Arrangement of basic and recreational infrastructure in Tbilisi National Park

Environmental and Social Review and Environmental and Social Management Plan

The Third Regional Development Project (RDP 3)

Funded by the World Bank

Juny 2022

Sub-project Description

The sub-project (SP) Arrangement of Basic and Recreational Infrastructure in Tbilisi National Park aims to provide basic and recreational infrastructure to promote tourism in Tbilisi National Park. The Park has good potential for increasing sustainable tourist visitation because of the following features:

- Rich biodiversity and high aesthetic value;
- Abundance of cultural and historical monuments;
- Possibility to offer touristic activities in all four seasons;
- Proximity to the capital city of Tbilisi and easy access by motor roads.

At present, the touristic infrastructure of Tbilisi National Park is underdeveloped. It offers only two hiking routes to visitors:

- Medium difficulty category 21 km length hiking route (Zedazeni-Didveli-Mamkoda) follows the Saguramo ridge. The trail and signage at this stage need rehabilitation.
- The walking route starts from the fifth kilometer of the road connecting Saguramo Zedazeni Monastery, passes the children's picnic area to Mokolend, and then ends in the village of Shankevan. The length of the trail is 3.5 km.

In 2019, the Agency of Protected Areas (APA) signed a contract with the private investment company LTD Sabaduri Village. Under this contract, LTD Sabaduri Village planned to develop touristic infrastructure in the territory of Tbilisi National Park (minor parts of the Sabaduri forest area). Contractor was obligated to invest no less than four mln GEL over two years from contract signing into arrangement of infrastructure in line with the Park's management plan. However, due to Covid-19 related circumstances, no activity has taken place yet and the fulfillment of contractual obligations is questionable.

Note: Abovementioned private investment plan and the present SP are not associated with each other. Locations selected for the implementation of SP do not overlap with the territory allocated for the private investment.

Present SP intends to provide basic and recreational infrastructure described below:

1. Arrangemnt of Saguramo Visitor Center

Sagumaro Visitor Center will be arranged in Tbilisi National Park, in the 15 meters' distance from the 4th kilometer of the Saguramo-Zedazeni Road. According to the SP design, the Visitor Center is a one-story building that includes a conference hall, offices, bathrooms, kitchen and dining room, warehouse, and utility room. It has a terrace on the north side. The building is structured on a 20-point reinforced concrete foundation. The vertical load-bearing elements of the building are square columns made of metal. The surface walls, floor, and roof are made of monolithic reinforced concrete slabs, and the walls are lined with wood. A flat roof covers the building with a drainage membrane and a 10 cm rubble surface. The total area of visitor's center is about 265 m^2. The facility will be equipped with electricity, water supply, internal and external sewerage systems. Lightings with LED lamps will be installed around the building. Universal access to the building and its toilet facilities will be provided.

Near the visitor center, an arrangement of 250 m^2 parking area is planned. The parking will be covered with asphalt and will also have universal access. Tree-cutting is not envisaged for the arrangement of the parking, as the site is located near the Saguramo-Zedazeni main road, which is a flat surface without trees. Approximately 70 m^3 of soil will be excavated during the arrangement of the parking area, which will be transported and disposed of at a particular place selected by the Mtskheta Municipality.

The following basic infrastructure will be arranged for Saguramo Visitor Center:

- Gas supply;
- Electricity;
- Internet;
- External water supply;
- External sewage system and biological treatment equipment.

Gas supply

The SP envisages the use of natural gas for heating the Visitor Center. 2280 m (d = 50) and 36 m (d = 50) polyethylene gas pipelines are planned to be arranged to supply gas to the Visitor Center, which will be connected to the underground polyethylene gas pipeline (d = 63mm) in the village of Saguramo as a source of gas supply. Underground polyethylene pipes will be arranged to supply gas to the Visitor Center except for air-based sections arranged on the relevant bases over the drainage canals. Polyethylene elbows and polyethylene-iron - adapters are arranged at pipe junctions.

For the pipelines' construction, at the first stage, trenches are arranged, with a width of no less than 0.5 meters. The channel will be laid on the side of the road within a sand-gravel layer of

soil. Consequently, it will not be necessary to remove the fertile layer of soil. The gas pipes in the trench will be covered back with a sand-gravel soil layer on the top.

Power supply

Electricity to the Saguramo Visitor Center will be provided by the Saguramo-Zedazeni power supply network. The electricity source is located 50 m from the Saguramo Visitor Center. Based on the Resolution N33 of the Georgian National Energy and Water Supply Regulatory Commission (GNEWSC), the electricity capacity for the Saguramo Visitor Center was set at 10 to 30 kWh.

Internet

The SP envisages the arrangement of optical internet service for the Saguramo Visitor Center. The optical cable will be located under the ground from Gldani district (from 44.828152 41.826681 coordinates) to the direction of Ghulelebi village (44.912272 to 41.907927 coordinates).

The cable will be installed under the ground, on the side of the road across the Tbilisi-Tianeti highway. 32 mm polyethylene pipe will be used to establish the optical cable, which will be placed at a depth of 1.2 meters. The arrangement of surveillance wells along the route is also envisaged. Upon completion of the construction work, the excavated ground will be backfilled, and the surface flattened.

Water supply

The existing, depreciated headwork building with a damaged (broken in several places) pipe network is selected for sourcing water to Saguramo Visitor Center. Water is suitable for drinking according to the water sample analysis (See Annex 4). The water flow rate is 0.232 l/s. However, a decrease in water debt is observed in the summer period. Therefore, it is recommended to fill the water gap through its delivery with water-carrying tankers in the summer.

The SP envisages cleaning the existing headwork building as well as the arrangement of new drainage and pipeline (d = 90 mm) to the existing catchment reservoir. The hydraulic testing of the catchment tank and, if necessary, repairing is also planned. Water from the reservoir will be distributed between the Saguramo-Zedazeni road well and the Visitor Center. After the catchment reservoir, the installation of a 5 m^3 polyethylene reserve tank is also planned to store the water. The mentioned polyethylene tank will be arranged in the sanitary zone, which will be fenced. The tank will be placed underground, next to the already existing, depreciated water headwork facility. A water regulator and a suction well will also be installed. The tank should be washed with disinfectant, for which chlorinated lime will be used. Water will be supplied from the catchment reservoir to the visitor center through polyethylene 431.45 meters long pipes (d = 50

mm). Chlorinated lime will also be used to disinfect pipes. There is no need to cut trees when arranging the trenched for arranging external water supply system.

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Indoor and outdoor sewage networks will be arranged for the Saguramo Visitor Center using plastic pipes and fittings of appropriate diameters. The internal network uses d -50 mm and d - 100 mm plastic pipes, while the external network uses d- 150 mm plastic corrugated pipes. The arrangement of two units of reinforced concrete walls in the external sewerage network is envisaged. After excavation works for pipe arrangement, the earth will be backfilled and the surface flattened.

Installation of BIOTAL- 20 type (or similar type) treatment unite is envisaged, located 50 m away from the building. This technology for wastewater treatment is based on the combination of biological treatment with the aeration process (artificial air supply) to oxidize the components of indoor wastewater. The biological treatment process consists of the biochemical destruction of organic matter by microorganisms. Wastewater becomes transparent, and bacterial contamination is reduced to a minimum. Wastewater flows from the building through a sewer pipe to the receiving chamber, where it is mechanically cleaned and biologically oxidized. The outgrowths are then pumped into the aeration tank, where the final destruction of the organic compounds occurs by oxidation and activated shear. Cleaned water will be discharged into the cuvette along the driveway. The wastewater discharge technical norms are within set national technical regulations Order №431 (20 August 2018).

This technology allows domestic wastewater treatment throughout the year. An unpleasant odor is not observed since aerobic processes predominate during the operation of the device. The noise level during operation is minimal.

2. Arrangement of trails

The SP envisages arranging a network of 143 km long trails in Tbilisi National Park. A network of hiking trails is envisaged on the southern and northern slopes of forest-covered, mountainous terrains of Saguramo, Yalno, and Sabaduri. Below is the list of trail segments envisaged within this SP:

1. Saguramo administration - Tskhvarichamia (16.7 km);
2. Saguramo Administration - Saguramo ridge (parallel) (4.6 km);
3. Saguramo Administration - Shankevani (4.8 km);
4. Ilia Chavchavadze House-Museum - Saguramo Administration (3 km);
5. Mamkoda - Saguramo ridge (3.7 km);

6. Kotoraantkari - Saguramo ridge (4.3 km);
7. Mshralkhevi - Saguramo ridge (3.6 km);
8. Sabaduri - mowing hut (7.7 km);
9. Mowing hut - Ikvilivgorana (11, 7 km);
10. Kevliani - Mowing hut (2.5 km);
11. Mamkoda - Norio (13.8 km);
12. Tezami - mowing hut (2.8 km);
13. Tskhvarichamia - Yalno hut (9, 8 km);
14. Yalno hut - Gorana (13, 6 km);
15. Kevliani - Yalno hut (3.4 km);
16. Kevliani - Yalno ridge (7.8 km);
17. Norio - Yalno hut (13, 9 km);
18. Lelubani - Norio (10.5 km);
19. Martkopi - Yalno ridge (4.9 km).

The following works are envisaged along with a 67.9 km network out of 143 km recommended trails:

- Ground cutting;
- Arrangement of serpentines;
- Removing-storing and then spreading the humus layer;
- Pathing and compaction of trails;
- Arrangement of longitudinal and transverse beds on the paths;
- Clearing the trails from shrubs (by uprooting);
- Cleaning the paths from fallen stones and branches.

The tree crown formation and trail marking will be carried out along 3.8 km of the trail network. Only marking works will be carried out for 60.1 km of the trail network, and 11.2 km of trails do not require any work. 4.8 km of the trail coincides with the Norio-Martkopi road, where information boards need to be placed.

The trail's width will be 120 cm for hiking and 250 cm for horse riding and cycling trails. The old forest roads will be used for this purpose. The longitudinal slope of the route will be no more than 22%, and the transverse slope - 1-3%. To mark the paths, 155 two-point sign boards, 92 one-point sign boards, 268 non-sign boards, 22 one-sided information boards, 64 place signs, and 7 water signs will be placed. Water signs point to available natural springs e.g. distance to them, access time, etc.

The main part of the works for arranging the paths is produced by hand. The construction corridor of the network of trails is on average 6-7 km away from the road, and the difference in heights is 500-600 meters. Therefore, the SP envisages a field camp in the vicinity of the trail within every 2

km. The workers will have the necessary conditions for an overnight stay and rest. It is planned to set up tents with sleeping bags.

3. Arranging three shelters

The SP envisages the arrangement of the Didveli shelter on Saguramo ridge, the Yalno shelter on Yalno ridge, and the Satibi shelter on Sabaduri ridge. The Didveli Shelter includes a terrace, a fire pit, and benches. The Yalno and Satibi Shelters include terraces, fire pits, benches, and horse stalls.

4. Arranging picnic spaces

The SP envisages arranging a picnic area near Saguramo, as well as near the area intended for placement of Sabaduri Visitor Center, including:

- 2 units for a big picnic (for 20 people);
- 4 units for a small picnic (for 6 people);
- 4 units with a fire pit and benches;
- 4 units of benches;

Arrangement of information boards and benches

The SP envisages placement of information boards and benches at all entrances of trails, including in the villages of Shankevani, Norio, Martkopi, Tezami, Mshralkhevi, Mamkoda, Tskhvarichamia, Kotoraantkari, Kevliani, and Gorana. Information boards pointing to the Saguramo Visto Center will also be placed. 8 information boards and 8 units of benches will be placed at the intersections of network paths.

Environmental and Social Screening and Classification

(A) IMPACT IDENTIFICATION

Has sub-project a tangible impact on the environment?	The SP will have a modest short-term negative physical environmental impact and is expected to have a long-term positive impact on the social environment. The main part of the SP is within the boundaries of Tbilisi National Park, which also covers the Saguramo Emerald Site (Site Code - GE0000047). Approximately 96 kilometers of a planned hiking trail (out of a 143-kilometer covering 19 trail segments) intersect the Tbilisi National Park and the Emerald Site - Saguramo.

	However, most of the hiking trails cross the visitor and traditional use zones of the Park. No works are planned in those trail sections, which have traditionally been pedestrian paths and are within a strict protection zone in the current zoning. Therefore, the existing trails will remain the same as they are at the present stage. None of the planned recreational infrastructure - visitor center, tourist shelter, picnic, etc. fall into the strict protection zone of the Park. The planned ecotourism infrastructure does not conflict with the activities envisaged in Tbilisi National Park Management Plan. The arrangement of the planned infrastructure will not weaken the conservation values of the Tbilisi National Park and Saguramo Emerald Site. It will not affect the values and characteristics of the area due to which it was granted the status of a protected area and emerald site. It is worth mentioning that the arrangement of planned infrastructure will also avoid chaotic tourism, which might have damaged the selected area over time otherwise. Key potential negative impacts on the environment and local community will mainly occur during the construction phase. The scope and extent of the impacts depend on the type and nature of construction works within the National Park. The potential impact is associated with the following aspects of the environment: air emissions, noise and vibration, potential pollution of land, soil, and water, solid waste generation, and nuisance to local communities from the above impacts.
What are the significant beneficial and adverse environmental effects of the subproject?	SP is expected to have a positive long-term social impact by arranging and improving the touristic infrastructure. The increased number of tourists is expected to positively impact the locals' income in the medium- and long term. It will support the promotion and development of a tourism-based economy within the National Park. The expected negative environmental impact is likely to be short-term. As a result of construction works, dust and emissions from the operation of machinery will increase, disturbing locals and tourists, background noise and vibration levels will rise, and construction works will result in the generation of different types

	of construction waste. Health issues related to noise, emissions, and vibration are limited and temporary during the construction phase. Besides, in the operation phase, increased tourist flows may negatively impact the environment indirectly, including waste generation, damaging new infrastructure, etc. No significant social issues are associated with the implementation and operation of this SP. The SP does not imply the private land acquisition; no permanent impacts are envisaged on agricultural lands and private assets or businesses (loss of access to the income of legal or illegal users of land).
May the sub-project have any significant impact on the local communities and other affected people?	At the SP implementation stage, potential employment opportunities will be created for the local population. Although these opportunities will be short-term and temporary, they will partially enhance the economic conditions of the locals, at least for a short time. The basic positive social benefit of the SP will be related to new tourist attractions, which will increase the flow of visitors in the National Park. This will facilitate the development of additional touristic services and private businesses that will potentially improve the social and economic conditions of the local population. Appropriate management of this area should proceed according to best management practices and benefit the local population economically.

(B) MITIGATION MEASURES

Were there any alternatives to the sub-project design considered?	N/A
What types of mitigation measures are proposed?	Reduction of adverse environmental impact during the construction works will be possible through protecting the following key conditions. Certain mitigation actions will be taken, including: • Boundaries of the working areas will be pre-marked and strictly protected during the working process to prevent excessive damage to the surrounding areas;

	• Most of the works will be done manually, without the use of heavy equipment; • In case of using a power source during the construction process, a select less noisy diesel generators will be selected; • Energy-efficient illumination will be used for lighting the Visitor Center and other facilities; • Construction workers will be instructed on the strict prohibition of extracting any flora and fauna from the Park area. The animal disturbance will be minimized by confining the presence of work contractor solely in the area where works are undertaken and by providing escape corridors for animals that may be trapped in the work site; • Conventional good construction practices will be applied to the full extent, including due separation, on-site storage, final waste disposal, erosion control; housekeeping at construction camps and work sites; hygiene, infection control, and high sanitation standards; and observance of occupational health and safety rules. • Upon completion of works, all residual waste will be carefully removed, and worksites will be fully reinstated to quazi-natural state; Good practice in waste and wastewater management will be essential for mitigating negative impacts at the operation phase. Impacts related to the operation of the wastewater treatment unit, like odors and generated sludge, may be easily mitigated through the proper exploitation of the wastewater treatment unit and sludge management. In order to mitigate the operation-phase impacts, the following mitigation measures will be implemented by the Tbilisi National Park Administration and other relevant agencies e.g. Solid Waste Management Company and United Water Supply Company (UWSC): • Regularly deliver solid waste from the touristic sites of the National Park to the municipal landfill, based on a contract made with Solid Waste Management Company; • Disallow burning of waste in an open space; • Maintain water supply and sewage collector system and toilet in good technical condition; • Monitor visitors to avoid littering and damaging the buildings.

What lessons from the previous similar projects have been incorporated into the sub-project design?	MDF has vast experience in implementing medium and large-scale construction/rehabilitation SPs financed by various donor organizations. Based on previous experience gained from implementation of similar projects, the SP envisages not only the construction of the visitor center and but also the surrounding area, including the arrangement of touristic sites, water supply, and sewage systems, parking, and outdoor lighting, as well as improving the landscape of the area.
Have concerned communities been involved and have their interests and knowledge been adequately taken into consideration in subproject preparation?	Due to the potencial COVID-19 outbreak circumstances, conducting a remote public consultation on the SP may be required. Following national regulations in force by the time of consultation and following the National Center for Disease Control (NCDC) guidelines, MDF will decide on structuring the consultation process. If remote consultations are to be undertaken, MDF will use all possible communication means to notify stakeholders of the planned public consultations on the draft ESR/ESMP. The information will be collected during the communication, and the most suitable format of virtual consultation will be planned. Those who have no means of communication except for the phone will be provided with information on the environmental and social aspects of the SP by phone. If they require visualization of the SP, along with the documentation to be reviewed, the authorized persons from the local municipality will visit them as per the regulations and recommendations of NCDC to familiarize them with the relevant documents. The information booklets reflecting detailed information about the forthcoming consultation meetings will be placed at the most visited places by residents.

(D) CATEGORIZATION AND CONCLUSION

Based on the screening outcomes,

Subproject is classified as environmental Category

A ☐

B ■

C ☐

Conclusion of the environmental and social screening:

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

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

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

Social Screening

	Social safeguards screening information	**Yes**	**No**
1	Is the information related to the affiliation, ownership and land use status of the sub-project site available and verifiable? (The screening cannot be completed until this is available)	✓	
2	Will the sub-project reduce people's access to their economic resources, such as land, pasture, water, public services, sites of common public use, or other resources that they depend on?		✓
3	Will the sub-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 ancillary facilities, fence, canal, granaries, and 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**			
	Cultural resources safeguard screening information	**Yes**	**No**
5	Will the project require excavation near any historical, archaeological, or cultural heritage site?		✓
If answer to question 5 is "Yes", then **OP/BP 4.11Physical Cultural Resources** is applicable and possible chance finds must be handled in accordance with OP/BP and relevant procedures provided in the **Environmental and Social Management Framework**			

Environmental and Social Review and Environmental and Social Management Plan

1. Introduction

1.1. Background Information

The Government of Georgia has requested $60 million from the World Bank to implement the Third Regional Development Project (RDP 3). The total project cost is $ 75 million and includes $15 million in funding from the Government of Georgia. The MDF is implementing the project.

The development objective of RDP 3 is to improve infrastructure services and institutional capacity to support the development of a tourism-based economy of the Samtskhe-Javakheti and Mtskheta-Mtianeti regions. The envisaged activities are expected to benefit the residents of these regions and the tourists visiting them. More specifically, implementation of the project is expected to improve access, quality, and reliability of public infrastructure, increase the volume of private sector investment in the region and increase points of sales (tourism-related enterprises) in renovated cultural heritage sites and cities. The Government will benefit from the improved institutional capacity of selected agencies and local-self-governments. Overall, the population is expected to see higher incomes and a better quality of life.

Present SP for the Arrangement of Basic and Recreational Infrastructure in Tbilisi National Park is a part of the RDP 3 and shall be prepared, reviewed, approved, and implemented in agreement with the requirements of the Georgian legislation and the World Bank policies applicable to the RDP 3.

1.2. Institutional Framework

MDF is a legal entity of public law, the objective of which is to support strengthening the institutional and financial capacity of local government units, investing financial resources in local infrastructure and services, and improving on a sustainable basis the primary economic and social services for the local population (communities). MDF is designated as an implementing entity for the RDP 3 and is responsible for its day-to-day management, including applying the environmental and social safeguard policies.

MDF prepares and submits to the World Bank for approval of the SP Appraisal Reports (SARs), with safeguards documents attached. These may include an Environmental and Social Review (ESR) along with an Environmental and Social Management Plan (ESMP), an ESMP prepared using the ESMP Checklist for Small Construction and Rehabilitation Activities, and a Resettlement Action Plan (RAP).

1.3. Legislation and Regulations

According to the Environmental Assessment Code of Georgia (2017), the SP does not require preparation of EIA and obtaining of Environmental Decision (See Annex 5). However, as mentioned, the SP site coincides with the Emerald Network site. According to the Habitats Directive, any project that may affect the area's characteristics for which it has been granted emerald site status needs to be subject to the so-called Appropriate Assessment. Therefore, before starting the infrastructure works, the Appropriate Assessment of the SP on the Saguramo Emerald Site was prepared by the LEPL Agency of Protected Areas (See Annex 6. The Letter from the MEPA). The Tbilisi National Park Recreational Infrastructure Arrangement Appropriate Assessment on the Saguramo Emerald is enclosed in this ESR (See Annex 10).

The SP is classified as B category. Based on risk assessment, SP preparation requires Environmental and Social Review (ESR) and the development of the Environmental and Social Management Plan (ESMP).

MDF carried out ESR for the current SP. ESR document includes detailed ESMP carrying a set of mitigation measures to be applied at both – construction and operation phases and a plan of monitoring environmental compliance of the SP implementation. ESR (including ESMP) is prepared according to recommendations, guiding principles and sample for developing site-specific Environmental and Social Management Plans (ESMPs) provided in the Environmental and Social Management Framework.

2. Subproject Description

Present SP intends to provide the following basic and recreational infrastructure:

Arrangement of Saguramo Visitor Center

Sagumaro Visitor Center is planned to be arranged in Tbilisi National Park, in the 15 meters' distance from the 4th kilometer of the Saguramo-Zedazeni Road. According to the SP design, the Visitor Center is a one-story building with a conference hall, offices, bathrooms, kitchen and dining room, warehouse, and utility room. It has a terrace on the north side. The building is structured on a 20-point reinforced concrete foundation. The vertical load-bearing elements of the building are square columns made of metal. The surface walls, floor, and roof are made of monolithic reinforced concrete slabs, and the walls are lined with wood. A flat roof covers the building with a drainage membrane and a 10 cm rubble surface. The total area of visitor's center is about 265 m^2. The facility will be equipped with electricity, water supply, internal and external sewerage systems. Lightings

with LED lamps will be installed around the building. Universal access to the building and its toilet facilities will be provided.

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This technology allows domestic wastewater treatment throughout the year. An unpleasant odor is not observed since aerobic processes predominate during the operation of the device. The noise level during operation is minimal.

Arranging basic infrastructure for a planned Visitor Center in Sabaduri

The construction of the Sabaduri Visitor Center is not envisaged under this SP. At this stage, within this SP, it is envisaged to arrange a power supply network to the planned Sabaduri Visitor Center for its future functioning. It will be supplied from the Tskhvarichamia power network. The electricity source is located 100 m from the planned visitor center place. The electricity capacity for the visitor center is set at 10 to 30 kW/ h.

Arrangement of trails

The SP envisages arranging a network of 143 km long trails in Tbilisi National Park. A network of hiking trails is envisaged on the southern and northern slopes of forest-covered, mountainous terrains of Saguramo, Yalno, and Sabaduri.

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The trail's width will be 120 cm for hiking and 250 cm for horse riding and cycling trails. The old forest roads will be used for this purpose. The longitudinal slope of the route will be no more than 22%, and the transverse slope - 1-3%. To mark the paths, 155 two-point sign boards, 92 one-point sign boards, 268 non-sign boards, 22 one-sided information boards, 64 place signs, and 7 signs pointing at natural springs suitable for drinking will be placed pointing to nearby water springs.

The main part of the works for arranging the paths is produced by hand. The construction corridor of the network of trails is on average 6-7 km away from the road, and the difference in heights is 500-600 meters. Therefore, the SP envisages a field camp in the vicinity of the trail within every 2 km. The workers will have the necessary conditions for an overnight stay and rest. It is planned to set up tents with sleeping bags.

Arranging three shelters

The SP envisages the arrangement of the Didveli shelter on Saguramo ridge, the Ialno shelter on Ialno ridge, and the Satibi shelter on Sabaduri ridge. The Didveli Shelter includes a terrace, a fire pit, and benches. The Yalno and Satibi Shelters include terraces, fire pits, benches, and horse stalls.

Arranging picnic spaces

The SP envisages arranging a picnic area near Saguramo, as well as near the area intended for placement of Sabaduri Visitor Center, including:

- 2 units for a big picnic (for 20 people);
- 4 units for a small picnic (for 6 people);
- 4 units with a fire pit and benches;
- 4 units of benches;

Arrangement of information boards and benches

The SP envisages placement of information boards and benches at all entrances of trails, including in the villages of Shankevani, Norio, Martkopi, Tezami, Mshralkhevi, Mamkoda, Tskhvarichamia, Kotoraantkari, Kevliani, and Gorana. Information boards pointing to the Saguramo Visto Center will also be placed. 8 information boards and 8 units of benches will be placed at the intersections of network paths.

3. Environmental Conditions

Tbilisi National Park is one of the nine national parks of Georgia located in the Mtskheta-Mtianeti Region, 20 km away from the Tbilisi city center. It is located on the southern slopes of the Greater Caucasus Range and Saguramo-Ialno Range, 600-1,700 meters above sea level. The highest point is 1385 meters above sea level. Its area is 23 218.28 hectares and consists of Saguramo, Gldani, Martkopi, Ghulelebi, and Gardabani districts.

The floral diversity in the Tbilisi National Park is represented by many species of grass and woody plants, such as Oriental hornbeam, Georgian Oak, ordinary ash, beech, ecosystems of hornbeam, crab-apple trees, cornel, hawthorn, spindle, medlar, smoke tree, hypericum, reed grass, forest Ruscus, and origanum. There are also rare and endangered species from the "Red List" like Pontus oak (Quercuspontica), boxwood (Buxuscolchica), bare elm (Ulmusglabra), walnut (Juglans Regia), yew (Taxusbaccata), a small elm (Ulmusglabra), and others. There grow artificial pine and yew trees in the Park as well. Forests in Tbilisi National Park are characterized by vertical zoning.

The Park provides a unique habitat for a wide range of fauna species, among them: wolf, fox, lynx, hare, roe, brown bear, marten, weasel; 46 endemic species of mammals: Caucasian mole (Talpacaucasica), the ordinary squirrel (Sciurus vulgaris), East European hedgehog (Erinaceusconcolor), the black rat (Rattus), field mouse (Musmacedonicus); avifauna representatives: blackbird, jay, falcon, woodpeckers; 12 species of reptiles: Caspian whipsnake, grass snake, smooth snake; rare and endangered species of animals and birds from the "Red List": lynx, red deer, brown bear, spotted eagle, Levant sparrowhawk, and Imperial eagle.The Tbilisi National Park is also an Emerald Site - Saguramo (Site Code - GE0000047) which 100% coincides with the border of the protected area (Site-center location [decimal degrees]: Longitude44.9258 Latitude 41.8741; Area [ha]: 21037.69727; Sitelength [km]: 26.1; Biogeographical Region (s) Alpine (100.0%)).

The National Park (Emerald Site) territory includes the middle mountain ridges of Saguramo-Yalno and Sabaduri and the valleys of Tedzami, Gldani, Tranuli, and Iori. In the middle of the Saguramo-Yalno ridge, there is a decent -Lelubani pass. To its west is Saguramo, and to the east is Yalno ridge. All of the above lead to beautiful, unique landscapes as well as an abundance of biodiversity.

Five habitats are presented at the Saguramo Emerald site protected by the Committee Resolution 4 of the Bern Convention. The arrangement of eco-touristic infrastructure will cover four out of five habitats protected by the Bern Convention; the exception is the F9.1 Riverine scrub habitat. These habitats provide a diversity of flora and fauna. There are 688 plant species in the area; among them

are 27trees and 76 species of shrubs, 381 species of perennials, 45 species of biennials, and 159 species of annuals, in total 581 species of herbaceous plants. 14 species are endemic to Georgia and31 to the Caucasus from the flora present at the SP site. Moreover, from the presented species, 179 of them are characterized by healing nature. Georgian oak, beech, hornbeam, common ash are mainly found in the forest covering the SP area. Red-listed species are also common in the SP area, including box-tree (Buxus colchica Pojark.), Taxus (Taxusbaccata L.), Bare Ulmus (Ulmus glabra Huds.), Small Ulmus (Ulmus Minor Mill), Common Walnut (Juglans regia L.), Georgian almond (Amigdalus Georgia Desf.), Southern acacia (Celtis australis L.), and others. The representatives of the following species are also widespread: Colchian Holly, Pastukhov Ivy, Eastern Viburnum, and others. The abundance of bird species distinguishes the SP area as well.

In terms of construction climatology (PN 01.05.08), the SP is included in the II-G region, with moderately cold winters and cool summers. The average annual air temperature is 7.60 °C. The coldest month is January, with an average temperature of -4.10 °C. The warmest month is August, with an average temperature of 18.50 °C and an absolute maximum of 36.00 °C. The average annual relative humidity is 79%, the maximum is recorded in December (84%), the minimum is in August (74%). The total atmospheric precipitation is 780m.

Daily atmospheric precipitation is a maximum of 120 mm. Snow weight is 0.5 kPa. West (32%) and east (31%) winds are more frequent during the year, less intense in the northwest (17%). The normative value of wind pressure is 0.48 once in 5 years; In 15 years - 0.6 KPA. Wind's largest speed can be observed once in 1, 5, 10, 15, and 20 years, respectively 24, 28, 30, 32, and 33 m / sec. Seasonal ground freezing normative depths are clay and clay soil - 50cm, 60cm, large and pebbled sand - 64 cm, and coarse-grained soil - 74 cm. The study area is geomorphologically located in the Shida Kartli region of the intermountain basin and covers the middle part of the northern slope of the Saguramo ridge. Saguaro ridge medium height mountains of sub meridian orientation. The outline of the ridge is asymmetric; its southern slope is relatively shorter and steeper than its northern slope. The north slope in this section is of average inclination, in total 10-150, with moderately segregated dry ravines whose intersection depths range from 4-5 to 30-40 m. The slope runs in a northerly direction, with relatively small sloping surfaces alternating between them. The area is lined with dense deciduous forest. Tree height is 10-15m. Distance between trees 2-3 to 5-6m.

4. Potential Impacts

4.1 Construction Phase

4.1.1. Social Impacts

- **General set of social issues.** Significant negative social impact during the construction activities is not envisaged
- **Resettlement Issues.** SP does not imply the private land acquisition, and no permanent impacts are envisaged on private or leased agricultural lands and private assets or businesses.
- **Positive impact related to Job opportunities for construction workers, l**imited and temporary during restoration/construction and limited during operation.
- **Traffic Disruption**. Local traffic can be impacted by transport activities related to the SP temporarily.
- **Safety and Access.** There will be no reduced access to areas adjacent to the project site and no potential hazards to vehicles and pedestrians.

4.1.2. Impacts on the Physical Cultural Property Many historical and cultural monuments are in and around Tbilisi National Park, including ancient towers, temples, and villages. Mtskheta Svetitskhoveli and Mothers' Monastery, Jvari Monastery, Zedazani Monastery are important destinations for tourists (the forested slopes of Zedazani Mountain are covered with many historical and cultural monuments as well, including Kasuri Cathedral, Brick Cathedral, Darbazevi, etc.). Deity Monastery, Norio Castle, and the famous Martkopi historically valley are within the SP boundary as well.

There are no cultural or historical resources on the SP sites. No mitigation measures are necessary. However, it does not exclude any chance finds during the excavation works. Therefore, proper procedures should be taken by a work contract in case of such chance findings as described in the table of mitigation measures.

4.1.3. Environmental Impacts

The SP will have a modest short-term negative physical environmental impact and is expected to have a long-term positive impact on the social environment.

In the process of designing ecotourism infrastructure, the protection status of the SP area was fully respected and only minimal intervention with minor environmental footpring was planned. The technical regulation on the Planning and Arranging Hiking Trails was also considered. The main part of the works will be carried out without heavy equipment/technic. Most of the infrastructure of the planned trails runs along with the old and existing forest, motor roads, and their surroundings. Also,

part of the trails is traditional and existing hiking trails that need rehabilitation. It can be said that the project area is significantly modified from an anthropogenic point of view.

High anthropogenic interference is observed in the sections of Tbilisi National Park, where ecotourism infrastructure is planned. People and cattle frequently move on these territories. The reason for moving is hiking and traditional activities, such as logging, cattle grazing, etc. Therefore, in key sections of the planned infrastructure, human intervention is considered a background condition.

According to the management plan, there are four zones in Tbilisi National Park:

1. Strict nature protection zone
2. Visitor zone
3. Traditional use zone
4. Historical-cultural zone

Most of the hiking trails cross the visitor and traditional use zones (See Annex 7). Sections that traditionally have been hiking trails, including those connecting local houses, cattle-crossing trails, old/existing forest roads, etc., and fall within a strict protection zone with the current zoning will remain the same; no works are planned in the mentioned sections. The other infrastructure, such as the Visitor Center, tourist shelters, picnic areas, etc., none fall into the strict protection zone.

Given all the above, the planned ecotourism infrastructure does not conflict with the activities envisaged in the Tbilisi National Park Management Plan; moreover, the mentioned infrastructure meets the requirements of the management plan, including solving the main problems related to ecotourism.

Moreover, arranging the planned infrastructure will not weaken the conservation values of the Tbilisi National Park and Saguramo Emerald site. It will not affect the area's characteristics, for which it was granted protected area and emerald site. With organized ecotourism infrastructure, chaotic tourism will be further avoided.

Soil Pollution

Potential soil pollutants from the SP include the following (this list is not exhaustive):

- Diesel fuel, lubrication oils, and hydraulic fluids, antifreeze, etc. from 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 refueling;
- Releasing silt water from excavations;
- Silt suspended in runoff waters ("construction water");
- Washing of vehicles or equipment.

Spillages may travel quickly downhill to a nearby watercourse or water body. It is therefore vital that prompt action is taken in the event of any potential water pollution incident.

During the earthworks, if that requires the take of the topsoil, the subsoil might become exposed. In wet weather, this may result in an uncontrolled release of suspended solids from the work area.

Air Pollution and Noise

The potential impact of air pollution is minimal and related to the operation of vehicles and machinery at the project site and during transportation of materials:

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

Construction Related Wastes

Construction/rehabilitation activities always produce waste material, and if properly handled and disposed of, waste material would have no significant adverse environmental effects. Potential waste includes:

The solid waste generated through unsound construction practices and left on-site; liquid wastes, either released in an accidental spill or generated as part of normal construction practices (from construction machinery or activities), could contaminate soil, groundwater, and surface water; soil, excavated for drilling or for placing pipe.

It is difficult to give exact figures of construction waste produced on construction. Produced construction wastes will include very little waste concrete, metal, and timber, stone masonry, tiles/pipes, glass, paper, plastic, oils, and chemicals (i.e., paint, solvents) for disposal. Waste will be stored in temporary storage areas for its further final disposal. Land-clearing debris and soil (for trail construction sections as well) will be backfilled or spread on-site.

Hazardous Construction Wastes

Small quantities of hazardous wastes will arise mainly from vehicle maintenance activities. Hazardous wastes, which could be generated, include:

- liquid fuels;
- lubricants, hydraulic oils;
- chemicals, such as anti-freeze;
- contaminated soil by fuels/oils;
- spillage control materials used to absorb oil and chemical spillages;
- machine/engine filter cartridges;
- oily rags, spent filters, contaminated soil, etc.).

Transport related impacts

The following impacts may be generated:

- Noise & Vibration Impacts;
- Traffic congestion (nuisance);
- Air pollution;
- Mud on roads;
- Refueling, 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 nearby watercourses and water bodies;
- Exposure of contaminated land.

Noise & Vibration Impacts

Some noise and vibration may occur due to the work of machinery and movement of transport.

Biodiversity

As mentioned above, Tbilisi National Park comprises several management zones, including:

- Strict protection zone
- Visitor zone
- Traditional Use zone
- Administrative zone
- Historic-cultural zone

No piece of infrastructure to be provided by the SP (e.g., the visitor center, tourist shelter, picnic area, etc.) will not be located in the strict protection zone of the Park, and most hiking trails cross the visitor and traditional use zones of the Park.

Due to the co-location of the Emerald site with the SP intervention site, Emerald Sites Appropriate Assessment was carried out to determine what impacts the SP would have on the habitats and species protected in this site, whether the nature and scope of impacts would be acceptable, and whether SP implementation would be allowed in this Emertal Site.

Five habitats are presented at the Saguramo Emerald site protected by the Committee Resolution 4 of the Bern Convention. The arrangement of eco-touristic infrastructure will cover four out of five habitats protected by the Bern Convention; the exception is the F9.1Riverine scrub habitat.

Appropriate Assessment determined that neither construction phase nor operational phse of SP would cause the fragmentation of habitats protected by Committee Resolution # 4, or the significant damage which may cause habitat degradation or any irreversible adverse process. None of the habitats in the area require specific mitigation measures due to the impact caused by the planned infrastructure.

The potential impact on Saguramo Emerald Site on the species protected by Resolution # 6 of the Committee of the Bern Convention are summarized below. More information on impacts and respective mitigation measures is provided in Annex 8 to this ESR.

Possible adverse effects on amphibians:

No significant impact is expected on these species due to the planned ecotourism infrastructure.

Possible adverse effects on birds:

Most of the works planned for the arrangement of the ecotourism infrastructure envisaged by the project - the arrangement/rehabilitation of the network of hiking trails is carried out without heavy equipment; there will be no strong noise sources. The works will be carried out during the day; logging is not planned, the main part of the infrastructure will not need lighting during the infrastructure works or the subsequent period of operation.

Consequently, given the above, the expected impact on the bird may be estimated to be negligible. If the project is implemented, the bird populations will not be negatively affected by the arrangement of the infrastructure and the operation process. They will not cause the decline of bird population or impact the environmental conditions that make the Saguramo site a comfortable habitat for them. No specific mitigation measures are planned for this purpose.

Possible negative impacts on invertebrates:

It can be said that the planned works will not have any significant impact on the invertebrates that are presented in the area and protected by Committee Resolution # 6.

Possible adverse effects on mammals:

The expected impact on the mammalian may be insignificant both in terms of infrastructure arrangement and operation. Mammals will not be exposed to the negative impact that may affect and decline the population and the environmental conditions that make the Saguramo site a comfortable habitat for them. Specific species of mammals do not require specific mitigation measures.

Possible adverse effects on plants:

Due to the specifics of the planned ecotourism infrastructure, plant species do not require any special mitigation measures, as significant damage is not envisaged.

Possible adverse effects on reptiles:

No significant impact is expected on reptiles due to the specifics of the SP works. However, some risks are associated with land works and ditches limiting the movement areas for reptiles during the arrangement of trails and other ecotourism infrastructure. However, this is not related to the impact that may affect the population.

Vegetation and Landscape.

The SP does not envisage woodcutting; only cleaning of low-growing vegetation (shrubs) will be required to provide space for some trails within the Park. The SP design also does not envisage any significant changes in the existing landscape.

4.2. Operation Phase

Potential impacts related to the operation of the infrastructure on the territory of the National Park would be the following:

- An increase in the number of tourists will result in an increased volume of litter and noise; cases of vandalism cannot be excluded either;
- Operation of the Visitor Center will generate household waste, wastewater, and sludge sewage treatment facility;
- Disruption in the provision of utility services (water, gas, power) may occur, resulting in the nuisance to the staff and visitors of the Park premises;
- While hiking and biking along the trails, park visitors may have incidents/accidents, resulting in trauma or other damage to health;
- The traffic might also increase due to increased tourists, resulting in increased local emissions and noise and traffic safety issues.

Positive social impact will be related to the improved tourist infrastructure that will positively affect the local population in terms of potential employment in the service sector and income.

5. Environmental and Social Management Plan

The Environmental and Social Management Plan (ESMP) is developed based on the expected impacts on the social and natural environment. ESMP is an integral part of the construction contract, and implementation of ESMP requirements are obligatory for a contractor.

The contractor is required to obtain environmental licenses, formal agreements, and approvals from the designated State authorities for the following types of activities:

1. If the contractor wishes to open quarries for mining for natural construction materials or extract sand/gravel from a riverbed, then the contractor must obtain extraction licenses from the National Agency of Mines. However, the purchase of material from already operating quarries is preferable. In this case, the material shall be purchased from licensed providers only.
2. If the contractor wishes to operate its own concrete plant, then the contractor must prepare a technical report on the inventory of atmospheric air pollution from a stationary source and agree on it with the Ministry of Environment Protection and Agriculture (MoEPA). However, the purchase of concrete mix from another provider is preferable.
3. The contractor must dispose of construction waste exclusively in the pre-identified formal landfill operated by the Georgian Solid Waste Management Company following a written agreement. Excess material may be disposed of outside sanitary landfills, but only in the pre-identified locations formally endorsed by municipal authorities and by a technical supervisor of works representing MDF.
4. If more than 200 tons of non-hazardous waste or more than 1000 tons of inert materials or more than 120 kg of hazardous waste is generated annually by a company as a result of commercial activity, this company shall prepare and obtain approval of the MoEPA on the Waste Management Plan, undertake waste inventory, and report to the M0EPA, and appoint an environmental manager whose identity should be submitted to the MoEPA following the requirements of the Waste Management Code of Georgia.

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

GOST and SNIP norms must be adhered.

ENVIRONMENTAL AND SOCIAL MITIGATION PLAN

Activity	Expected Negative Impact	Mitigation Measure	Entity Responsible for implementation
PRE-CONSTRUCTION PHASE			
Preparing for commencement of works	Noncompliance with the national legislation and the World Bank requirements may lead to sanctions and delays in contractor's activity	If applicable, the following permits/licenses and agreements should be obtained by the works contractor and submitted to the MDF: Agreement for disposal (stockpiling) of excessive soil Licenses for extraction of natural construction material Permits for production of construction materials that belong to the activity subject to environmental decision Technical report on the inventory of atmospheric air pollution stationary source and approval by the MoEPA Agreement on household and construction waste disposal in the nearest landfill.	Contractor
Entering construction site in	Tension and conflict with local communities	The contractor shall place an informational banner on the project site. Information about the contact persons in the MDF,	Contractor

Activity	Expected Negative Impact	Mitigation Measure	Entity Responsible for implementation
the vicinity of settlements		works' supervisor company, and local municipality administration to whom people can apply with the complaints on environmental and social issues shall be placed on the banner. The banner must be made of weather-resistant material. Inscriptions on the Informational banner should be in Georgian and English languages.	
Arrangements for implementation of environmental measures	Poor environmental management of works and failure to duly implement mitigation measures that may lead to sanctions against contractor and delay in activity	Appointing a person responsible for the protection of the social and natural environment and ESMP implementation Training of workers regarding social and environmental protection measures to be implemented Delivery of supplies required for the implementation of planned mitigation measures	Contractor
CONSRUCTION PHASE			
Construction works, including:	Deterioration of ambient air quality	All vehicles shall be maintained so that their emissions do not cause a nuisance to	Contractor

Activity	Expected Negative Impact	Mitigation Measure	Entity Responsible for implementation
- Preparation of construction sites - Earth works - Installation of facilities - Machinery operations - Transportation		workers or local people. All vehicles shall be checked and repaired in case of need to eliminate an increased level of noise due to damaged parts; Regular maintenance of diesel engines shall be undertaken to minimize emissions, for example, by cleaning fuel injectors. All machines used on-site shall be regularly maintained to be always in good working order to minimize potentially polluting exhaust emissions; Vehicle refueling shall be undertaken to avoid fugitive emissions of volatile organic compounds using fuel nozzles and pumps and enclosed tanks (no open containers will be used to store fuel); Materials transported to the site shall be covered/ wetted down to reduce dust. The construction site shall be watered as appropriate.	

Activity	Expected Negative Impact	Mitigation Measure	Entity Responsible for implementation
		Protective equipment shall be provided to workers as necessary to cover respiratory problems caused by dust and PMs; During demolition works (if applicable), destruction dust shall be suppressed by ongoing water spraying and/or installing dust screen enclosures at the site; The surrounding environment shall be kept free of debris to minimize dust; Earthworks shall be suspended during strong winds; Construction materials and storage piles shall be covered; Stripped soil/ excavated ground shall be stockpiled properly; There shall be no open burning of construction/waste material at the site; There shall be no excessive idling of construction vehicles at sites;	

Activity	Expected Negative Impact	Mitigation Measure	Entity Responsible for implementation
		The SP territory shall be reinstatement immediately after finalizing construction works.	
	Propagation of noise and vibration	The maximum speed shall be restricted in residential areas to the safety level during the pass of the trucks; Proper technical control and maintenance practices of the machinery shall be applied; Activities shall be limited to daylight working hours; No-load operations of the vehicles and machinery are not allowed. Proper mufflers will be used on machinery; Ensure that machinery is in good technical condition.	Contractor
	Damage of soil	Demarcation of construction sites' boundaries and access roads before construction works are launched; Adherence to demarcated worksite boundaries during operations;	Contractor

Activity	Expected Negative Impact	Mitigation Measure	Entity Responsible for implementation
		Stripping of topsoil from worksites (whenever possible) before starting of earthworks and stockpiling for subsequent reinstatement, in compliance with the Technical Regulations on Stripping, Stockpiling, Use and Reinstatement of Topsoil (2014); Topsoil shall be stored in stockpiles, no more than 2m high, with side slopes at a maximum angle of 45^0. The following shall also be taken into consideration: Dedicated storage locations shall be used that prevents the stockpiles from being compacted by vehicle movements or contaminated by other materials; Topsoil shall be segregated from subsoil stockpiles; No material shall be stored where there is a potential for flooding;	

Activity	Expected Negative Impact	Mitigation Measure	Entity Responsible for implementation
		No storage at less than 25m from river/streams, subject to the site-specific topography; Topsoil stripping during heavy rains will not be allowed; Stored topsoil shall be used for reinstatement and landscaping of the SP area immediately after completing construction works. As appropriate, this may include leveling of the ground surface, reinstatement of topsoil and measures to facilitate natural recovery of vegetation; Topsoil from the sites, which will not be reinstated to the initial conditions, shall be distributed carefully on the surrounding area; In this case, if stockpiles experience significant erosion, the contractor will be required to implement corrective action such as installing erosion matting over the	

Activity	Expected Negative Impact	Mitigation Measure	Entity Responsible for implementation
		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; Subsoil shall be stored in stockpiles, no more than 3m high with side slopes at a maximum angle of 60^0; dedicated storage locations shall be used that prevent the stockpiles from being compacted by vehicle movements or contaminated by other materials; subsoil shall be segregated from topsoil stockpiles.	
	Water and soil pollution	Provision of staff with appropriate toilet and bathroom, and centralized discharge of generated wastewater in the sewer systems if possible or install temporary structures; Ensuring that machinery is well maintained;	Contractor

Activity	Expected Negative Impact	Mitigation Measure	Entity Responsible for implementation
		Refueling of machinery using respectively equipped refueling trucks and using of drip trays during refueling operations; Refueling and maintenance of machinery only at a specially devoted site, where topsoil is tripped and grovel layer is arranged; lubricants, fuel, and solvents shall be stored exclusively in the designated sites; No fuel, lubricants, and solvents storage or refueling of vehicles or equipment will be allowed near the cultural heritage site (if applicable); Ensuring that construction materials are appropriately stockpiled and stored in the specially designated and temporarily constructed storage facilities; Temporarily storage on site of all hazardous or toxic substances shall be in safe containers labeled with details of composition, properties, and handling information; Spill containment materials	

Activity	Expected Negative Impact	Mitigation Measure	Entity Responsible for implementation
		(sorbents, sand, sawing, chips, etc.) should be available on the construction site; Ensure that all spills are cleaned up immediately and contaminated soil is respectively disposed of; Wet cement and/or concrete will not be allowed to enter any watercourse, pond, or ditch. Cleaning up the entire SP territory from construction waste as soon as the construction works are finalized. Upon completion of washing and disinfection of pipes and reservoirs, neutralize disinfection solution before releasing to the environment to avoid damage to terrestrial or aquatic organisms. Agree on the release of neutralized water to the environment with the local municipality and the PA Administration.	
	Pollution of the environment by solid and liquid wastes	Prohibit open-air burning of waste;	Contractor

Activity	Expected Negative Impact	Mitigation Measure	Entity Responsible for implementation
		Do not use paints with toxic ingredients or solvents or lead-based paints; Collect different types of waste (construction, hazardous, household) separately; designate special sites for waste accumulation and pollution prevention measures shall be applied there; Dispose non-toxic construction waste and excess soil on the territory allocated by the municipality or on the nearest municipal landfill; Temporarily storage of all hazardous or toxic substances shall be in safe containers labeled with details of composition, properties, and handling information; Uncontrolled storage of hazardous wastes on the construction area is prohibited; Place containers of hazardous substances in a leak-proof container to prevent spillage and leaching; hand it over to a permitted	

Activity	Expected Negative Impact	Mitigation Measure	Entity Responsible for implementation
		waste management company, on a contractual basis; Remove any construction or municipal wastes produced during the construction stage from the site area frequently; Obtain agreements on the disposal of prior waste disposal is undertaken.	
	Disturbance of wildlife, Excessive damage to vegetative cover, Unnecessary damage or extraction of animal and plant specimen[1]	Do not damage or exploit any recognized natural habitats, wetlands, streams in protected areas near the activity; strictly prohibited hunting, foraging, logging, or other damaging activities by staff and personnel. Carry out an inventory of large trees in the vicinity of the construction activity; mark large trees and cordon them off with fencing, their root system protected, and any damage to the trees avoided.	Contractor

[1] See a summary tables of key impacts and mitigation measures on habitats and species protected by Bern Convention Committee Resolution # 4 and # 6 on the Emerald Network Site in Annex X

Activity	Expected Negative Impact	Mitigation Measure	Entity Responsible for implementation
		Protect adjacent streams from construction site run-off with appropriate erosion and sediment control features to include by not limited to hay bales and silt fences.	
	Impact on traffic flow	Impose speed limitation to the SP machinery; Ensure that SP machinery move using only pre-determined routes; The frequency of machinery movement shall be restricted.	Contractor
	Health and safety risks for the local community	The construction site shall be properly secured, and construction-related traffic regulated. This includes but is not limited to: Installation of the signposting, warning signs, barriers, and traffic diversions: signs shall be clearly visible, and the public warned of all potential hazards; Construction site and all trenches shall be fenced and properly secured to prevent	Contractor

Activity	Expected Negative Impact	Mitigation Measure	Entity Responsible for implementation
		unauthorized access (especially of children); Appropriate lighting 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; Imposing speed limitation to SP machinery Ensuring that SP machinery move using only pre-determined routes	
	Damage to private property	Ensuring that machinery move using only pre-determined routes; Imposing of speed limitation to machinery; Compensating inflicted losses promptly and to full extent.	Contractor
	Conflicts with the local population	Meeting with the local population (if required) Reception and addressing of complaints/grievances	Contractor
	Occupational health and safety risks	Informing the SP labor about potential health and safety risks and instructing them	Contractor

Activity	Expected Negative Impact	Mitigation Measure	Entity Responsible for implementation
		regarding safety measures to be adhered to (before launching construction works and during civil works) Ensuring that required personal protection equipment (e.g., helmets, gloves, etc.) is supplied and used by workers as appropriate Ensuring safety of machinery operations Provision of safety signs for high-risk zones	
	Impact on cultural heritage	Suspension of construction operations if archeological objects or artifacts are discovered during earthworks, informing the MDF and Ministry of Culture and Monument Protection about the chance finding and resume works only after respective permission is issued;	MDF, Contractor
Social Risk Management	Public relationship management	Assign local liaison person who oversees communication with and receiving requests/ complaints from local population. Consulted local communities to identify and pro-proactively manage potential	Contractor

Activity	Expected Negative Impact	Mitigation Measure	Entity Responsible for implementation
		conflicts between an external workforce and local people. - Rise local community awareness about sexual disease risks associated with the presence of an external workforce and include local communities in awareness activities. - As appropriate, inform the population about construction and work schedules, interruption of the services, traffic detour routes and provisional bus routes, blasting, and demolition. - Limit construction activities at night. When necessary, carefully schedule night-time works and inform the affected community so they can take necessary measures. - At least five days before any service interruption (including water, electricity, telephone, bus routes), advise the affected community through postings at the project	

Activity	Expected Negative Impact	Mitigation Measure	Entity Responsible for implementation
		site, at bus stops, and in affected homes/businesses.	
	Labor management	- To the extent possible, locate work camps away from local communities. - Undertake sitting and operation of worker camps in consultation with neighboring communities. - Recruit unskilled or semi-skilled workers from local communities to the extent possible. Where and when feasible, provide worker skills training to enhance the participation of local people. - Provide adequate lavatory facilities (toilet and washing area) in the worksite with adequate supplies of hot and cold running water, soap, and hand drying devices. Establish temporary septic tanks for any residential labor camp and without causing pollution of nearby watercourses. - Raise awareness of workers on overall relationship management with the local	Contractor

Activity	Expected Negative Impact	Mitigation Measure	Entity Responsible for implementation
		population, establish the code of conduct in line with international practice and strictly enforce them, including the dismissal of workers and financial penalties of adequate scale.	
OPERATION PHASE			
Environmental and public health impact	Poorly operated and maintained water supply systems	Quarterly water quality testing for indicators (fecal coliforms, nitrates, and COD) to ensure delivery of safe water. Leak detection and inspecting the water network ensure the delivery of an adequate quantity of potable water. Fix leaks. - Establish and maintain documented procedures and provide regular worker training on O&M water supply system inspection.	Agency of Protected Areas Tbilisi National Park Administration UWSC
	Poorly operated and maintained sewage treatment facility	Implement mitigations in sewage system O&M report prepared at the end of the construction period.	Agency of Protected Areas Tbilisi National Park Administration

Activity	Expected Negative Impact	Mitigation Measure	Entity Responsible for implementation
		Routine maintenance is provided. For septic tanks, sludge and solids were removed per the established timetable. Inspect sewer pipelines for leaks and blockages—repair as needed. Inspect greywater systems. Provide maintenance equipment for removing sewer pipeline blockage, leak detection, etc. Provide guides on shower/toilet, what not to flush in toilet, routine maintenance, how to fix blockages. Establish and maintain documented procedures and provide regular facility operator worker training on O&M system inspections and minimizing impacts on local habitats.	

6. Monitoring

MDF carries overall responsibility for monitoring the implementation of the environmental mitigation measures. A consulting company hired to supervise works will supplement MDF's in-house capacity for tracking environmental and social compliance of works undertaken under this SP. A field monitoring checklist will be filled out, and photo material will be attached monthly. Environmental monitoring of the SP shall be implemented according to the plan given below.

Narrative reporting on the implementation of ESMP will be provided monthly and quarterly 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 that contractors are required to have according to the Georgian law for extracting material, operating asphalt/concrete plants, disposing of various types of waste, etc.

7. Remedies for ESMP Violation

MDF, as a client of construction works, will be responsible for enforcing compliance of the contractor with the terms of the contract, including adherence to the ESMPs. In case of recorded incompliance with ESMPs, MDF will instruct contractors on the corrective measures and closely monitor their further progress.

The contractor is obliged to carry out any of its activities pursuant to the Georgian Environmental Legislation in force, and in case if any noncompliance is revealed, the contractor shall be liable to cover at its own expense all damage liquidation costs.

8. Implementation cost

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

9. Grievance Redress Mechanism

An appropriate grievance redress mechanism will be established to solve the grievances of SP-affected people, as required. Representatives of the administration of Tbilisi National Park will be appointed as contact points to receive, review, and react to the grievances.

The contact person from the MDF is Nutsa Gumberidze (Tel: +995 598 88 20 19, feedback@mdf.org.ge, 150 Davit Aghmashenebeli ave., 4th floor, 0112 Tbilisi, Georgia).

If the grievance is not unsolved at the local level, it will be lodged to the MDF. As for grievance monitoring, MDF registers all received compliances, comments, and how the compliance was addressed. During public consultations, the local population will be informed about the grievance redress process and receive information about contact persons.

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?)
CONSTRUCTION PHASE						
Supply with construction materials	Purchase of construction materials from the officially registered suppliers	In the supplier's office or warehouse	Verification of documents	During the conclusion of the supply contracts	To ensure technical reliability and safety of infrastructure	MDF, Construction supervisor
Transportation of construction materials and waste; Movement of construction machinery	Technical condition of vehicles and machinery Confinement and protection of truckloads with lining Respect of the established hours and routes of transportation	Construction site	Inspection	Unannounced inspections during work hours and beyond	Limit pollution of soil and air from emissions; Limit nuisance to local communities from noise and vibration; Minimize traffic disruption.	MDF, Construction supervisor, Traffic Police
Earthworks	The temporary storage of excavated material in the pre-defined and agreed upon locations; Backfilling of the excavated material and/or its disposal to the formally designated locations;	Construction site	Inspection Permanent oversight by archaeologists	During earthworks	Prevent pollution of the construction site and its surroundings with construction waste; Prevent damage and loss of physical, cultural resources	MDF, Construction supervisor

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?)
Sourcing of natural construction material	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	During material extraction	Limiting erosion of slopes and degradation of ecosystems and landscapes; Limiting erosion of riverbanks, water pollution with suspended particles, and disruption of aquatic life.	MDF, Construction supervisor
Generation of construction waste	The temporary storage of construction waste in specially 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

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?)
	Timely disposal of waste to the formally designated locations					
Damage of vegetation	Landscaping of the Site upon the completion of works; Planting of pine and juniper trees	Construction site	Inspection	Towards completion of works	Prevent deterioration of the aesthetic value of the site	MDF, Construction supervisor
Traffic disruption and limitation of pedestrian access	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	During construction works	Prevent traffic accidents; Limit nuisance to residents	MDF, Construction supervisor
Cleansing of newly laid water supply pipes and reservoir	Dissolution or chemical deactivation of disinfecting solvent at an allowable concentration of residual chlorine in drinking water before release	Endpoints of pipelines	Inspection of cleansing works	During pipeline washing, by the time of completion of their installation	Prevent pollution of soil, groundwater, and surface water with concentrated chlorine	MDF, Construction supervisor
Handover of the arranged water	UWSC staff trained in the operation and	Office of contractor	Check of records	Upon completion of work on the	Prevent malfunctioning and untimely	MDF,

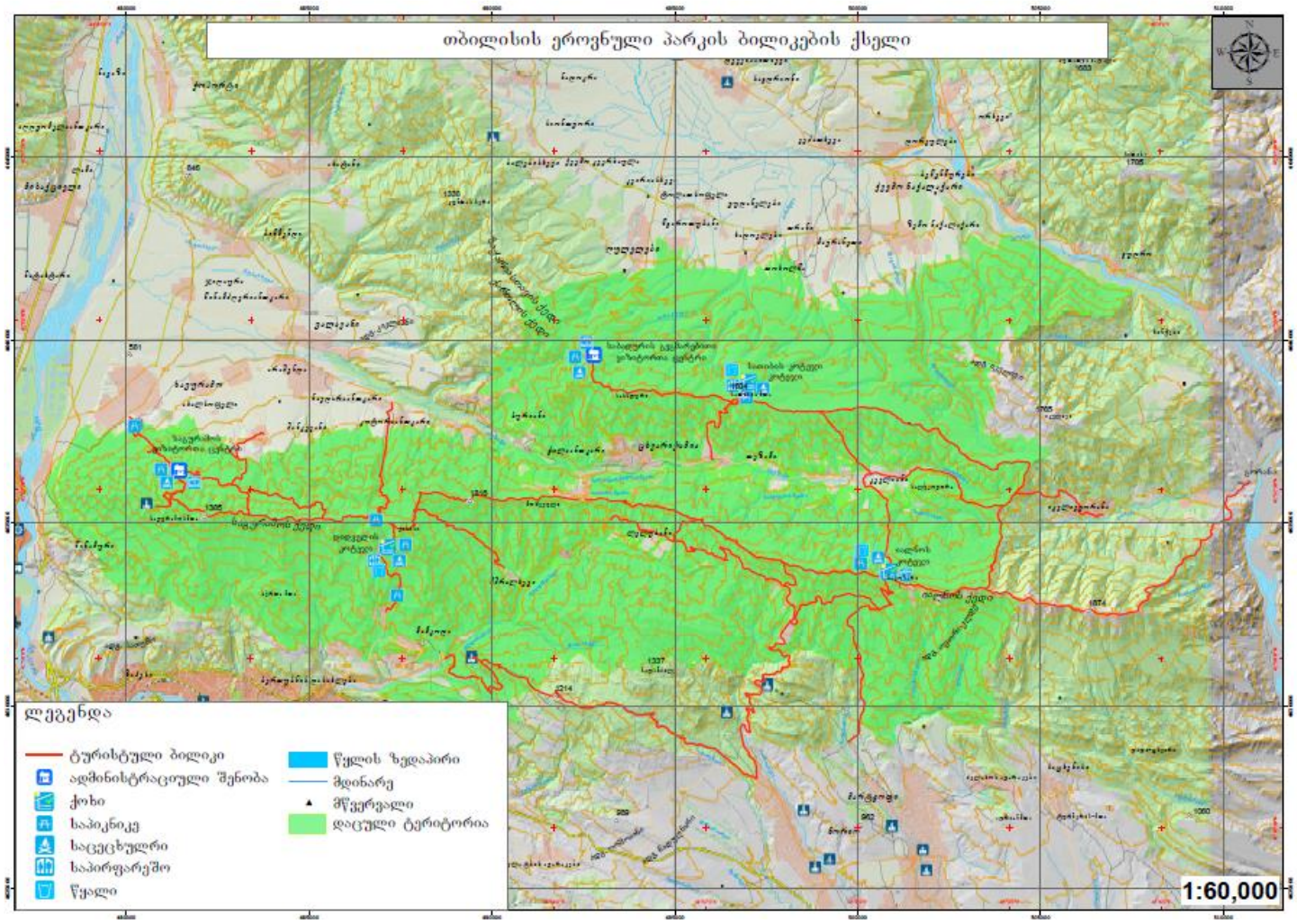
Activity	What (Is the parameter to be monitored?)	Where (Is the parameter to be monitored?)	How (Is the parameter to be monitored?)	When (Define the frequency / or continuous?)	Why (Is the parameter being monitored?)	Who (Is responsible for monitoring?)
supply system to UWSC for operation	maintenance of the provided water sully system			water supply system	deterioration of the provided water supply system	Construction supervisor
Workers' health and safety	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
OPERATION PHASE						
Management of the solid waste	Trash binds provided on-site and arrangement in place for timely regular out-transporting of waste	Constructed/rehabilitated facilities/areas	Inspection	During operation of facilities	Prevent littering of the site and area around it	Tbilisi National Park Administration
Maintenance and protection of the site after the rehabilitation	No unauthorized construction and no informal land use in the vicinity of the rehabilitated waste supply system	Constructed/rehabilitated facilities/areas	Inspection	During operation of facilities	Prevent the loss of the historic and aesthetic values of the site and surrounding area	Tbilisi National Park Administration

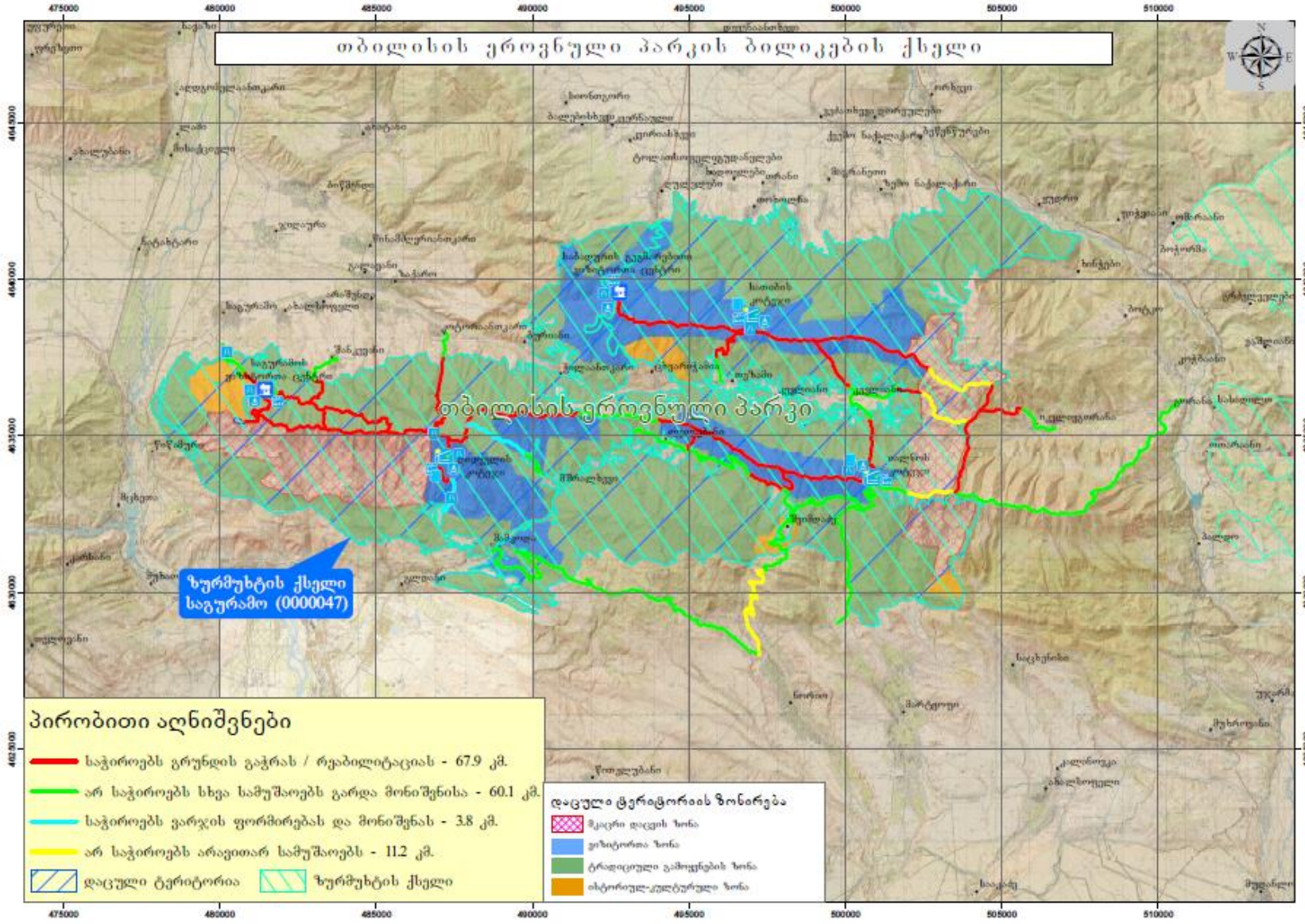
Activity	**What** (Is the parameter to be monitored?)	**Where** (Is the parameter to be monitored?)	**How** (Is the parameter to be monitored?)	**When** (Define the frequency / or continuous?)	**Why** (Is the parameter being monitored?)	**Who** (Is responsible for monitoring?)
Servicing of water supply scheme and sewage system	The water supply scheme does not leak, and the water supply uninterrupted Sewage systems operate smoothly	Constructed/rehabilitated facilities/areas	Inspection	During operation of facilities	Prevent water loss and waterlogging of the site Prevent pollution of surface and groundwater with untreated sewage	Tbilisi National Park Administration
Safe functioning of the water supply disinfection system via chlorination	UWSC staff trained in system operation by a construction contractor operates and maintains the system as instructed during training	Potable water treatment facility/system	Inspection	Upon start-up of water supply system in operation	Prevent environmental damage due to operational and emergency release of chlorine	UWSC
Sludge management	Sludge is removed from the sewage treatment unit and properly discharged	Sludge to be discharged into the sewage system	Inspection	After completion of the relevant cycle of sludge accumulation	Prevent pollution of surface and ground water with untreated sewage to avoid damage of wastewater	Tbilisi National Park Area Administration

Annexes

Annex 1 - Render of Tourism Information Centre

Annex 2 – General map with all locations and routes

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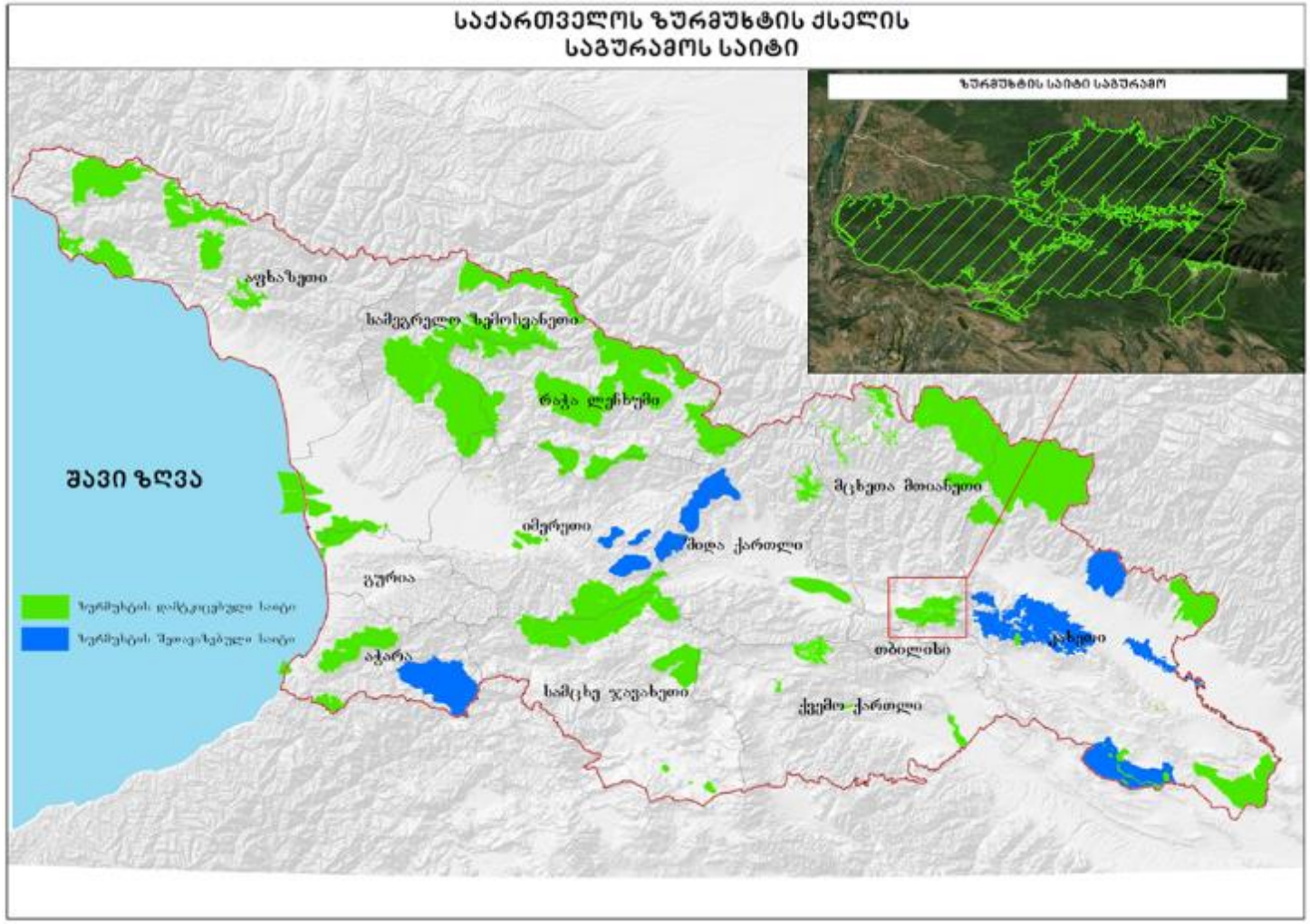
თბილისის ეროვნული პარკი
ზურმუხტის ქსელი საგურამო (0000047)
პირობითი აღნიშვნები
საჭიროებს გრუნდის გაჭრას / რეაბილიტაციას - 67.9 კმ.
არ საჭიროებს სხვა სამუშაოებს გარდა მონიშვნისა - 60.1 კმ.
საჭიროებს ვარჯის ფორმირებას და მონიშვნას - 3.8 კმ.
არ საჭიროებს არავითარ სამუშაოებს - 11.2 კმ.
დაცული ტერიტორია
ზურმუხტის ქსელი
დაცული ტერიტორიის ზონირება
მკაცრი დაცვის ზონა
ვიზიტორთა ზონა
ტრადიციული გამოყენების ზონა
ისტორიულ-კულტურული ზონა

Saguramo Emeral Site



Annex 3 - Renders of shelters and picnic areas




Annex 4 - Laboratory analyses of water samples

ლაბორატორია	სსიპ სოფლის მეურნეობის სახელმწიფო ლაბორატორია ქ. თბილისი ვ. გოძიაშვილის ქუჩა №49 +995 32 253 09 68	დამტკიცებულია საიდენტიფიკაციო № F-003-2016-G თარიღი: 12.02.2020 ვერსია № 17	GAC-TL-0230 სსტ ისო/იეკ 17025:2017/2018

გამოცდის ოქმი №1873

რეგისტრაციის № და გაცემის თარიღი	1873	12.04.2021	13:00 სთ.
მასალის/ნიმუშის მიღების თარიღი		07.04.2021	14:20 სთ.
ვის ეკუთვნის მასალა/ნიმუში	გორის მუნიციპალიტეტი. სოფელი კარალეთი. პირველი ქუჩა N21. შ.პ.ს. „ბილდინგ გრუპ" კობა ჩილინდრიშვილი		
რა მასალა/ნიმუშია გადმოგზავნილი	წყალი სასმელი - (წყარო)		
მასალა/ნიმუშის რაოდენობა	1 (ერთი) – 0,5 ლ		
რა სახითაა მიღებული მასალა/ნიმუში	ხელშეკრულება #555; დაულუქავი.		
მიღებულია გამოსაცდელად	მეზოფილური აერობული და ფაკულტატური ანაერობები; საერთო კოლიფორმული ბაქტერიები; E. coli (ეშერიხია კოლი)		
ვის ეგზავნება პასუხი	კობა ჩილინდრიშვილი		
გამოცდის მეთოდი	სსტ ისო 6222:2008; სსტ ისო 9308-1:2012/2013		

Annex 5 - Letter from the Ministry of Environmental Protection and Agriculture of Georgia

საქართველოს გარემოს დაცვისა და სოფლის მეურნეობის სამინისტრო
MINISTRY OF ENVIRONMENTAL PROTECTION AND AGRICULTURE OF GEORGIA

საქართველო
GEORGIA

N 12028/01
17/12/2020

12028-01-2-20201217170

სსიპ დაცული ტერიტორიების სააგენტოს

საქართველოს გარემოს დაცვისა და სოფლის მეურნეობის სამინისტრომ განიხილა თქვენი 2020 წლის 8 დეკემბრის N19046 წერილი, რომელიც ეხება თბილისის ეროვნული პარკის ტერიტორიაზე საინფორმაციო ცენტრისა და ეკობილიკების მოწყობის საკითხს.

როგორც თქვენი წერილიდან ირკვევა, სსიპ დაცული ტერიტორიების სააგენტოს, მუნიციპალური განვითარების ფონდთან ერთად, დაგეგმილი აქვს თბილისის ეროვნული პარკის ტერიტორიაზე ვიზიტორთა საინფორმაციო ცენტრის (ერთსართულიანი შენობა, სიმაღლით არანაკლებ 3,3 მ; შენობის საერთო ფართი - 220-280 მ^2, ავტოპარკინგი მინ. 5 ავტომანქანაზე) მშენებლობა და ეკობილიკების პროექტირება-მოწყობა (საფეხმავლო ბილიკები: სიგრძე - 240 კმ, სიგანე - 1 მეტრამდე).

გაცნობებთ, რომ წერილში აღწერილი საქმიანობები (ვიზიტორთა საინფორმაციო ცენტრისა და საფეხმავლო ბილიკების მოწყობა) არ წარმოადგენს „გარემოსდაცვითი შეფასების კოდექსის“ I ან/და II დანართით გათვალისწინებულ საქმიანობებს და, შესაბამისად, არ საჭიროებს ამავე კოდექსით დადგენილი პროცედურების გავლას.

ნინო თანდილაშვილი

მინისტრის მოადგილე

0159, საქართველო, თბილისი, მარშალ გელოვანის გამზ. №6. ტელ.: +(995 32) 2378013 / +(995 32) 2378044
www.mepa.gov.ge
6, Marshal Gelovani ave., Tbilisi 0159, Georgia, Phone:+(995 32) 2378013 / +(995 32) 2378044

Annex 6 - Letter of the Ministry of Environmental Protection and Agriculture on the SP Appropriate Assessment on Saguramo Emerald Sites

საქართველოს ღირსების და სოფლის მეურნეობის სამინისტრო

MINISTRY OF ENVIRONMENTAL PROTECTION AND AGRICULTURE OF GEORGIA

საქართველო
GEORGIA

N 11128/01
26/10/2021

11128-01-2-202110261744

სსიპ დაცული ტერიტორიების სააგენტოს თავმჯდომარის
მოადგილის მოვალეობის შემსრულებელს
ბატონ ბესიკ კუსიდს

ბატონო ბესიკ,

თქვენი 2021 წლის 29 სექტემბრის N3547 წერილის პასუხად, რომელიც ეხება სსიპ დაცული ტერიტორიების სააგენტოს მართვას დაქვემდებარებულ, თბილისის ეროვნული პარკის ტერიტორიაზე, ტურისტული ბილიკებისა და სხვადასხვა ინფრასტრუქტურული ობიექტების მოწყობისთვის მომზადებული ზურმუხტის ქსელზე ზემოქმედების შეფასების (საგურამო - GE0000047) წარმოდგენას, გაცნობებთ რომ ზზშ-ის ანგარიშზე შენიშვნა არ გაგვაჩნია, შესაბამისად გარემოს დაცვისა და სოფლის მეურნეობის სამინისტრო არ არის წინააღმდეგი განხორციელდეს ზემოთ აღნიშნული საქმიანობა.

ასევე გაცნობებთ, რომ ზემოაღნიშნული პროექტი უნდა დაიგეგმოს და განხორციელდეს ისე, რომ საფრთხე არ შეექმნას ევროპის ველური ბუნებისა და ბუნებრივი ჰაბიტატების დაცვის შესახებ (ბერნის) კონვენციით დაცულ სახეობებსა და ჰაბიტატებს.

პატივისცემით,

გიორგი ხანიშვილი

მინისტრის პირველი მოადგილე

0159, საქართველო, თბილისი, მარშალ გელოვანის გამზ. №6. ტელ.: +(995 32) 2378013 / +(995 32) 2378044
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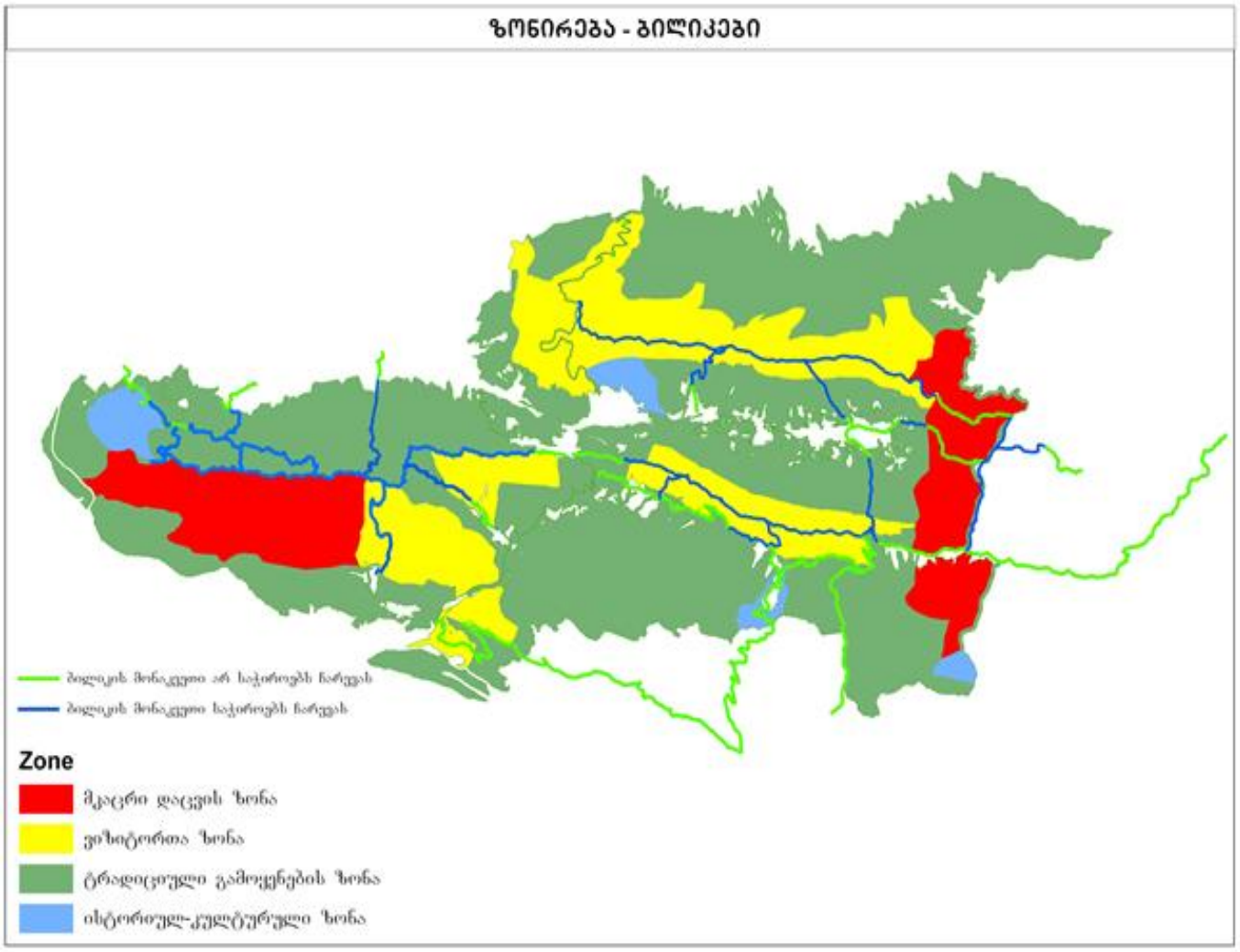
6, Marshal Gelovani ave., Tbilisi 0159, Georgia, Phone:+(995 32) 2378013 / +(995 32) 2378044

Annex 7 - Zoning of Tbilisi National Park – Hiking Trails



Annex 8 - Summary of key impacts and respective mitigation measures for the habitats and species protected by Bern Convention Committee Resolution # 4 and # 6 on the Emerald Site Network

Habitat	Impact	Description of impact	Mitigation
G1.6 Beech	Beech habitat covers 67% of the total area of Saguramo emerald. 48% of the network of trails crosses the mentioned habitat (69 km. section). Beech habitat is also crossed by tourist shelters and other small ecotourism infrastructure.	Because most of the trails follow the existing forest roads and traditional hiking trails, and no logging is planned, the arrangement of planned infrastructure in this habitat will not have a significant impact.	No specific mitigation measures are required. See the general mitigation measures presented in Chapter 9 of the Tbilisi National Park Recreational Infrastructure Arrangement Appropriate Assessment on the Saguramo Emerald Site (Annex 10)
G3.17 Balkan-Pontic pine trees	About 7% of the total area of the Saguramo emerald site occupies the mentioned habitat. About 6 km from the trail coincides with the habitat. Saguramo Visitor Center, a tourist shelter, and other small ecotourism infrastructure are planned to be arranged in the mentioned habitat as well.	Because most of the trails follow the existing forest roads and traditional hiking trails, and no logging is planned, the planned infrastructure arrangement in this habitat will not have a significant impact.A In the construction section of the visitor center, no typical representatives of the mentioned habitat are presented, anthropogenic interference is high.	No specific mitigation measures are required. See the general mitigation measures presented in Chapter 9 of the Tbilisi National Park Recreational Infrastructure Arrangement Appropriate Assessment on the Saguramo Emerald Site (Annex 10)
E3.4 Humid or wet eutrophic	This habitat occupies less than 1% of the Saguramo emerald	The planned hiking trail should be rehabilitated on the existing forest-	No specific mitigation measures are required.

and mesotrophic herbaceous cenoses	site. A trail of about 600 m crosses the habitat. No large-scale infrastructure is planned in the area; only trail marking is required.	motor road in the small section where the trail crosses the habitat. Because of the existing forest road, interference will be negligible and will not cause habitat damage, additional fragmentation, or anything like that.	See the general mitigation measures presented in Chapter 9 of the Tbilisi National Park Recreational Infrastructure Arrangement Appropriate Assessment on the Saguramo Emerald Site (Annex 10)
G1.A1 Quercus - Fraxinus - Carpinus betulus **Forest on eutrophic and mesotrophic soils**	This habitat occupies less than 1% of the Saguramo emerald site. In total, it is represented on about 8 ha. A trail of about 200 m crosses the habitat. No large-scale infrastructure is planned in the area; only trail marking is required	The planned hiking trail should be rehabilitated on the existing forest-motor road in the small section where the trail crosses the habitat. Because of the existing forest road, interference will be negligible and will not cause habitat damage, additional fragmentation, or anything like that.	No specific mitigation measures are required. See the general mitigation measures presented in Chapter 9 of the Tbilisi National Park Recreational Infrastructure Arrangement Appropriate Assessment on the Saguramo Emerald Site (Annex 10)
F9.1 River shrubland	The planned trail and related infrastructure do not cross this habitat	The planned ecotourism infrastructure project will not have any impact on the mentioned habitat	No mitigation measures are required.

Type	Code	Species	Description of species	Impact	Significance of impact	Mitigation measures
Amphibians	1171	*Triturus karelinii*	Eastern crested newt	No direct impact is expected.	Insignificant	No specific mitigation measures are required. See the general mitigation measures presented in Chapter 9 of the Tbilisi National Park Recreational Infrastructure Arrangement Appropriate Assessment on the Saguramo Emerald Site (Annex 10)
Birds	A509	*Aquila nipalensis*	Field eagle	No direct impact is expected on each of them, although they may be disturbed, restricted in movement and nesting areas.	Low/Insignificant	Instruction of working staff; Pre-tracing of the work area; Protect the boundaries of the work area to prevent damage to additional areas; Avoid noise, especially during the sensitive period for birds; Waste management; Lighting control;
Birds	A089	*Aquila pomarina*	Small eagle			
Birds	A029	*Ardea purpurea*	Heron			
Birds	A024	*Ardeola ralloides*	Squacco heron			
Birds	A215	*Bubo bubo*	Eagle-owl			
Birds	A030	*Ciconia nigra*	Black stork			
Birds	A239	*Dendrocopos leucotos*	White-backed woodpecker			
Birds	A379	*Emberiza hortulana*	Garden Grata			
Birds	A103	*Falco peregrinus*	Falcon			
Birds	A320	*Ficedula parva*	Red-breasted flycatcher			
Birds	A092	*Hieraaetus pennatus*	Small Eagle			

Birds	**A246**	***Lullula arborea***	**Forest lark**			
Birds	**A073**	***Milvus migrans***	**Milvus**			
Birds	**A077**	***Neophron percnopterus***	**Phoenix**			
Birds	**A094**	***Pandion haliaetus***	**Osprey**			
Birds	**A072**	***Pernis apivorus***	**Honey-buzzard**			
Insects	**1930**	***Agriades glandon aquilo***	**Arctic blue**	**No direct impact on each of them is expected.**	**Insignificant**	**No specific mitigation measures are required.** **See the general mitigation measures presented in Chapter 9 of the Tbilisi National Park Recreational Infrastructure Arrangement Appropriate Assessment on the Saguramo Emerald Site (Annex 10)**
Insects	**1088**	***Cerambyx cerdo***	**A great capricorn beetle**			
Insects	**1060**	***Lycaena dispar***	***Lycaena dispar* (Large copper)**			
Insects	**1087**	***Rosalia alpina***	**Alpine beetle**			
Insects	**1926**	***Stephanopachys linearis***	**Horned powder-post beetle**			
Mammals	**1354**	***Ursus arctos***	**Brown bear**	**Anxiety, disturbance, restriction of movement and habitat, difficulty in obtaining food**	**Low/average**	**Instruction of working staff;** **Pre-tracing of the work area;** **Protect the boundaries of the work area to prevent damage to additional areas;**

Mammals	**1352**	***Canis lupus***	**Wolf**			**Avoid noise, especially during the sensitive period for birds;** **Waste management;** **Lighting control;**
Mammals	**1355**	***Lutra lutra***	**Otter**	**Anxiety, disturbance**	**Insignificant**	**No specific mitigation measures are required.**
Mammals	**1307**	***Myotis blythii***	**Spike ear myotis**	**Direct impact on each of them is not expected, although they might be disturbed**	**Low/insignificant**	**See the general mitigation measures presented in Chapter 9 of the Tbilisi National Park Recreational Infrastructure Arrangement Appropriate Assessment on the Saguramo Emerald Site**
Mammals	**1321**	***Myotis emarginatus***	**Triple color mouse-eared bats**			
Mammals	**1305**	***Rhinolophus euryale***	**Southern horseshoe bat**			
Mammals	**1304**	***Rhinolophus ferrumequinum***	**Great horseshoe bat**			
Mammals	**1303**	***Rhinolophus hipposideros***	**Small horseshoe bat**			
Mammals	**1308**	***Barbastella barbastellus***	**European bat**			

Plants	**2098**	***Paeonia tenuifolia***	**Valley peony**	**There may be a slight impact, damage, thinning on small sections**	**Insignificant**	**No specific mitigation measures are required.** **See the general mitigation measures presented in Chapter 9 of the Tbilisi National Park Recreational Infrastructure Arrangement Appropriate Assessment on the Saguramo Emerald Site**
Reptiles	**1220**	***Emys orbicularis***	**Pond tortoise**	**No direct impact is expected.**	**Insignificant**	**No specific mitigation measures are required.** **See the general mitigation measures presented in Chapter 9 of the Tbilisi National Park Recreational Infrastructure Arrangement Appropriate Assessment on the Saguramo Emerald Site**