest edges of the walls of the building are intensely washed away, in winter sediments are frozen between bricks and the mortar collapses, consequently the bricks get damaged and broken. The edges of the walls of the building are open on the entire length. The study area borders on the east with the asphalt route of local importance, there are plots of private land on the remaining three sides.

For the purpose of engineering and geologic assessment, at the initial stage the detailed survey of the study area and the whole perimeter of the surrounding area was conducted, the geodynamic sustainability of the territory was defined.

With the aim to determine the type of the foundation and the measurements, near east, west and south walls of the building, three holes were made manually at the depth of up to 1.30m.

The building is laid on 1.10-1.15m capacity lane foundation, the quadrates are used in the foundation, width 0.60 m. The foundation is in a satisfactory condition, there are no cracks, subsidence processes.

In order to determine the geological section near the building, one bore was drilled at the depth of 3.55 m, the drilling was carried out with a "U.K.B" type electric drill, 92 mm diameter, dry drilling, continuous removal of the borehole sample. The depth of the bore was defined taking into account paragraph 3.64 of the normative document .N. and R. 3.64.07-87 and the geological lithological structure of the study area.

There are four samples taken from the depths of the bore, which were examined in the laboratory of ground mechanics and foundations of Georgian Technical University.

#### Geomorphology, general geological and hydrogeological conditions

From geomorphological point of view, the study area is located on the north slope of the Bazaleti syncline, the area is smooth, uninhabitable, isolated, artificially elongated, perennial deciduous and bushy plants, relief from east to west.

From geotectonic point of view the study area belongs to the eastern belt zone of Georgia, the intermountain (Gudamakari and Kveritskhoveli) and Kartli molasse subzone.



Geologically, the study area is constructed with sporadically watered Mio-Pliocene lagoon-continental sediments: molasse sandstones, clays, and conglomerates, this line of rocks is known as "Dusheti order". The total length of the order ranges from 100 to 3000m, these rocks are naked on the right terrace of the river Aragvi, along several hundred kilometres, also along Dusheti entrance. Mio-Pliocene, upper sarmatian stage and miotic-pontic conglomerates are spread as a wide line along Bazaleti syncline edges, forming lifted forms of relief, which are characterized by significant, but shallow scratches, especially in the areas of Dusheti tectonic rupture. At separate areas of dissemination of lime cement conglomerates karstic occurrences are observed in the valley of river Dushetiskhevi. Conglomerates are constructed with flysch stones, size 10-15 cm, conglomerates are fine as a rule.

The area of study is characterized by accumulative relief, which is covered by alluvial- deluvial- proluvial clay-loams, clays and sandy loam, its capacity reaches 10 meters.

From hydrogeological point of view, formation, movement and distribution of ground waters at the study area, is determined by the geomorphological conditions and geological structures of the area. Groundwater feeding occurs by draining surface runoff of low mountains, as well as infiltration of atmospheric sediments in the area.

According to the Hydrogeological Zoning Scheme, the study area is included in the Artesian basin belt of Georgia and in the porous, crustacean and crusty Kartli region of the Artesian Basin.

When drawing up the conclusion, we used the library material of Sakgeology, data of geological survey conducted at the surrounding area, various scientific and literature materials.

For the assessment of climatic conditions of the study area, the data from meteorological stations and C.N. and R. "Construction Climatology" (PN01.06.-08) was used.

From the climatic point of view, the study area is located in the moderate-continental zone of Kartli, in the same way as in the rest of Kartli, two major directions of air circulation are observed. West and East, which proceeding from the peculiarities of the relief are characterized by the distinctive deviations. Flows from the West are descending and pre-condition creating drying processes, and air masses coming from the east are ascending and contribute to the processes of condensation, sedimentation. The temperature rises gradually from spring, and decreases from September, the lowest temperature is observed in January, the number of days with negative temperature is 73-79 per year. According to long-term observations, the maximum temperature in July-August is 36-38 degrees, and minimum is 21 degrees.

The relative humidity of air is 65-70%,

Average annual atmospheric sediments are 515-532 mm.

The normative value of wind pressure is once in 15 years at 0.85 kPa.

The largest wind speed with 20 years cycle is 31 m/s.

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## Special part

According to the data of the reconnoitring route conducted in the study area and its surrounding area, development of dangerous geological processes is not observed, the district is sustainable and is in satisfactory engineering and geological conditions. Based on its geomorphological, geological and hydrogeological conditions, according to Annex 10 of the C.N. and R. 1.02.07-87, it belongs to I (simple) complexity category.

Based on the data of the fieldwork and laboratory research, three layers have been defined: layer # 1 man-made layer, layer # 2 deluvial loamy clay, layer # 3 deluvial-proluvial clay.

Layer # 1 a man-made is spread around the existing building, represented by a mixture of sandy and clay soil, layer capacity of 0.35 m,

Layer # 2 deluvial loamy clay, grey-brown, semi-solid consistence, medium density, layer capacity of 0.55 m.

Layer # 3 deluvial-proluvial clay, yellowish, 25% pebble and plaster deposits, solid consistence, medium density.

On the basis of field engineering and geological and laboratory examinations and standard 20522-75 recommendations, one engineering and geological element was identified, S.G.E #1 deluvial-proluvial clay (layer 3).

S.G.E #1 deluvial-proluvial clay by its natural origin belongs to highly dispersed connected subgroup of rocks, main physical and mechanical characteristics of clay have been studied in the laboratory and their average (normative) values, which are given in Table #1.

**Table #1**

	Physical characteristics		Measurement	Range of variability of the received values	Average arithmetical (normative) value	
1	Plasticity value		Ip	One part	0.19-0.21	0.20
2	Humidity		c	%	18.5-19.1	18.8
3	Density	Soil	P	g/sm <sup>3</sup>	1.79-1.83	1.81
		Dry soil	P <sub>d</sub>		1.51-1.54	1.52
		Soil particles	P <sub>s</sub>		2.72	2.73
4	Porosity		n	One part	0.43-0.44	0.43

5	Porosity ratio	e	-	0.78-0.80	0.79
6	Fluidity indicator	$I_L$	-	-(0.08-0.12)	-0.10
7	Humidity degree	L	-	0.64-0.65	0.65

The natural humidity of the soil is less than 20%, which attributes the soil to less humid.

Since the water saturation quality  $I < 0.8$ , it indicates that the soil is incompletely saturated.

The indicators of soil strength and deformation are given in the form of ground section and compression schedules, testing of soil section was conducted according to the cutting method of professor Maslov, so-called quick cut method, on the instrument of hydro-project section. According to the classification of Professor G. Nichiporovich, the soil is of medium density.

The exception is the soil density "P", since it is included in the formula of baseline calculation, according to C.N. and R. 2.02.01-83, the statistical processing of the obtained values was conducted by State Standard method 20522-75 and the normative and reporting values of these indicators are adopted. Results of statistical processing are attached to the conclusion.

Below in table #2 values of clay settlement module (LP) are given with load  $P = 3.0 \text{ kgf/cm}^2$  (load when compression of soil is evaluated according to LP), as well as values of compressibility coefficient and deformation module with load  $P = 1.0-2.0 \text{ kgf/cm}^2$ .

Table #2

Bore ##	Depth of sampling, m.	Settlement module, ratio $I_p \text{ mm/m}$ $P=3.0\text{kg.Z/sm}^2$	Compressibility ratio $a=\text{sm}^2/\text{kg}$ $P=2.0\text{kg.Z/sm}^2$	Deformation module $E_{\text{kg.Z/sm}^2}$ $P=1.0-2.0\text{kg.Z/sm}^2$
1	1.25-1.40	26	0.011	125
1	1.75-1.95	27	0.013	127
1	2.40-2.65	29	0.014	129

1	3.00-3.25	31	0.015	130
	Average indicators	28	0.013	128

As shown in the table, according to settlement module, the soil belongs to compressible soil, as  $P = 3 \text{ kgf/cm}^2$  during loading  $LP = 26-32 \text{ m/m}$  and is in the range of  $20-60 \text{ mm/m}$ . Soil belongs to increased compressible also according to compressibility coefficient, since during load up to the  $P = 2.0 \text{ kgf/cm}^2$   $a = 0.011-0.018$  and is between  $0.01-0.01$ .

Tests on soil shift were conducted on the samples of natural humidity with  $P = 1.0-2.0-3.0 \text{ kgf/cm}^2$  load.

The following values were received:

The internal friction angle  $S = 15-17^\circ$ , specific cohesion  $C = 0.37-0.40 \text{ kgf/cm}^2$ .

For the settlement report in Table #3 the necessary physical and mechanic characteristics of clay were received: laboratory tests C.N. and R. 2.02.01-83, Annex 3, Table 1 and 3, C.N. and R. 2.02.01.-83 based on the use of auxiliary table 119, normative documents, library materials and reference literature.

Table #3

Soil characteristics	Reporting indicators		(Layer #2)
Density $\text{kgf/cm}^3$	II limit state (report on endurance)	$\rho^1$	1.82
		$\rho^2$	1.80
	I limit state (report on endurance)	$\rho^1$	1.83
	Normative value	$\rho^2$	1.79
Internal friction angle $\varphi^\circ$	II limit state	$\varphi^1$	$16^\circ$
	I limit state	$\varphi^2$	$15^\circ$
	Normative value	$\varphi^n$	$17^\circ$

Specific cohesion $C_{kp}$ (kg.f/cm <sup>2</sup> )	II limit state	$C_{II}$	39(0.39)
	I limit state	$C_I$	37(0.37)
	Normative value	$C^n$	40(0.40)
Deformation module $E$ mpa (kg.f/cm <sup>2</sup> )			12.9(129)
Reporting resistance $R_0$ kpa (kg.f/cm <sup>2</sup> )			225(2.25)
Bed ratio $k$ kg.cm <sup>3</sup>			2.5
Poisson's ratio $\mu$			0.42

## Conclusions and recommendations

From the engineering and geological point of view, the study area is sustainable and is in satisfactory conditions. There are no adverse physical and geological phenomena (landslide, karst, down flows, etc.).

1. In the north and east perimeter of the study area it is necessary to restore the R/C bearing wall.
2. Due to technical tasks, the deluvial-proluvial clay, for the condition of the foundation of the existing two-storey building, is a reliable basis, as the relative strength of clay is  $<0.01$ .
3. Around the existing building, it is necessary to restore and arrange drainage with cement mortar, to avoid drainage of atmospheric and surface waters in the foundation of the building.
4. The roof must be completely replaced and drainage pipes and leader heads arranged on it.
5. Arrangement of R/C floors at two levels.
6. Restoration and strengthening of the edges of the broken wall by means of periodic pipes on the whole perimeter, reinforcement of cracks and filling with concrete.
7. Reinforcing cracks and filling the damaged surface with concrete.
8. The territory of Georgia as part of the Caucasian seismic region belongs to the Mediterranean seismic zone and is located in the moderate zone of seismic activity. According to the decree of the Ministry of

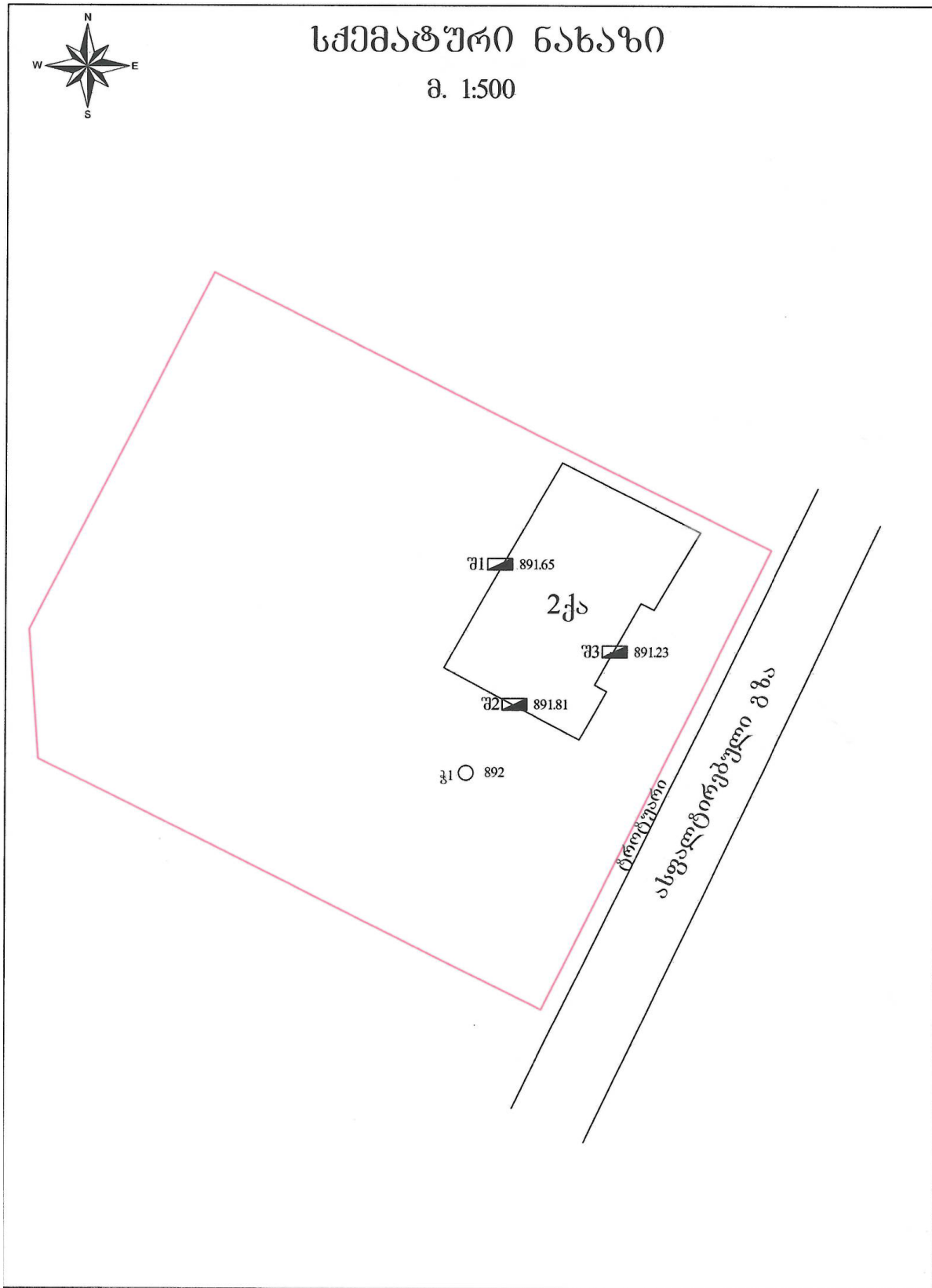


Economic Development of Georgia of October 7, 2009 "On approval of earthquake-resistant construction" (PN 01.01.09), Dusheti region according to the General Seismic zoning belongs to 8 points seismic intensity zone, with 0,15 seismic coefficient. The study area also occupies 8 seismic intensity zones.

Performer:

Engineering geologist:

O. Khizanishvili



## საინჟინრო გეოლოგიური ბარათი

ჭაბურღილი №1 მასშტაბი 1:40 აბს. ნიშნული: მ

შრი №	გეოლოგიური ინდექსი	ჭაბურღილის კონსტრუქცია	გეოლოგიური ტრილი	შრის საგების სიღრმე, მ.	შრის სიმძლავრე მ.	გრუნტის აღწერა	ნიმ. აღებ. სიღ. მ	შენიშვნა
1	2	3	4	5	6	7	8	9
1	tQ <sub>IV</sub>	მ	მ	0.35	0.35	ტექნოგენური ფენა	135	
2	dQ <sub>IV</sub>			0.90	0.55	დელუვიური თიხნარი, მორუსო-ყავისფერი, იშვიათი ხვინჯის ჩანართებით, ნახევრად მყარი კონსისტენციის, საშუალო სიმკვრივის.		
3	dpQ <sub>IV</sub>			3.55	2.65	დელუვიურ-პროლუვიური თიხა, მოყვითალო, 25% ხვინჯის, კენჯის და თაბაშირის ბუდობების ჩანართებით, მყარი კონსისტენციის, საშუალო სიმკვრივის.		