



# **Integrated Revitalization of Cultural Heritage Site of David Gareji Monastery Complex Sub-Project**

## **Environmental Review**

**WORLD BANK FINANCED  
REGIONAL DEVELOPMENT PROJECT**

**Tbilisi, Georgia**

**November 2014**

## **ABBREVIATIONS**

<b>CH</b>	<b>Cultural Heritage</b>
<b>EMP</b>	<b>Environmental management plan</b>
<b>ER</b>	<b>Environmental Review</b>
<b>EMF</b>	<b>Environmental Management Framework</b>
<b>MDF</b>	<b>Municipal Development Fund</b>
<b>MRDI</b>	<b>Ministry of Regional Development and Infrastructure</b>
<b>MoENRP</b>	<b>Ministry of Environment and Natural Resources Protection</b>
<b>MoCMP</b>	<b>Ministry of Culture and Monument Protection</b>
<b>RDP</b>	<b>Regional Development Project</b>
<b>WB</b>	<b>World Bank</b>

## Environmental Screening and Classification

The subproject (SP) envisages arrangement of the tourist infrastructure, monk cells and water supply system for David Gareji Monastery Complex. This SP is the second phase intervention of the Regional Development Project into the David Gareji site. Its purpose is to address shortfalls remaining after the first phase SP and to undertake additional works. The site is located in Kakheti region of Eastern Georgia on the semi-desert slopes of Mount Gareji, some 60–70 km southeast of Georgia's capital Tbilisi. A small part of the monastery complex (Bertubani, Chichkhitauro) is located in the territory of Azerbaijan. The complex includes hundreds of cells, churches, chapels, refectories and living quarters hollowed out of the rock face.

SP includes:

- Arrangement of a visitor's center;
- Arrangement of a parking lot;
- Rehabilitation of a farm;
- Construction of the monk cells;
- Arrangement of water supply system;
- Arrangement of sewage system and installation of a biological wastewater treatment unit.

The visitor center is located on the slope. It is a two-story building with a supporting wall with double slope. The existing building is in a need of repair. Part of the repairing works is already carried out. The staff room and bathroom repairs have to be finished, as well as arrangement of the surrounding area.

The monastery complex will have parking for 22 mini busses. Based on the existing relief conditions, the parking lot will be a two-level facility. Gap between the levels will be filled with a natural earth slope. The existing concrete wall will be covered with earth. There will be parking along the curbs and drainage channels. Two buildings existing in this area will be demolished. The existing buildings are roofed with asbestos containing slate roofs.

Wooden ranges will be installed on a dike wall. A nearby drainage pipe will be covered with earth. Concrete stairs existing on the paths will be paved with stone.

There are farm building and shepherd's house located at 250 m distance northward to the central entrance of the monastery. Under the SP, the farm territory will get fenced with a wooden fence. A concrete reservoir for manure will be placed by the farm; a drainage canal will be arranged. A slope in the backyard of the farm will be reinforced with a gabion wall. The existing roofing (tin plate) of the farm and shepherd's house will be replaced with 'Marseille' type tiling. The existing metal plastic windows will be replaced with wood-framed windows with double-glass pane.

The SP includes rehabilitation of the monk cells – one story building with pent-roof and attic. The building is located in the monastery area. The building will be finished with local natural stone; stonework type of the existing buildings will be taken into consideration during masonry works. Electric wiring, potable water supply and sewage systems will be arranged in the monk cells.

Arrangement of water supply and sewage systems includes:

- Arrangement of offshoot from water network of village Udabno to reservoir with volume 50 m<sup>3</sup>;
- Arrangement of water supplying system from water reservoir with volume - V = 50 m<sup>3</sup> through the pump station to the existing dysfunctional reservoir with volume of V = 100 m<sup>3</sup>;
- Reconstruction-rehabilitation of existing dysfunctional reservoir with volume of 100 m<sup>3</sup>;
- Arrangement of water supplying system with pipe (D110mm) from existing dysfunctional reservoir with volume of 100 m<sup>3</sup> to the reservoir (V = 100 m<sup>3</sup>) which is in proper condition and located in David Gareji;
- Arrangement of water supplying of the new infrastructure facilities with branching pipelines;
- Arrangement of biological waste water treatment unit with a capacity of 2 m<sup>3</sup> / day at the monk cells of the monastery ( the cleaned water will be discharged via existing waste water channel which is connected to the deep ravine);
- Construction of biological waste water treatment unit of the waste water treatment from new infrastructure facilities with the purification capacity of V = 6 m<sup>3</sup> / h.

**A biological treatment unit** that will be used for treating of sanitary sewage has been processed by means of new technologies.

#### (A) IMPACT IDENTIFICATION

Has the subproject a tangible impact on the environment?	The SP will have a modest negative environmental impact and is expected to have tangible long term positive impact on the social environment
What are the significant beneficial and adverse environmental effects of the subproject?	<p>The SP is expected to have positive long term environmental and social impact through improving the tourist infrastructure by reducing pollution related poor sanitation. The increased tourist flows will have positive social impact due to improving employment opportunities.</p> <p>The expected negative environmental and social impacts are likely to be minimal, short term and typical for small to medium scale rehabilitation/reconstruction works: noise, dust, vibration, and emissions from the operation of construction machinery; generation of construction waste;</p>

	<p>disruption of traffic and pedestrian access. Impact of the construction activities on the monastery life of monks will be limited and temporary.</p> <p>In operation phase increased tourist flows may have indirect negative environmental impacts: waste generation, vandalism, etc. Proper management of generated solid waste and waste water should be ensured to reduce impact on the environment. To avoid nuisance to monks following restriction measures will be implemented: prohibition of noise and shouting is at the monastery territory; limitation of photos shooting in monasteries and especially near the wall paintings; application of the dress code at the monastery site.</p>
May the subproject have any significant impact on the local communities and other affected people?	<p>No land take and involuntary resettlement are expected.</p> <p>The land plot on which visitor center and farm are located and on which the parking area will be arranged, is registered as the property of the Georgian Orthodox Church. Procedures for registration of the land plots on which water reservoirs will be placed (677m<sup>2</sup> and 243 m<sup>2</sup> respectively) is ongoing.</p> <p>Negative impacts are short term and limited to the construction site. They are related to the possible disturbance described above.</p> <p>The long term social impact will be beneficial: growth of tourist flow, attraction of private sector investment in tourism infrastructure. As a result of SP implementation, living conditions of the monks will get improved.</p>

## **(B) MITIGATION MEASURES**

Were there any alternatives to the sub-project design considered?	Alternatives for parking and other facilities have been considered and the optimal option selected.
What types of mitigation measures are proposed?	The expected negative impacts of the construction phase can be easily mitigated by demarcation of the construction site, traffic management, good maintenance of the construction machinery, observance of the established working hours, and well

	<p>organized disposal of waste to the formally agreed sites. Topsoil will be stripped, stored appropriately and used for reinstatement and landscaping. Impact on surface and/or underground water with high chlorine concentration (content) waste water that are expected to be formed in washing and disinfection process before launching operation of newly installed water pipes will be reduced by neutralization prior to release to the environment. Biological waste water treatment unit will be installed and maintained properly to avoid water pollution by newly arranged sewage system.</p>
<p>What lessons from the previous similar subprojects have been incorporated into the project design?</p>	<p>The previous design of the SP involved considerable alteration of the relief of visitors' center adjacent and parking lot areas. Concrete retaining walls were arranged for the purpose of terracing the area, which are incompatible with the SP environment. According to the new design, the relief will not be subjected to considerable alteration. Some of the concrete walls will get dismantled, while the remaining ones will be applied as supports for the parking, will be covered with earth and harmonized with environment. Moreover, in order to harmonize the gabion structure with the local environment, green space will be arranged along the existing gabions by using almond trees, which are to the maximum extent adapted with the local setting.</p>
<p>Have concerned communities been involved and have their interests and knowledge been adequately taken into consideration in subproject preparation?</p>	<p>Sagarejo Eparchy and population were informed about the upcoming plans of integrated revitalization of CH sites in a meeting held in Kakheti Governor's office in Telavi (03.02.2012) and generated positive reaction of the beneficiaries.</p> <p>SP specific EMP will be made available for Sagarejo municipality and population and will be discussed in a consultation meeting prior to the commencement of works.</p>

### (C) RANKING

Based on the screening outcomes,

Subproject is classified as environmental Category

A	<input type="checkbox"/>
B	<input checked="" type="checkbox"/>
C	<input type="checkbox"/>

Conclusion of the environmental screening:

1. Subproject is declined ☐
2. Subproject is accepted ☒

If accepted, and based on risk assessment, subproject preparation requires:

1. Completion of the Environmental Management Checklist for Small Construction and Rehabilitation Activities ☐
2. Environmental Review, including development of Environmental Management Plan ☒

## ***Social and Cultural Resource Screening of Subprojects***

<b>Social safeguards screening information</b>		<b>Yes</b>	<b>No</b>
1	Is the information related to the affiliation and ownership status of the subproject site available and verifiable? (The screening cannot be completed without this)	✓	
2	Will the project reduce other people's access to their economic resources, such as land, pasture, water, public services or other resources that they depend on?		✓
3	Will the project result in resettlement of individuals or families or require the acquisition of land (public or private, temporarily or permanently) for its development?		✓
4	Will the project result in the temporary or permanent loss of crops, fruit trees and household infrastructure (such as granaries, outside toilets and kitchens, etc)?		✓
If answer to any above question (except question 1) is "Yes", then OP/BP 4.12 Involuntary Resettlement is applicable and mitigation measures should follow this OP/BP 4.12 and the Resettlement Policy Framework			
<b>Cultural resources safeguard screening information</b>		<b>Yes</b>	<b>No</b>
5	Will the project require excavation near any historical, archaeological or cultural heritage site?	✓	
If answer to question 5 is "Yes", then <b>OP/BP 4.11Physical Cultural Resources</b> is applicable and possible chance finds must be handled in accordance with OP/BP and relevant procedures provided in the <b>Environmental Management Framework</b> .			

\* The land plot on which visitor center and farm are placed and on which the parking area will be arranged, is registered as the property of Georgian Orthodox Church. Procedures for registration of the land plots on which water reservoirs will be placed (677m<sup>2</sup> and 243 m<sup>2</sup>) respectively) is ongoing.



# Environmental Assessment and Environmental Management Plan

## 1. Introduction

### 1.1. Background Information

Government of Georgia is implementing a Regional Development Project (RDP) in Kakheti with the support of the World Bank. A number of sub-projects (SPs) are being planned and financed from the loan proceeds of RDP. The present SP that envisages integrated revitalization of the existing infrastructure of CH Sites at David Gareji Monastery as well as construction of the tourist infrastructure is part of the RDP and will be prepared, reviewed, approved, and implemented in agreement with the requirements of the Georgian legislation and the World Bank policies applicable to the RDP. Present SP is the second phase intervention of the RDP into David Gareji site and it on top of implementing new activities, this SP intends to address several issues outstanding since the implementation of the phase I works at David Gareji Monastery.

### 1.2. Institutional Framework

The Municipal Development Fund of Georgia (hereinafter: the MDF) is a legal entity of public law, the objective of which is to support strengthening institutional and financial capacity of local government units, investing financial resources in local infrastructure and services and improving on sustainable basis the primary economic and social services for the local population (communities). MDF is designated as an implementing entity for the RDP and is responsible for its day-to-day management, including application of the environmental and social safeguard policies.

MDF prepares and submits to the World Bank for approval the Subproject Appraisal Reports (SARs), with safeguards documents attached. These may include, as case may be, an Environmental Assessment (EA) along with an Environmental Management Plan (EMP), an EMP prepared using the Environmental Management Checklist for Small Construction and Rehabilitation Activities.

#### Key Stakeholders

Grant Recipient/ Borrower:	Government of Georgia represented by the Ministry of Finance
Local Representation:	Municipality of city Sagarejo, Sagarejo Eparchy
Sources of Funding/Financing:	World Bank (WB) and Municipal Government (MG)/Government of Georgia (GOG)
Implementing Agency:	Municipal Development Fund of Georgia (MDF)

#### Financial Arrangements

The estimated costs of the civil works for arrangement of the tourism infrastructure, farm rehabilitation, construction of monk cells, water supply and sewage system arrangements and installation of a biological waste water treatment unit is 735,181.87 Gel (excluding VAT and per-diems).

The total cost of the lot which includes infrastructural developments and rehabilitation works at the David Gareji Monastery and Ninotsminda Cathedral is 1,437,399.32 GEL including of VAT and per-diems.

## **Implementation Structure**

WB Loan Agreement with the GOG; Project Implementation Agreement between the Borrower (Georgia) and MDF for the project; Investment Financing Agreement (IFA) for the funding of the Integrated Revitalization of Cultural Heritage Site in David Gareji Monastery between MDF and the MG of Sagarejo.

### **1.3. Legislation and Regulations**

According to the law of Georgia on Permit on Environmental Impact (2008), the SP does not require conducting Environmental Impact Assessment and obtaining of Environmental Impact Permit.

The SP triggers the OP/BP 4.01 Environmental Assessment and OP/BP 4.11 Physical Cultural Resources safeguard policies.

According to the above mentioned safeguard policies and the Environmental Management Framework adopted for RDP, the SP has been classified as B(+) category and requires preparation of Environmental Review (ER) and environmental Management Plan (EMP). This ER and EMP have been prepared in compliance with recommendations of SECHSA and EMF.

The SP is approved by the Local self-governing (LSG) body of the local Municipality (Sakrebulo).

## **2. Subproject Description**

The SP site is located in Eastern Georgia, Kakheti Region, in Sagarejo municipality. The SP arrangement of visitor's center and the parking lot; arraignment of farm; construction of the monk cells, arrangement of water supply system, arrangement of savage system and construction of biological waste water treatment unit.

The visitor center is located on the slope. It is a two-story building with a supporting wall with double slope. The existing building is in a need of repair. Part of the repairing works is already carried out. The staff room and bathroom repairs have to be finished, as well as arrangement of the surrounding area.

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farm and shepherd's house will be replaced with 'Marseille' type tiling. The existing metal plastic windows will be replaced with wood-framed windows with double-glass pane.

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**A biological treatment unit** that will be used for treating of sanitary sewage has been processed by means of new technologies.

Construction ally- it represents a cylinder made of polypropylene, hermetically sealed from bottom. It is fenced with polypropylene from inside and divided into several areas of treatment. It is characterized:

1. High quality of waste water treatment.
2. Electric power saving technology.
3. The facility is fully automated. No necessity of permanent supervision. The process of treatment of waste waters is fully automated, which enables optimization of the process of treating. It means that in the process of treatment of waste waters it can switch according to the flow automatically to the first, second and third saving modes. And moreover, it can operate in forced mode. The facility is equipped with emergency warning system when:
  - Electric power is switched off.
  - Any unit fails.
  - Filling of the receiver cell with large, rough items.
4. The sewer can be operated remotely from the watch house.
5. No need for cesspool truck for removing of waste. Accumulation of excess active slime is made in the bag inside the treatment facility, which is removed manually and put into a closed container. A new bag is put in its place.

6. Water treatment technology is made so that methane and hydrogen are not liberated, which enables the treating facility to be close to the building. Moreover, the process of nitrification and denitrification is repeated there several times, which enables reducing of phosphorus and nitrogen in the treated water.
7. In case of power outages, it can push earlier treated water from its sewer and continue working as multistage sediment chamber, which enables purification of waste waters from grease and floating waste. Upon restoration of power supply the facility starts operating in the normal mode.
8. A sewer is made by means of controllable lifts, which is expected to receive maximum volume expenditures, enabling avoidance of leakage of untreated water from the facility.
9. The facility is made of polypropylene, which is not chemically active. It does not corrode, it is hermetic, it is small and light-weight.
10. With new technical solutions, high reliability, long-term service, low power consumption and high quality treatment of waste water.

The treating facility envisages chlorination of waste water; it is located under the manhole. Supply of already prepared hypochlorite is performed automatically.

Neutralization of biologically treated water is performed by means of hypochloride sodium solution. The rated dose of hypochloride sodium solution is  $3\text{gr/m}^3$  ( $3\text{mg/l}$ ), with 30 minutes duration of contact with water. In the period of exploitation the exact amount of active chlorine will be determined, which must be about  $1.5\text{ g/m}^3$  after half an hour. Treated water from treating facility flows into the ravine into stream.

### 3. Baseline Environmental Conditions

#### Location and population

Sagarejo Municipality (historically known as Gare Kakheti) is located in the eastern part of Georgia. The municipality is bordered by the municipalities of Gurjaani, Gardabani and Tianteti from East, West and North correspondingly, whereas the south borderline is shared with Azerbaijan. The municipality center is Sagarejo, located 45 km eastwards from the Capital city of Tbilisi, 772 meter above the sea level. The municipality area is  $1553.69\text{ km}^2$ . In Population – 59.8 thousand. The ethnicity of Sagarejo municipality population is diverse. It consists of Georgians, Azeri, Armenians, Russians, Ukrainians, Osetians, Greeks, Kists, etc.

#### Morphological, geological, tectonic and hydrogeological conditions

According to the tectonics, Kakheti region includes three large geotectonic blocks. Sagarejo municipality is located in eastern subsidence zone of Georgian lump (intermontane depression), which is presented by Outer Kakheti sub-zone within the limits of Kakheti. Low- and middle-mountainous Tsiv-Gombori ridge ( $1000\text{-}2000\text{ m}$ ) of a common Caucasioni direction, which is a large young anticline developed on the substrate of Pliocene Molassa deposits. The given deposits are situated in an unconformity on the Cretaceous and Paleogene complex-folded flysch deposits. In the crest part of Tsiv-Gombori ridge and upper step of its northern slope, there are fragments of plain-wavy watersheds and denudation surfaces surviving. Its surfaces are dissected by breakthrough gorges and all of them are characterized by occurrence of strong mudflow processes.

#### General assessment of hazardous geological processes

Southern part of Kakheti region, including Vaslovani protected area and David Gareji (planned protected landscape) are located within earthquake intensity of 7 grade, the central part comprising Dedoplistskaro and Sagarejo falls within 8 grade.

Areal and wind erosions are intense in Kakheti region. Dedoplistskaro region and southern territories of Sagarejo and Signagi regions are the regions with particularly intense areal and wind erosions. Thousands of hectares of agricultural plots of field in the named areas are badly damaged and are in fact excluded from the land fund due to the erosive processes.

### **Brief description of hydrographical network**

The main river of the municipality is river Iori. Since the construction of Sioni water reservoir on the river Iori, the river flow in the lower reaches has been totally regulated. The river Iori crosses the Iori slope from south.

Geo-botanical district of Iori upland comprises vast territory between rivers Kura-Alazani. It is stretched over 168 km to the south-east of Tbilisi till border with Azerbaijan. The maximum width of the area is 55-60 km. Iori upland is bordered with Saguramo-Ialno and Gombori ridges to the north and Azerbaijan border and Eldari lowland from the south, east and north-east.

Hydrographic system of the district is fairly poor. Entire Iori upland is dissected with r. Iori, which has almost no tributaries within the district. Only small streams (Lotchiniskhevi, etc.) flow down the upland (slopes of the hills). Dry gorges are also present. They are filled in spring and the water reaches the mother river. Salt lakes (Kajiri, Ujarma, etc.) and salt springs are also present. Old troughs (Shiraki, Taribana, etc.) are filled with Quaternary sediments. Deep horizons contain significant supply of artesian water.

### **Climate**

The district is characterized with dry continental climate, which alternates from sub-tropical to temperate along with change of the altitude. Annual temperature in Alazani and Iori gorges is 13-14° and 9-10° in the highest points of the upland. Annual precipitations within the district are fairly different; in the south-eastern part of the territory precipitations are just 200-300 mm and reach 400-500 mm in the north-eastern part, while the maximum falls in the northernmost part – 600-700 mm. The majority of the precipitations fall in May-June. Summer is very hot and droughty.

### **Soils**

Soils of Iori upland are characterized with diverse composition. Black soils are most abundant. Their formation started long ago (after destruction of forests). Chestnut and solonchak-solonetz soils are widespread as well. Forest brown and different alternatives of transitional soils after forest destruction are observed.

### **Cultural Resources**

There are many significant historical monuments on the territory of Sagarejo Municipality, such as: David Gareji Monastery, ancient city of Ujarma, Ninotsminda Nunnery, Khasmis Sameba (Holy Trinity Church

of Sameba), Katsareti Monastery, Manavi, Chailuri, Khashmi and Patardzeuli Fortresses. All these monuments belong to 5th-18th centuries. Below are given brief summaries for the monument of cultural heritage in the vicinity of SP sites.

**David Gareji** is a rock-hewn Georgian Orthodox monastery complex located in the Kakheti region of Eastern Georgia, on the half-desert slopes of Mount Gareji. The complex includes hundreds of cells, churches, chapels, refectories and living quarters hollowed out of the rock face. Part of the complex is located in the Agstafa rayon of Azerbaijan. The area is also home to protected animal species and evidence of some of the oldest human habitations in the region.

The complex was founded in the 6th century by David (St. David Garejeli), one of the thirteen Assyrian monks who arrived in the country at the same time. His disciples Dodo and Luciane expanded the original lavra and founded two other monasteries known as Dodo's Rka (literally, "the horn of Dodo") and Natlismtsemeli ("the Baptist"). The monastery saw further development under the guidance of the 9th-century Georgian saint Ilarion. The convent was particularly patronized by the Georgian royal and noble families. The 12th-century Georgian king Demetre I, the author of the famous Georgian hymn *Thou Art a Vineyard*, even chose David Gareji as a place of his confinement after he abdicated the throne.

Despite the harsh environment, the monastery remained an important centre of religious and cultural activity for many centuries; at certain periods the monasteries owned extensive agricultural lands and many villages. The renaissance of fresco painting chronologically coincides with the general development of the life in the David Gareji monasteries. The high artistic skill of David Gareji frescoes made them an indispensable part of world treasure. From the late 11th to the early 13th centuries, the economic and cultural development of David Gareji reached its highest phase, reflecting the general prosperity of the medieval Kingdom of Georgia. New monasteries Udabno, Bertubani and Chichkhituri were built, the old ones were enlarged and re-organized.

With the downfall of the Georgian monarchy, the monastery suffered a lengthy period of decline and devastation by the Mongol army (1265), but was later restored by the Georgian kings. It survived the Safavid attack of 1615, when the monks were massacred and the monastery's unique manuscripts and important works of Georgian art destroyed, to be resurrected under Onopre Machutadze, who was appointed Father Superior of David Gareji in 1690.

After the violent Bolshevik takeover of Georgia in 1921, the monastery was closed down and remained uninhabited. Since 1991, the monastery life in David Gareji was revived. The monastery remains active today and serves as a popular destination of tourism and pilgrimage.

## 4. Analysis of Potential Impacts

### 4.1. Construction Phase

#### 4.1.1. Social Impacts

- **General set of social issues.** Significant social impact of construction activities, like change of local demographic structure, influx of new settlers, secondary development, job opportunities, and increase of AIDS risks is not envisaged.

- **Resettlement Issues.** Project does not imply private land acquisition and no impacts are envisaged on private or leased agricultural lands and private assets or businesses.
- **Positive impact related to Job opportunities for construction workers.** Limited and temporary during construction and limited during operation.
- **Health issues related to noise, emissions, vibration.** Limited and temporary.
- **Traffic Disruption.** Local traffic can be impacted limited and temporary by transport activities related to the project.
- **Safety and Access.** There will be reduced access to areas adjacent to rehabilitation and potential hazards to vehicles and pedestrians during rehabilitation downtime.

#### 4.1.2. Impact on cultural heritage.

There are above ground monuments. Also archaeological sites could not be excluded. The risk of impact on the aesthetic values and style of the monuments is high. Supervision during construction works is required. Accordingly, the risks of impacting the physical cultural property during construction works are marginal and related to noise, dust, vibration, and emissions from the operation of construction machinery.

In course of rehabilitation and construction activities and especially during soil excavation works, in case of observing any suspicious object, the rehabilitation works will be suspended and will restart only upon issuance of the permit by the National Agency for Cultural Heritage Preservation. Impact of the construction activities on the monastery life of monks will be limited and temporary.

#### 4.1.3. Environmental Impacts

Improper handling, storage, use and disposal of construction materials and wastes could pose a risk of water soil contamination at the construction site and storage site. Improper maintenance and fueling of equipment could also lead to the potential contamination of soil and to some extent – water (near the crossings of the unnamed seasonal stream). The later impact is less probable.

#### ***Soil Pollution***

Potential pollutants from a project of this nature include the following (this list is not exhaustive):

- Diesel fuel, lubrication oils and hydraulic fluids, antifreeze, etc. from construction vehicles and machinery;
- Miscellaneous pollutants (e.g. cement and concrete);
- Construction wastes (packaging, stones and gravel, cement and concrete residue, wood, etc.).

#### ***Water Pollution***

Water pollution may result from a variety of sources, including the following:

- Spillages of fuel, oil or other hazardous substance, especially during refuelling;
- Releasing silty water from excavations;
- Silt suspended in runoff waters (“construction water”);
- Washing of vehicles or equipment;
- Exposure of contaminated land and groundwater;
- Impact on surface and/or underground water with high chlorine concentration (content) waste water that are expected to be formed in washing and disinfection process before launching operation of newly installed water pipes.

Spillages may travel quickly downhill to a watercourse or water body. Once in a watercourse, it can be difficult to contain the pollution which can then impact over a wide area downstream. It is therefore vital that prompt action is taken in the event of any potential water pollution incident.

Once the working width has been stripped of topsoil, the subsoil becomes exposed. During earthworks in a wet weather this may result in uncontrolled release of suspended solids from the work area.

### ***Air Pollution and Noise***

Potential impact of air pollution is minimal and related to operation of vehicles and heavy machinery at the construction site and during transportation of materials.

- Noise and vibration arising from heavy machinery and vehicles;
- Air emissions (from vehicles, bulldozers, excavators etc.);
- Dust (from vehicles);
- Fumes may be a concern linked to supply and transportation of materials.

### ***Construction Related Wastes***

#### ***Inert Construction Wastes***

The following types of inert waste are anticipated to be produced from these activities:

- Natural materials (soil and rock);
- Contaminated soil with non-hazardous substance or objects;
- Inert materials generated due to the demolition of existing building.

#### ***Non Hazardous Construction Wastes***

In summary the main non-hazardous construction wastes will include the following:

- Packaging materials;
- Metals (including scrap metal and wire) – negligible amount of metal waste is expected.

### ***Hazardous Construction Wastes***

Some amount of the asbestos-containing hazardous waste will be generated while demolition of existing old buildings, which are roofed by asbestos roof sheets.

Small quantities of the hazardous wastes will arise mainly from the vehicle maintenance activities and asbestos residues from existing buildings to be demolished having asbestos containing roofs. A number of hazardous wastes, which could be generated, include:

- liquid fuels;
- lubricants, hydraulic oils;
- chemicals, such as anti-freeze;
- contaminated soil;
- spillage control materials used to absorb oil and chemical spillages;
- machine/engine filter cartridges;



- oily rags, spent filters, contaminated soil, etc).

#### ***Transport related impacts***

- Noise & Vibration Impacts;
- Traffic congestion (nuisance);
- Air pollution;
- Mud on roads;
- Refuelling, maintenance and vehicle cleaning and related risks of soil and water contamination.

#### ***Topsoil losses due to topsoil stripping***

- Topsoil washout due to improper storage and reinstatement;;
- Silt runoff to watercourses and water bodies;
- Exposure of contaminated land.

#### ***Flora, Fauna and Landscape***

Potential impact on vegetation is minimal, although the project design envisages. The project does not envisage woodcutting or cutting of bushes.

Not a single fauna species found in the project area is protected by either the national legislation of Georgia or any other international agreements and treaties. Besides, the project site is not a wintering, feeding or migrating place for the mentioned species.

The project design does not envisage any substantial changes of landscape. The preexisting relief will be reinstated.

## **4.2. Operation Phase**

The light tourist infrastructure to be provided at the subproject sites will be transferred to the entity that owns the land under it, i.e. the National Agency for Cultural Heritage Preservation of Georgia. This entity will have overall responsibility for adequate operation and maintenance of the infrastructure.

Potential impact related to the operation of the provided light infrastructure would be the following:

- Increase of the number of tourists will result in the increased volume of waste and noise;
- The traffic will increase in adjacent area of CH sites, which will result in the increased level of local emissions and noise as well as traffic safety issues;
- Tours of sites of worshipping may conflict with local traditions and/or religious beliefs;
- Shooting photos of wall paintings may result in damage due to photochemical reactions induced by flashing.

The potential risks of chlorination of the supplied water are related to disruption of chlorination process when:

- The leakages of liquid chlorine may occur and chlorine content in potable water exceeds the established threshold;
- The leakages of liquid chlorine on the territory of chlorination unit may endanger the personnel; and
- Interruption of chlorination process.

Positive social impact will be related to the increasing of the touristic infrastructure that will have positive effect on the local population, in terms of employment.

## 5. Mitigation Measures

This Environmental Management Plan (EMP) has been prepared to ensure that negative environmental impacts associated with this project are minimized.

### 5.1 Construction Phase

The contractor is required:

1. To obtain construction materials only from licensed providers;
2. If contractor wishes to open quarries or extract material from river bed (rather than purchasing these materials from other providers), then the contractor must obtain licenses for inert material extraction;
3. If contractor wishes to operate own asphalt (rather than purchasing these materials from other providers), then the contractor must obtain an environmental permit with an established ceiling of pollutant concentrations in emissions;
4. If contractor wishes to operate own concrete plant (rather than purchasing these materials from other providers), then the contractor must prepare technical report on inventory of atmospheric air pollution stationary source and agree with the Ministry of Environment and Natural Resources Protection (MoENRP);
5. Construction waste must be disposed on the nearest (Sagarejo) municipal landfill in accordance with written agreement with the Solid Waste Management Company of Georgia Ltd. under the Ministry of Regional Development and Infrastructure. The records of waste disposal will be maintained as proof for proper management as designed.
6. Removed asbestos roof sheets must be disposed on the nearest municipal landfill in accordance written agreement with MoENRP and the Solid Waste Management Company of Georgia Ltd. under the Ministry of Regional Development and Infrastructure. The records of waste disposal will be maintained as proof for proper management as designed.

Copies of extraction licenses (if applicable), agreed technical report on inventory of atmospheric air pollution for operating concrete plants (if applicable), and waste disposal agreement must be submitted to the MDF prior to the commencement of works.

GOST and SNIP norms must be adhered.

A number of restrictions and mitigation measures are to be taken into account during the construction process:

1. Application of the heavy machinery and equipment is prohibited;
2. The machinery should move only along the preliminarily agreed route;
3. The maximum allowed speed will be restricted;
4. The frequency of movement of the machinery will be restricted;
5. Uncontrolled storage of hazardous wastes on the construction area is prohibited;

6. Any construction or municipal wastes produced during construction stage should remove from the site area every day at the end of working hours;

In case chance find is encountered in the course of earth works, the contractor must immediately stop any physical activity on site and informs the MDF. The MDF promptly notifies the Ministry of Culture and Monument Protection, which takes over responsibility for the following course of action. Works may resume only upon receipt of written permission from the Ministry of Culture and Monument Protection.

### **Noise**

Noise is one of typical impacts related to the construction activities. The compliance with the environmental requirements is even more significant for the project area because it will involve the transportation of heavy cargo with heavy vehicles and fairly intensive traffic in the direct proximity of the historical monuments of the greatest importance.

In case of absence of special measures and disregard to the restrictions the transport and devices could inflict serious damage.

Contractor construction organization should adopt special measures to receive the appropriate construction permit and achieve agreement with all stakeholder organizations both on cargo transportation.

The following measures will be implemented for noise reducing:

- The selected movement route of the heavy vehicles should be maximally distance from historical monument;
- Allowed intensity of the vehicle traffic and speed should be determined;
- The import of the inert material shall be conducted from the licensed quarries nearby project area. The rout of the transport movement during the transportation of inert material and any other construction material should be agreed upon with the appropriate regional services and overload with the trucks and violation of the allowed traffic intensity should not take place;
- The maximum speed should be restricted to the safety level during the pass of the trucks in the proximity of the David Gareji Monastery;
- Proper technical control and maintenance practices of the machinery should be applied;
- Activities should be limited to daylight working hours;
- No-load operations of the vehicles and heavy machinery are not allowed. Proper mufflers will be used on machinery.

### **Pollution**

Water/Soil Pollution. Specific mitigation measures should be implemented at the construction site for prevention of water and soil pollution:

- Prevent operation of vehicles in the watercourses;
- Revision of vehicles will be required to ensure that there is no leakage of fuel and lubricating materials. All machinery will be maintained and operated such that all leaks and spills of materials will be minimised. Daily plant checks (Vehicle Maintenance Procedure) will be undertaken to ensure no leaks or other problems are apparent. Vehicle maintenance, cleaning, and degreasing will be undertaken in designated areas, of hard-standing, not over made ground. Maintenance points will not be located within 50m of any watercourse.
- Lubricants, fuel and solvents should be stored and used for servicing machinery exclusively in the designated sites, with adequate lining of the ground and confinement of possible operation and

emergency spills. Spill containment materials (sorbents, sand, sawing, chips etc.) should be available on construction site.

- No fuel, lubricants and solvents storage or refuelling of vehicles or equipment will be allowed near the cultural heritage site.
- Contractor should be required to organize and cover material storage areas. The material storage sites should be protected from washing out during heavy rain falls and flooding through covering by impermeable materials.
- Wet cement and/or concrete will not be allowed to enter any watercourse, pond or ditch.
- Washing and disinfection of the newly paid pipelines and reservoirs

Upon completion of washing and disinfection of pipes and reservoirs the disinfection solution will be neutralized by the contractor prior to release to the environment – to avoid damage to terrestrial or aquatic organisms. In the case of disinfection via chlorination this is achieved by application of a reducing agent, such as sodium bisulfate to achieve de-chlorination. The reducing agent, in turn, must be applied by the contractor at the precise dosage to neutralize the disinfectant – but no more, since reducing agent residuals are also detrimental to aquatic ecosystems.

Releasing of neutralized water to the environment by the contractor will be agreed with the local municipality.

#### **The disposal of excess soil and rock**

- Allow local communities to utilise any excess rock, which may be left following reuse. Suitable access to the materials will be agreed with the local authorities in consultation with the community.
- Transport any remaining material, if required, for the permanent disposal to the location authorised in writing by local authorities. Disposal sites must meet the requirements for Inert Landfills by the MoE.

#### **Waste Handling**

All waste from the construction site will be disposed of in accordance with environmental regulations and at approved landfills.

**Hazardous wastes** - Hazardous wastes are expected as a result of vehicle operation and maintenance such as, oil from oil filters; oily rags and asbestos waste generated after roof dismantling, the nearest allowed landfill will be used as final disposal place of such kind of wastes, place and treatment procedures should be according to existing norms and has to be conclude an agreement with LTD “Solid waste company”. Small quantities of hazardous wastes will be generated as a result of vehicle operations and the maintenance activities,

- Written agreement with the licensed company should be obtained by contractor on the transportation, handling, disposal of hazardous waste prior to the works commencement;
- Temporarily storage of all hazardous or toxic substances will be in safe containers labelled with details of composition, properties and handling information;
- The containers of hazardous substances shall be placed in an leak-proof container to prevent spillage and leaching
- Paints with toxic ingredients or solvents or lead-based paints will not be used.

Asbestos residues from existing buildings to be demolished having asbestos containing roofs

- asbestos located on the SP site shall be marked clearly as hazardous material;
- asbestos will be appropriately contained and sealed to minimize exposure;
- The asbestos prior to removal will be treated with a wetting agent to minimize asbestos dust;
- Asbestos will be handled and disposed by skilled & experienced professionals equipped with special PPE;
- If asbestos material is stored temporarily, the wastes should be securely enclosed inside closed containments and marked appropriately. Security measures will be taken against unauthorized removal from the site.
- The removed asbestos will not be reused;

The hazardous waste will finally be disposed on the nearest official landfill in accordance with written agreement with MoENRP and "Solid Waste Management Company of Georgia" Ltd.

### **Inert and non Hazardous Construction Wastes and Municipal Waste**

Written agreement with the "Solid Waste Management Company of Georgia" Ltd should be obtained by contractor on the disposal of construction waste on the nearest approved landfill prior to the works commencement.

**Municipal waste may be generated on the storage area. Mainly this is rubbish, plastic or glass bottles, glasses, waste food, etc. and a stationary waste. Waste should be collected by the specially assigned personnel on the area. The waste is placed into plastic containers should be disposed on the nearest landfill.**

The personnel involved in the handling of hazardous and non-hazardous waste will undergo specific training **in waste handling and storage.**

Burning of waste on construction site is forbidden.

The records of waste disposal will be maintained as proof for proper management as designed.

### **Dust and emissions**

All vehicles shall be maintained so that their emissions do not cause nuisance to workers or local people. Activities will be limited to daylight working hours to reduce impacts. All vehicles will be checked and repaired in case of need to eliminate increased level of noise due to damaged parts.

Regular maintenance of diesel engines will be undertaken to ensure that emissions are minimised, for example by cleaning fuel injectors. Routine maintenance will be to a high standard to ensure that vehicles are safe and that emissions and noise are minimised. All plant used on site will be regularly maintained so as to be in good working order at all times to minimise potentially polluting exhaust emissions.

Vehicle refuelling will be undertaken so as to avoid fugitive emissions of volatile organic compounds through the use of fuel nozzles and pumps and enclosed tanks (no open containers will be used to store fuel).

If deemed necessary in dry conditions or where significant quantities of dust are being or are likely to be produced mitigation measures will be arranged with the Construction Manager. Mitigation measures will include:

- Dumping down using water bowzers with spray bars or other technical means;
- Sheeting of construction materials and storage piles; and
- Use of defined haulage routes and reductions in vehicle speed where required. Materials will be transported to site in off peak hours.
- Materials and waste will be covered/ wetted down while transportation to reduce dust. The construction site will be watered as appropriate. Protective equipment will be provided to workers as necessary. All vehicles will be checked and repaired in case of need to eliminate increased emission due to damaged parts.
- During demolition works destruction dust shall be suppressed by ongoing water spraying and/or installing dust screen enclosures at site;
- The surrounding environment (sidewalks, roads) shall be kept free of debris to minimize dust;
- There will be no open burning of construction / waste material at the site;
- There will be no excessive idling of construction vehicles at sites.

### **Subsoil Storage**

The storage of subsoil in stockpiles, no more than 3m high with side slopes at a maximum angle of 60°, will take into consideration the following:

- Dedicated storage locations where the stockpiles will not be compacted by vehicle movements or contaminated by other materials; and
- Segregation from topsoil stockpiles.

### **Topsoil storage and reinstatement**

Topsoil should be stripped before starting of earthworks.

The topsoil shall not be handled by construction contractor when the following conditions are observed:

- The topsoil is frozen;
- The site is experiencing persistent rainfall;
- The topsoil is saturated; or
- Handling will damage the structure of the topsoil.

Topsoil will be stored in stockpiles, no more than 2m high with side slopes at a maximum angle of 45°. The following shall also be taken into consideration:

- Dedicated storage locations will be used that prevents the stockpiles being compacted by vehicle movements or contaminated by other materials;
- Topsoil will be segregated from subsoil stockpiles;
- No material will be stored where there is a potential for flooding;
- No storage at less than 25m from river/streams, subject to the site specific topography.

In the event that the stockpiles experience significant erosion the Contractor will be required to implement corrective action, such as installing erosion matting over the stockpiles if further surface compaction and/or topsoil seeding fails. The Contractor shall protect the stockpiles from flooding and run-off by placing berms or equivalent around the outside where necessary.

Stored topsoil should be used for reinstatement and landscaping. Topsoil from the sites, which will not be reinstated to the initial conditions will be distributed carefully on the surrounding area.

### **Protection of adjacent landscapes and vegetation**

Movement of vehicles will strictly limited within traffic lane; Pockets for turning of vehicles should be arranged; Trees and shrubs will be strictly protected from damage while installation of the water supply system. All workers will be strictly prohibited from, foraging, waste dump or other damaging activities to adjusted landscapes. Large trees in the vicinity of the construction activities shall be marked and cordoned off with fencing, their root system protected and any damage to trees avoided.

### **Mitigation measures for Site safety access**

In compliance with national regulations the contractor will insure that the construction site is properly secured and construction related traffic regulated. This includes but is not limited to:

- Signposting, warning signs, barriers and traffic diversions: site will be clearly visible and the public warned of all potential hazards;
- Alternate safe pavement will be provided for visitors.
- Construction site and all trenches should be fenced and properly secured to prevent unauthorized access (especially of children);
- Appropriate lighting and well defined safety signs should be provided;
- Adjustment of working hours to local traffic patterns, e.g. avoiding major transport activities during rush hours or times of livestock movement.

### **5.1. Operation Phase**

For proper management of the **increased volume of waste** generated due to the increased number of visitors the following measures have to implement:

- **Containers should be placed.** The number and volume of containers to be placed in the tourists gathering centers depends on the following factors: the expected number of tourists; the area of the territory, existence of access roads. Based on the calculations, for the expected 300 tourists one 1.1 m<sup>3</sup> capacity metal container should be placed. It should be taken into consideration that the distance between containers should not exceed 50m and at the same time the 1.1 m<sup>3</sup> containers should be easily accessible by the respective vehicles and there should be space for maneuvering. If the abovementioned requirements cannot be met, a smaller size easily portable 0.24 m<sup>3</sup> plastic containers should be used.
- **Imposing of penalty sanctions against littering of the site.** Placement of the containers will have no tangible result, if the penalty sanctions are not imposed and exercised. The more effectively the penalty mechanism is introduced, the more accelerated will be the pace of fulfillment of the set target.

**The traffic** will increase in adjacent area of CH sites, which will result in the increased level of local emissions and noise as well as traffic safety issues. The mitigation measures will be:

- At the David Gareji monastery is planned to be two level parking for 22 mini busses. Parking lots will be located in 200 m from monastery territory and any tangible negative impact on CH monument is not expected.
- The car parking area and lots are located so that cars and buses will be able to stop and maneuver uninterruptedly;

- The implementation of above mentioned issues and proper management services will reduce negative impacts imposed by traffic jams causing increased volumes of emissions and noise on CH site.

Noise and shouting is forbidden at the monastery territory. Shooting photos should be limited to in monasteries and especially near the wall paintings. A dress code is applied at the monastery site. Restrictions come from the patriarchate of Georgian Orthodox Church and monastery authorities. Women requested not to wear shorts or open t-shirts and to put on skirts cover head with scarf will be available for skirts and scarves provided at all entrances for free; and men are required not to cover heads with sport caps and not to wear shorts.

At the monastery to take photos monks without their permission is not allowed. There are some exceptions with prior agreement to monastery authorities.

## **6. Monitoring**

MDF carries overall responsibility for monitoring of the implementation of the environmental mitigation measures. A consulting firm hired for supervision of works will supplements MDF's in-house capacity for tracking environmental and social compliance of works undertaken under this subproject. Field monitoring checklist will be filled out and photo material attached on monthly basis. Narrative reporting on the implementation of EMP will be provided on quarterly basis as part of the general progress reporting of MDF. MDF will also be expected to obtain from contractors and keep on file all permits, licenses, and agreement letters which contractors are required have according to the Georgian law for extracting material, operating asphalt/concrete plants, disposing various types of waste, etc.

## **7. Costs of Implementation**

Costs of implementing the proposed individual mitigation measures are small and difficult to single out from the costs of construction operations. Nonetheless, it is recommended that Bill of Quantities presented in the tender documentation carries a line item for the disposal of waste and excess materials. Other costs of adherence to good environmental practice and compliance with this EMP are expected to be integrated into the pricing of various construction activities.



## 8. MONITORING MANAGEMENT PLAN

Activity	What (Is the parameter to be monitored?)	Where (Is the parameter to be monitored?)	How (Is the parameter to be monitored?)	When (Define the frequency / or continuous?)	Why (Is the parameter being monitored?)	Who (Is responsible for monitoring?)
<b>CONSTRUCTION PHASE</b>						
<b>Earth works</b>	<p>Temporary storage of excavated material in the pre-defined and agreed upon locations;</p> <p>Backfilling of the excavated material and/or its disposal to the formally designated locations;</p> <p>In case of chance finds immediate suspension of works, notification of the Ministry of Culture and Monument Protection, and resumption of works exclusively upon formal consent of the Ministry.</p>	Construction site	Inspection	In the course of earth works	<p>Prevent pollution of the construction site and its surroundings with construction waste;</p> <p>Prevent damage and loss of physical cultural resources</p>	MDF, Construction supervisor
<b>Supply with construction materials</b>	Purchase of construction materials from the officially registered suppliers	In the supplier's office or warehouse	Verification of documents	During conclusion of the supply contracts	To ensure technical reliability and safety of infrastructure	MDF, Construction supervisor
<b>Transportation of construction materials and waste</b>	<p>Technical condition of vehicles and machinery</p> <p>Confinement and protection of truck loads with lining</p>	Construction site	Inspection	Unannounced inspections during work hours and beyond	Limit pollution of soil and air from emissions;	MDF, Construction supervisor, Traffic Police

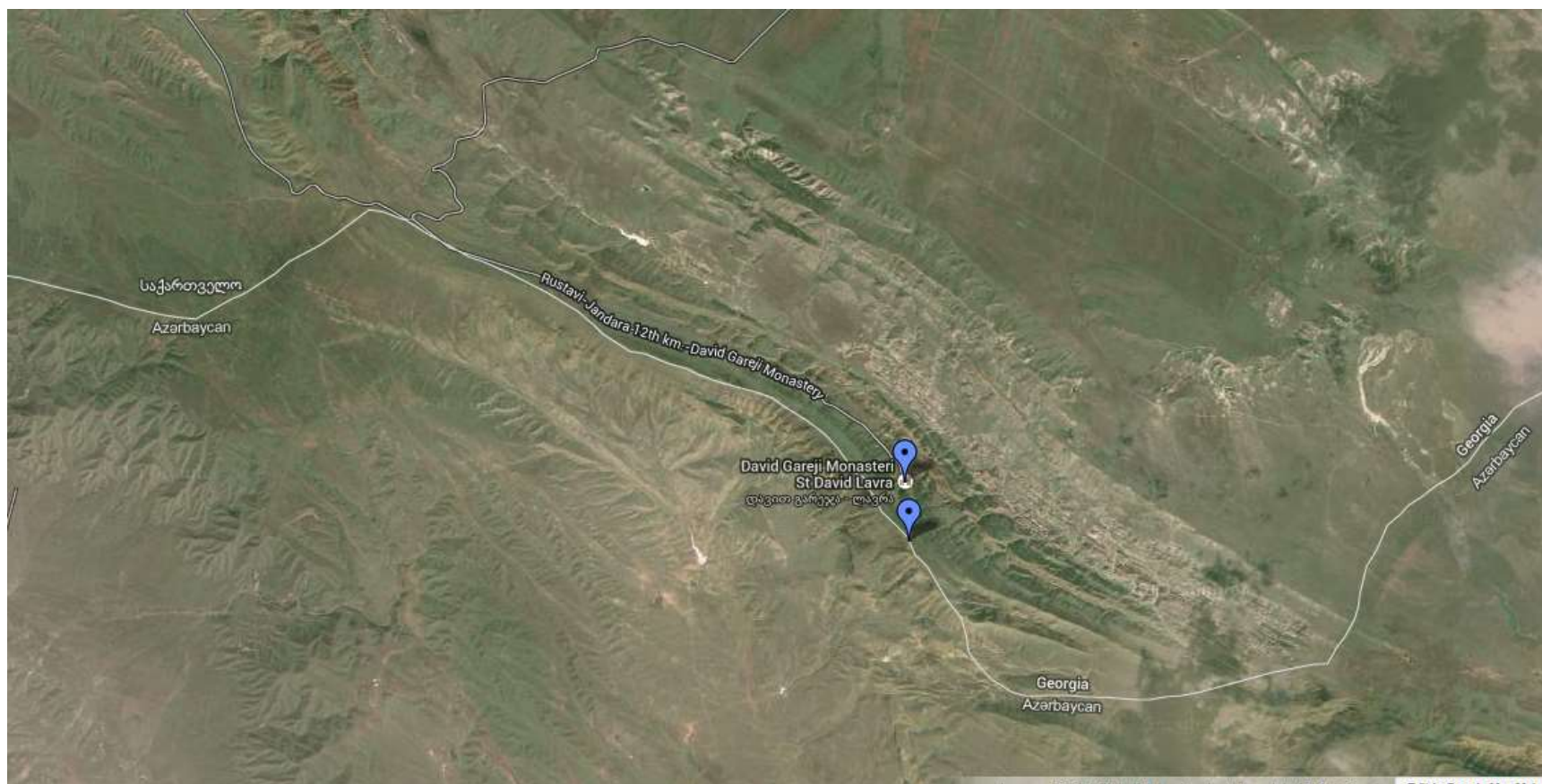
<b>Activity</b>	<b>What</b> (Is the parameter to be monitored?)	<b>Where</b> (Is the parameter to be monitored?)	<b>How</b> (Is the parameter to be monitored?)	<b>When</b> (Define the frequency / or continuous?)	<b>Why</b> (Is the parameter being monitored?)	<b>Who</b> (Is responsible for monitoring?)
<b><i>Movement of construction machinery</i></b>	Respect of the established hours and routes of transportation				Limit nuisance to local communities from noise and vibration;  Minimize traffic disruption.	
<b><i>Sourcing of inert material</i></b>	Purchase of material from the existing suppliers if feasible;  Obtaining of extraction license by the works contract and strict compliance with the license conditions;  Terracing of the borrow area, backfilling to the exploited areas of the borrow site, and landscape harmonization;  Excavation of river gravel and sand from outside of the water stream, arrangement of protective barriers of gravel between excavation area and the water stream, and no entry of machinery into the water stream.	Borrowing areas	Inspection of documents  Inspection of works	In the course of material extraction	Limiting erosion of slopes and degradation of ecosystems and landscapes;  Limiting erosion of river banks, water pollution with suspended particles and disruption of aquatic life.	MDF,  Construction supervisor
<b><i>Generation of construction waste</i></b>	Temporary storage of construction waste in especially allocated areas;	Construction site;  Waste disposal site	Inspection	Periodically during construction and upon complaints	Prevent pollution of the construction site and nearby area with solid waste	MDF,  Construction supervisor

<b>Activity</b>	<b>What</b> (Is the parameter to be monitored?)	<b>Where</b> (Is the parameter to be monitored?)	<b>How</b> (Is the parameter to be monitored?)	<b>When</b> (Define the frequency / or continuous?)	<b>Why</b> (Is the parameter being monitored?)	<b>Who</b> (Is responsible for monitoring?)
	Timely disposal of waste to the formally designated locations					
<b>Generation of hazardous waste</b>	Temporary storage of construction waste in specially allocated areas;  Waste should be collected and stored in compliance with the rules, in covered and protected area, in special containers and/or plastic bags.  Timely disposal of waste to the formally designated locations	Construction site;  permitted Waste disposal site	Inspection	Periodically during construction and upon complaints	Prevent pollution of the construction site and nearby area with hazardous wastes	MDF, Construction supervisor
<b>Washing and disinfection of the newly laid pipelines</b>	Neutralization of disinfecting solvent prior to release to the natural environment	End points of pipelines		In course of pipeline washing by the time of completion of their installation	Prevent environmental damage due to release of concentrated disinfectant solvents	MDF, Construction supervisor
<b>Traffic disruption and limitation of pedestrian Access</b>	Installation of traffic limitation/diversion signage;  Storage of construction materials and temporary placement of construction waste in a way preventing congestion of access roads	At and around the construction site	Inspection	In the course of construction works	Prevent traffic accidents;  Limit nuisance to local residents	MDF, Construction supervisor

<b>Activity</b>	<b>What</b> (Is the parameter to be monitored?)	<b>Where</b> (Is the parameter to be monitored?)	<b>How</b> (Is the parameter to be monitored?)	<b>When</b> (Define the frequency / or continuous?)	<b>Why</b> (Is the parameter being monitored?)	<b>Who</b> (Is responsible for monitoring?)
<b><i>Workers' health and safety</i></b>	Provision of uniforms and safety gear to workers;  Informing of workers and personnel on the personal safety rules and instructions for operating machinery/equipment, and strict compliance with these rules/instructions	Construction site	Inspection	Unannounced inspections in the course of work	Limit occurrence of on-the-job accidents and emergencies	MDF,  Construction supervisor
<b>OPERATION PHASE</b>						
<b><i>Management of the solid waste from the visitors' center</i></b>	Trash bins provided on site and arrangement in place for timely regular out-transporting of waste	Rehabilitated facilities	Inspection	During operation of facilities	Prevent littering of the site and area around it	Sagarejo municipality
<b><i>Servicing of water supply scheme and sewage treatment unit</i></b>	Water supply scheme does not leak and water supply uninterrupted  Sewage treatment block operate smoothly	Rehabilitated facilities	Inspection	During operation of facilities	Prevent water loss and water logging of the site  Prevent pollution of surface and ground water with untreated sewage	Sagarejo municipality
<b><i>Chlorination of supplied water</i></b>	Safe transportation and application of chlorine	Potable water treatment facility	Inspection	Through operation of the water supply system	Prevent environmental damage due to operational and emergency release of chlorine	Sagarejo municipality

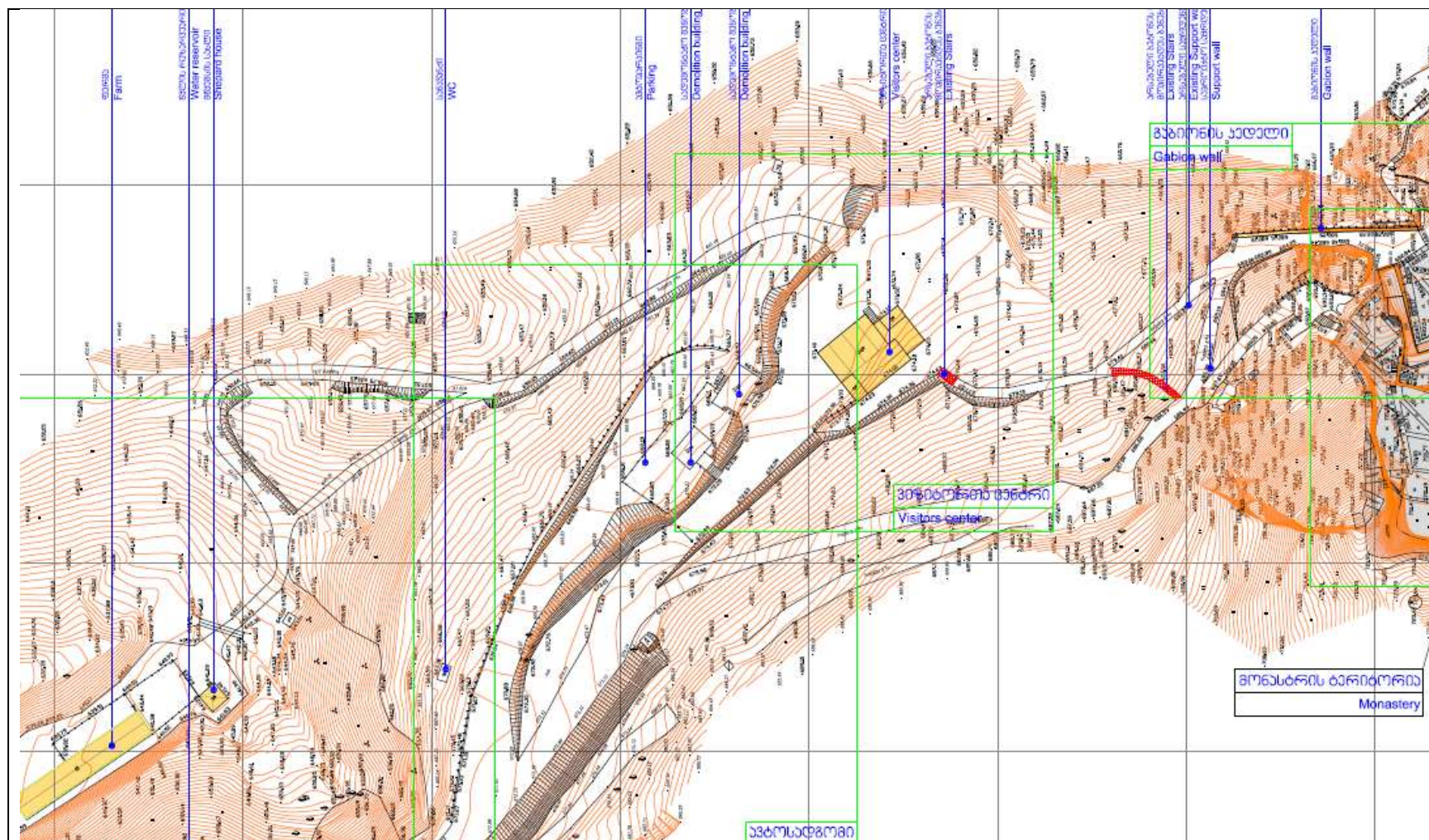
<b>Activity</b>	<b>What</b> (Is the parameter to be monitored?)	<b>Where</b> (Is the parameter to be monitored?)	<b>How</b> (Is the parameter to be monitored?)	<b>When</b> (Define the frequency / or continuous?)	<b>Why</b> (Is the parameter being monitored?)	<b>Who</b> (Is responsible for monitoring?)
<b><i>Maintenance and operation of the monastery complex and the visitors' center</i></b>	No unauthorized construction and no informal land use in the vicinity of the historical site	Rehabilitated facilities	Inspection	During operation of facilities	Prevent loss of the historical and aesthetic values of the monument and surrounding area	Sagarejo municipality

## Attachment 1. Maps and site plans

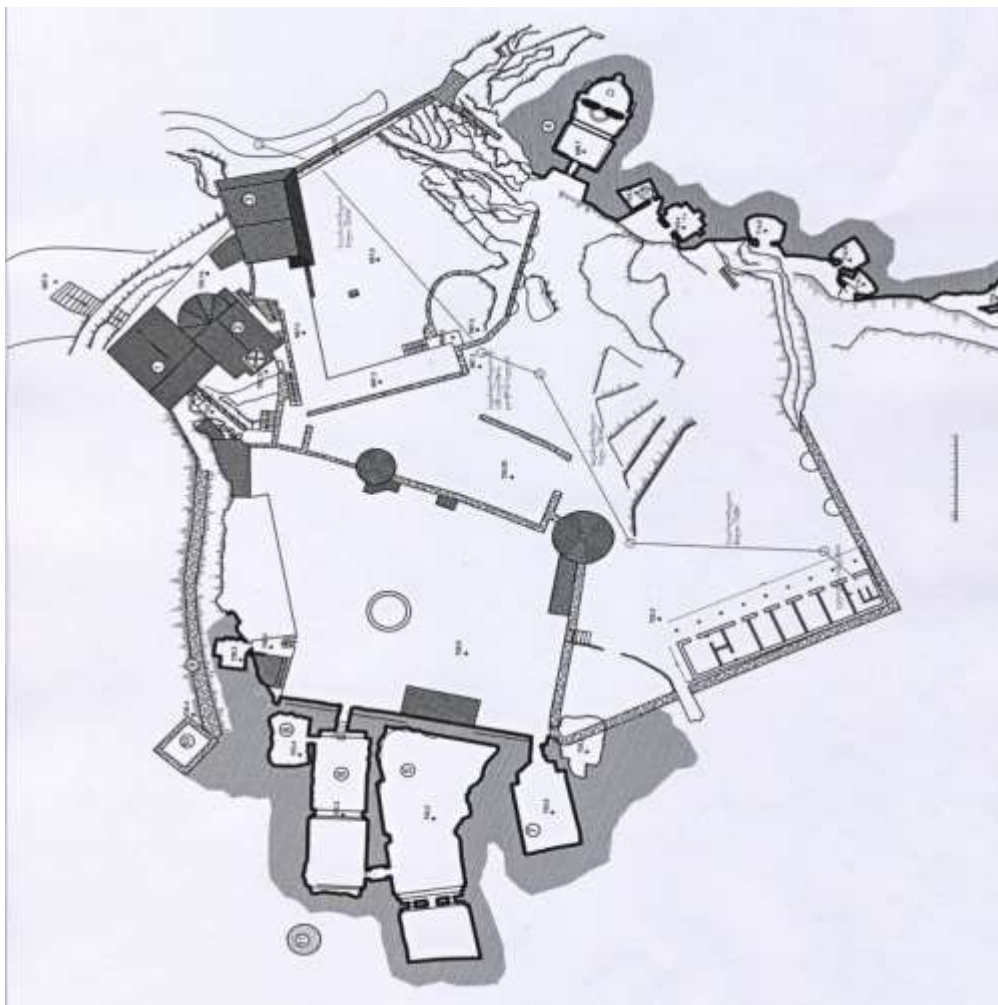




## General Plan



Site plan





## Photos of the site

### Visitor center



### Place for parking arrangement



### Existing concrete wall near the parking area



Existing old buildings



Farm and shepherd's house





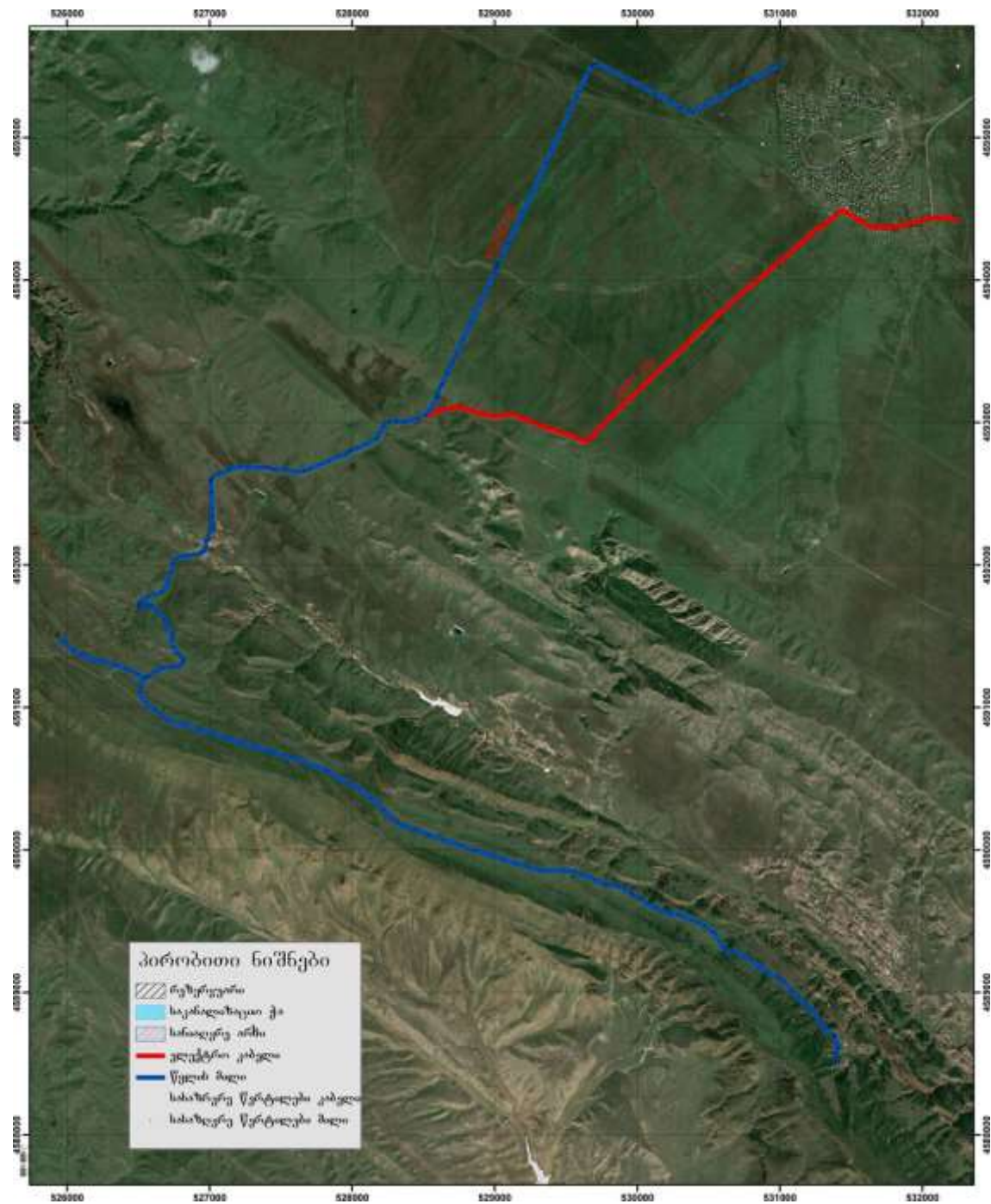
**Dike wall and concrete stairs**



**Monks cells**



## Water supply – site plan









## Village Udabno



## Attachment 2. Cadastral Information



მის (უძრავი ქონების) საკადასტრო კოდი **N 55.20.51.189**

### ამონაწერი საჯარო რეესტრიდან

განცხადების რეგისტრაცია  
N 882014510156 - 24/09/2014 17:43:52

მომზადების თარიღი  
13/11/2014 16:52:29

#### საკუთრების განყოფილება

ზონა სატარველი	სექტორი უღებელი	კვარტალი	ნაკვეთი	ნაკვეთის საკუთრების ტიპი: საკუთრება ნაკვეთის დანიშნულება: არასასოფლო სამეურნეო დამზღუდვადი ფართობი: 18088.00 კვ.მ. ნაკვეთის წინა ნომერი: 55.20.51.155;
55	20	51	189	

მისამართი: რაიონი სატარველი, სოფელი უღებელი

#### მესაკუთრის განყოფილება

განცხადების რეგისტრაცია : ნომერი 882013318256 , თარიღი 08/07/2013 14:18:22  
უფლების რეგისტრაცია: თარიღი 08/08/2013

უფლების დამადასტურებელი დოკუმენტი:

- დაღეწილება N315 , დამოწმების თარიღი: 24/04/1991 , საქართველოს მთავრობა

მესაკუთრე:

"სრულიად საქართველოს სამოციქულო ბეგოკეფალური მართლმადიდებლური ეკლესია" , ID ნომერი: 204305537

მესაკუთრე:

"სრულიად საქართველოს სამოციქულო ბეგოკეფალური მართლმადიდებლური ეკლესია"

ბღწერა:

#### იპოთეკა

საბადასახადო გირავნობა:

რეგისტრირებული არ არის

#### ვალებულები

ყაბღა/აკრძალეა:

რეგისტრირებული არ არის

მოვალეობა რეესტრი:

რეგისტრირებული არ არის

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