

**Roads Department of the Ministry of Regional  
Development and Infrastructure of Georgia**

Financial Manager:  
**Transport Reform and Rehabilitation Center (Georgia)**

**Project name: Secondary and Locals Roads Project**

IDA Credit 3938-GE

**ENVIRONMENTAL MANAGEMENT PLAN**

**Rehabilitation of the secondary road  
Shukruti-Usakhelo-Korbouli  
km 5+100 – km 23+500**

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## **GENERAL REVIEW**

### **Objectives**

The proposed project supports the priorities of the Roads Department of the Ministry of Regional Development and Infrastructure (RDMRDI) and of the Bank's assistance strategy for Georgia through:

- support for sustainable growth of the rural economy; improving expenditure management through reducing costs and better programming of available resources in the roads sector;
- strengthen institutional capacity and governance through introduction of modern road management systems and participatory mechanisms for road sector programs at the local level.

More specifically, the project supports broad-based growth through a pilot program for secondary and local roads, which will prepare the ground for a more extensive and more cost effective program to improve rural access. Expenditure management will improve as a result of multi-year plans and cost-effective designs.

Road management systems for engineering-economic prioritization of projects combined with community participation in the planning of local road expenditures will improve road programming and budgeting and also serve to ensure that funds are well spent. The project is instituting these arrangements as a permanent feature of the annual planning cycle in the road sector.

### **Background**

The road network in Georgia consists of 1,474 kilometers of primary or international roads that are considered to be in good to fair condition; 3,392 kilometers of secondary roads that are in poor condition overall and in much need of rehabilitation; and some 15,430 kilometers of local roads that are, on average, in very poor condition.

The present poor condition of the network reflects inadequate maintenance expenditure over the recent past, and represents a major impediment to development, particularly for the rural economy. Deterioration of the network now represents a significant barrier to investments, and foreign direct investment in particular is difficult to obtain when access to international markets is problematic.

In the past has been difficult to spare funds for maintenance of secondary and local roads which are essential for the access to the primary network and markets and local centre for the community.

As a consequence there has been an increased incidence of both relative and extreme poverty in those areas where access is difficult. This credit is supporting a pilot program to establish the right conditions for improvement of the extensive secondary and local road network.

## **Project Description**

The project road Shukruti-Usaxelo-Korboulo starts at km 5+100, at the end of village Shukruti (Shukruti region), which corresponds to PK 0+00. The road goes through the villages Tsars, Usakhelo and ends in village Korboulo (pk 183+95). It joins the road Gomi-Sachkhere-Shukruti-Zestaponi at km 41. This road links densely-populated villages located in Shukruti and Sachkhere regions to each other. The rest of the road excluding the above-mentioned territory is uninhabited. The project section is located in highland whilst from PK 0+00 to PK 150+00, whilst from PK 150+00 to PK 183+95 it goes through the flat terrain. Road section to be rehabilitated crosses river Prone.

## **LEGISLATION AND REGULATIONS**

The project has been assessed to be Category B (according to World's Bank Operational Manual – OP 4.01 – Environmental Assessment) requiring the preparation of an Environmental Management Plan that examines the project's potential negative and positive environmental impacts and recommends any measures needed to prevent, minimize, mitigate, or compensate for adverse impacts and to improve environmental performance. The project does not trigger environmental assessment under national legislation.

All works will be conducted in accordance with Georgian legislation and any other norms indicated in the 'specifications and requirements' of this project.

## **THE EXISTING ENVIRONMENT**

Location - The project will have modest impact on the population of these villages, as construction works will constraint movement of those people residing immediately along the road and this impact will be limited to the rehabilitation phase.

Air - Air quality is high due to low traffic levels and the absence of industrial facilities.

Water and Ground - No pollution is reported.

Flora - The construction activities will be carried out on the existing road, without changing the existing elements (straights, curves, widths etc.). Vegetation would only be affected in the sections were side drains are to be rehabilitated or reconstructed. Vegetation is sparse along the road with rare occurrence of bushes and small trees that are not part of riparian forests. No protected species have been observed in the vicinity of the road.

Fauna – Impacts upon fauna will remain unchanged during construction since works will be confined to the existing road. There are several rivers that are crossed by the road. Works in these sections will be restricted to rehabilitation of bridge abutments, requiring the removal of garbage or other impediments to water flows; resulting in a positive impact on existing fauna.

Noise - The current noise level is low due to low traffic levels and a lack of industrial facilities.

## POTENTIAL IMPACTS

### Potential Impacts – Construction Phase

Construction related impacts will be temporary and include such issues as the impairment of traffic safety, damage to access roads, dust and gaseous emissions, potential pollution of soils and water resources, and disturbance to neighboring settlements through material transport. The establishment and operation of contractor's yard/work camp may be further potential sources of temporary adverse impacts. These are discussed below.

**Works Inside the Densely Populated Villages.** The road section does not pass near by the school, kindergarten, ambulatory, or policlinic of the village. Reconstruction works will distract movement of pedestrians and vehicles temporarily and insignificantly.

**Borrow Pits and Asphalt Plants.** Established suppliers will be used for the provision of borrow materials and asphalt and therefore there will be no requirement for new borrow areas or the establishment of an asphalt plant.

**Work Camp.** A work camp will be established that without proper management could lead to temporary impacts linked to its location, waste and sewage generated at the site, and pollution at maintenance and fuelling points.

### Pollution Related Impacts

Improper handling, storage, use and disposal of construction materials and wastes could pose a risk of water/ soil contamination at the construction and storage site. Improper maintenance and fueling of equipment could also lead to the potential contamination of soil/ water.

**Soil Pollution.** Soil pollution may occur in a discrete number of areas such as areas where equipment is located, in the vicinity of the road works and in parking areas. Potential pollutants include the following (this list is not exhaustive):

- Diesel fuel, lubrication oils and hydraulic fluids, antifreeze, etc. from construction vehicles and machinery;
- Miscellaneous pollutants (e.g. cement and concrete);
- Construction wastes (packaging, stones and gravel, cement and concrete residue, wood, etc.);
- Extremely small amounts of hazardous wastes (e.g. waste oils, oily rags, spent filters, contaminated soil, etc) constituting about 0.1% of total waste volumes;
- Accidental discharges of petroleum products in work site.

**Air Pollution and Noise** Emissions during road rehabilitation are associated mainly with earth movement, other material handling as well as construction operations themselves. Dust emissions often vary from a day to another, depending on the activity level, the specific operations and the dominant meteorological conditions. Equipment traffic and work vehicles on the site generate a significant part of these emissions.

The temporary nature of construction works makes them different from other undirected dust sources, from the point of view of estimation and emissions control. Pollutants are characterized by emissions that are typical of internal combustion engines and transport vehicles. Emissions will vary according to the activity level and the particular operations, having an important variability from a day to another and from a process phase to another.

In summary potential impacts are expected to be minimal and related to the operation of vehicles and heavy machinery at the construction site and during transportation of materials. They include:

- Noise and vibration arising from heavy machinery and vehicles;
- Air emissions (from vehicles, bulldozers, excavators etc.);
- Dust (from vehicles);
- Fumes from vehicles transporting construction materials.

### **Construction Related Wastes**

**Inert Construction Wastes.** The following types of inert waste are anticipated to be produced from these activities:

- Natural materials (soil and rock);
- Contaminated soil.

**Non Hazardous Construction Wastes.** In summary the main non-hazardous construction wastes will include the following:

- Timber (removed trees and bushes);
- Metals (including scrap metal and wire) – negligible amount of metal waste is expected.

**Hazardous Construction Wastes.** Small quantities of the hazardous wastes will arise mainly from the vehicle maintenance activities. A number of hazardous wastes, which could be generated, include:

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

The hazardous waste is expected to constitute in average about 0.1% of total amount of the wastes and according to local legislation (Order no.36/N of the Minister of Labour, Health and Social Protection of 24.02.2003) could be disposed on municipal landfills.

<b>Works to be done</b>	<b>Unit</b>	<b>Quantity</b>	<b>Tonnes</b>
Existing side drains	l.m	4600	1.104
New side drains	l.m	9300	6.975
Cleaning of existing culverts	cu.m	32	58
New culverts	l.m	36	329
Potholes	sq.m	0	0
New base layer	cu.m	14428	28,856
Wearing course	tn	0	0
Surface dressing	sq.m	66500	1.995
<b>Total Quantity of Works</b>	<b>to</b>		<b>39.317</b>
<b>Total Quantity of Wastes (1%)</b>	<b>to</b>		<b>393</b>
Quantity of Wastes per month	to		33
Inert construction Wastes	to		392
Non Hazardous Construction Wastes	to		0,790
Hazardous Construction Wastes	to		0,240

**Transport Related Impacts.** These include: noise & vibration; traffic congestion (nuisance); air pollution; mud on roads; refuelling, maintenance and vehicle cleaning and related risks of soil and water contamination.

**Flora.** Potential impacts are expected to be minimal, although the project design envisages clearance of the construction site from bushes.

**Fauna.** Potential impacts are expected to be minimal and are related to the possible pollution of the river and contamination due to improper fuel and waste management.

**Landscape.** The project design does not envisage any changes of landscape.

**Traffic Disruption.** Local traffic will be affected by the presence of construction traffic and the restricted access in sections where works are to be carried out.

**Safety and Access.** Access to areas adjacent to the construction works will be restricted to avoid hazards to vehicles and pedestrians. Special alert signs will be mounted and instructions provided to re-direct traffic to temporary by-passes.

**Income Generation.** Where kiosks or local businesses are located along side the right of way access may be restricted on a temporary basis during road rehabilitation.

## **Potential Impacts - Exploitation Phase**

In general the project will have a positive impact on the environment, improving the condition of the road for local traffic.

## **ENVIRONMENTAL MANAGEMENT PLAN**

This **Environmental Management Plan (EMP)** has been prepared to ensure that negative environmental impacts associated with this project are minimized. A summary of mitigation measures is provided in Appendix 1 and these are discussed below.

### **Measures during the Construction Phase**

#### **Work Site Management**

In the construction phase the following measures will be taken to ensure the proper management of the work site:

- mark the work site borders to strictly enclose the construction area;
- as far as practicable use the existing road for access to the site by construction traffic (vehicles transporting materials and equipment);
- minimize the generation of waste construction materials by preparing work schedules that take into account the driving timing and placement of construction materials that are prepared outside the work area (concrete, asphalt mixture) to ensure that their production is aligned with construction activities;
- secure equipment and work site facilities; and
- provide the necessary equipment and facilities to ensure the works are conducted appropriately.

#### **Material Management**

For the construction of the road will be used the following materials

- Local materials (gravel, chippings, etc.)
- Constriction material (cement, bitumen etc.)
- Complementary materials (gas oil, lubricants etc.)

To ensure the proper management of materials, the following measures will be applied

- In relation to quality, the quality certificates from the factory will be provided for the all construction materials. The characteristics of local materials will be determined by the site laboratory.
- In relation to the supply of the materials. The material supplied to the site will be checked by:
  - Reviewing the quantities supplied against the quality certificates provided.
  - Weighting the materials supplied.
  - Material supplied random check.
- In relation to transport conditions. All transport of bulk materials will be proper covered by using a canvas to avoid any loses during the transportation.
- In relation to the security of the materials transported. The quantity of the materials transported will be systematically checked to prevent any loses.
- In relation to the mechanical manipulation of the materials to be used on site. Proper equipment as truck loaders, fork lift, cranes, etc, will be used in order to ensure the proper management of the materials.



- In relation to handling of the materials. The personal to be employed to handle materials will be trained properly and will be provided for all kind of the protected materials needed for the operations of material transfers, loading and unloading.
- In relation to the cleaning of the worksite. The work site will be kept in clean conditions. The ground floor of the worksite will be covered by a gravel layer.
- In relation to the dust. Is required the road deviations and borrow pits and road construction areas will be periodically watered to avoid the dust.

### **Work-site Traffic**

Based on the existing legislation the general contractor is responsible for establishing the business plan, which includes: (i) location of the work sites and camps; (ii) supply sources for all raw materials; and (iii) location of suppliers for concrete, cement, mortar, and asphalt.

Work-site traffic will include vehicle movement for the construction material transportation, waste transportation during the construction phase, as well as other related activities such as fuel/lubricants transportation, drinking water and meal transportation for the construction crew, personnel transportation, etc.

The contractor shall review and assess jobsite traffic to optimize the following elements and minimize their impact on the environment:

- the material volume needed to be transported within the site;
- type of materials needed to be transported: chipping, cement, cement concretes, bituminous emulsion, asphalt concrete, precast elements etc.;
- type of vehicles as capability and specific fuel consumption;
- the timing for different work types;
- the average traffic speed of 25-30 km/h;
- loading/unloading periods needed: between 10-30 minutes.

This will allow the contractor to plan and estimate:

- the specific vehicle type for a specific material transportation;
- the number of vehicles for the specific material;
- the maximal distance between loading point and the work front (on access roads and inside the site area);
- total distance to be driven by vehicles;
- volumes of the required fuel.

A traffic management plan shall be developed by the construction contractor to minimize the negative impact on local traffic and people.

### **Work Camp Management**

The contractor will prepare plans that outline the layout of the base to prevent adverse environmental impacts. The contractor's base on site must be in accordance with the "specifications and requirements" for this project. Plans for sewage management and waste management, as well as the management of maintenance and fueling areas shall be prepared.

## **Water Course Protection**

Construction materials are deposited in the work area as a regular part of site activities. Heavier materials may be washed from site by storm waters and finer particles can be carried to adjacent areas and deposited. The morphology of the local area has a strong influence on the dissipation of pollutants. To avoid undue pollution, the construction contractor shall provide depository platforms with surrounding protective trenches for construction materials stored in the work area.

To avoid pollution from accidental spills or deposits of biogenic, organic and toxic substances used at the work site the construction contractor shall: prepare an emergency response plan for the management of any accidental spills or discharges; and wash equipment after their use.

The contractor shall prevent changes in water flow and depth through dig outs and construction materials and ballast deposits at the bottom of the water. This means that it is forbidden to do any works in the river bed that can affect the water course.

## **Air Quality and Noise Protection**

Impacts will be at their worst during chipping of the road layer, because of the dust contained by the laid material. Special measures will be taken during the execution to reach an acceptable level of noise including restriction of work hours and maintenance of equipment.

## **Soil and Subsoil Protection**

There is a relatively low possibility of soil pollution if good work site practices are adhered to. An emergency response plan will be in place to outline procedures in the event of an accidental spill, including site clean up and disposal of contaminated materials.

## **Managing Socio Economic Impacts**

The activity of the kiosks/wooden stalls for selling local agricultural products and meat may be affected in the periods when the works are to be carried out in the section and on the side that these are located. In this case, the construction contractor will provide assistance to the kiosk/ wooden stall owners to relocate them away for the immediate construction area.

## **Monitoring**

The monitoring plan for the project is summarized in Appendix 2. Monitoring measures include site supervision, verification of permits, monitoring of compliance of the contractor performance and environmental impacts like: noise, dust, soil and water pollution and air emissions etc.

## **IMPLEMENTATION ARRANGEMENTS**

RDMED's environmental specialist shall oversee the implementation of this Environmental Management Plan. They shall work with regional offices of RDMED to ensure compliance of works and consultation with affected parties.

Supervision team (in the project called the Project manager, PM) have been engaged by RDMED to supervise the day to day implementation of construction, Overall responsibility for the coordination and implementation of the EMP will be with the PM who will be responsible for ensuring that the following requirements are met:

- (i) Georgian environmental regulations;
- (ii) environmental permits are obtained as necessary;
- (iii) waste is disposed to a licensed disposal site;
- (iv) any other requirements identified by the Ministry of Environment and agreed with the PIU;
- (v) Environmental Management and Monitoring Plans are implemented.

The capacity of the Project Manager (PM) to monitor environmental compliance is assessed as adequate.

## **COST OF IMPLEMENTATION**

The costs of environmental activities associated with construction will be included in the contract for construction.

## **CONSULTATION**

After consultation, a summary of where and when consultation took place, who lead this, what issues were raised and how they were managed will be included. A summary of people who attended the consultation will be included in the Annex 4.

**APPENDIX 1. ENVIRONMENTAL MANAGEMENT PLAN**

Activity	Potential Impact	Mitigation Measures	Institutional Responsibility	
			Implement	Monitor
<b>CONSTRUCTION</b>	Site installation	The contractor shall submit a site plan to RDMED for approval prior to construction detailing the use of provisional roads and quarries; and designated areas for concrete and asphalt mixtures. The contractor is responsible for implementation of this plan.	Contractor	PM/RDMRDI
	Workers camp – soil and water pollution	<p>Submit the following plans to RDMED prior to establishment of the work camp and implement provisions of such plans:</p> <ul style="list-style-type: none"> <li>• Layout of the work camp and details of the proposed measures to address adverse environmental impacts resulting from its installation;</li> <li>• Sewage management plan for provision of sanitary latrines and proper sewage collection and disposal system to prevent pollution of watercourses;</li> <li>• Waste management plan covering provision of garbage bins, regular collection and disposal in a hygienic manner, as well as proposed disposal sites for various types of wastes (e.g., domestic waste, used tires, etc.) consistent with appropriate regulations. Conduct consultation MoE regarding approved disposal sites;</li> <li>• Storage facilities for fuels and chemicals will be located away from watercourses. Such facilities will be bounded and provided with impermeable lining or a layer of sand/gravel to contain spillage and prevent soil and water contamination.</li> </ul>	Contractor	PM/RDMRDI
	Competition for water resources	Prior to establishment of the work camp, consult with local authorities to identify sources of water that will not compete with the local population.	Contractor	PM/RDMRDI
	Health and safety (work camp and	<p>Provide the following:</p> <ul style="list-style-type: none"> <li>• adequate health care facilities (including first aid facilities) within</li> </ul>	Contractor	PM/RDMRDI

Activity	Potential Impact	Mitigation Measures	Institutional Responsibility	
			Implement	Monitor
	construction area)	<p>construction sites;</p> <ul style="list-style-type: none"> <li>• training of all construction workers in basic sanitation and health care issues, general health and safety matters, and on the specific hazards of their work;</li> <li>• personal protection equipment for workers, such as protective clothing, safety boots, helmets, respirators, gloves;</li> <li>• clean drinking water to all workers;</li> <li>• adequate protection to the general public, including safety barriers and marking of hazardous areas;</li> <li>• safe access across the construction site to people whose settlements and access are temporarily severed by road construction;</li> <li>• adequate drainage throughout the camps so that stagnant water bodies and puddles do not form;</li> <li>• sanitary latrines and garbage bins in construction site, which will be periodically cleared by the contractors to prevent outbreak of diseases. Where feasible the contractor will arrange the temporary integration of waste collection from work sites into existing waste collection systems and disposal facilities of nearby communities;</li> <li>• on site mobile toilets with chemical treatment will be provided to the workers.</li> </ul>		
	Air pollution during construction	<ul style="list-style-type: none"> <li>• Equipment and transportation vehicles will be periodically checked regarding the level of carbon monoxide and gas emission concentration.</li> <li>• Only diesel fuel equipment and vehicle to be used, which does not produce lead emission and a very low carbon monoxide.</li> <li>• Maintain construction equipment to good standards and avoidance, as much as possible, idling of engines.</li> <li>• Banning of the use of machinery or equipment that cause excessive pollution (e.g., noise, visible smoke, leaking).</li> </ul>	Contractor	PM/RDMRDI

Activity	Potential Impact	Mitigation Measures	Institutional Responsibility	
			Implement	Monitor
	Prevention of soil / water pollution during construction	<ul style="list-style-type: none"> <li>Fuel supply must be done only within specialized gas station; for the unmovable equipment fuel-transportation trucks, outside the dust emission areas, will make the fuel supply.</li> <li>Work platforms should be kept clean, through daily cleaning and washing.</li> <li>Undertake cleaning of drains during the construction period.</li> <li>Storage facilities for fuels and chemicals will be provided with impermeable lining, or a layer of sand or fine gravel to contain spillage and prevent soil and water contamination.</li> <li>Store and dispose construction waste and excess material in the areas agreed with the local authorities and in consistency with the MoE requirements. Do not dispose any waste in wetlands, into or in the proximity to the water bodies.</li> <li>Provide depository platforms with surrounding protective trenches for construction materials stored in the work area.</li> <li>Prepare an emergency response plan for the management of any accidental spills or discharges; and wash equipment after their use.</li> <li>Prevent changes in water flow and depth through dig outs and construction materials and ballast deposits at the bottom of the water.</li> </ul>	Contractor	PM/RDMRDI
	Site management during construction	<ul style="list-style-type: none"> <li>At the end of the week at least 2 hours will be scheduled for work areas, when all the wastes will be removed.</li> <li>In order to reduce the visual impact, the time grading of the project will be presented on banners, and all measures be taken in order to finish as soon as possible the execution within a sector.</li> </ul>	Contractor	PM/RDMRDI
	Traffic management	<ul style="list-style-type: none"> <li>Submit traffic management plan to RDMED and local traffic authorities prior to mobilization. Special attention will be paid for the signalization of the section under construction.</li> <li>Provide adequate signals, appropriate lighting, well-designed traffic safety signs, and barriers for traffic control. Qualified personnel on</li> </ul>	Contractor	PM/RDMRDI

Activity	Potential Impact	Mitigation Measures	Institutional Responsibility	
			Implement	Monitor
		<p>one road lane will direct the traffic.</p> <ul style="list-style-type: none"> <li>• Mark work areas from the rest of the territory with reflectors orange plastic belts, in order to delimit the area of responsibilities of workers.</li> <li>• Mobile banners containing the project information, including the telephone number of the contact person, will mark the work area.</li> <li>• Provide information to the public about the scope and schedule of construction activities and expected disruptions and access restriction</li> <li>• Allow for adequate traffic flow around construction areas.</li> </ul>		
	Dust emission along routes	Regularly spray water on haul roads to suppress dust, especially along sections situated in localities.	Contractor	PM/RDMRDI
	Material Management	Materials used for the construction works and their storage must respect the conditions from the Technical Specifications. All materials supplied on site must be attested by quality and conformity certificates.	Contractor	PM/RDMRDI
	Disturbance of adjacent settlements due to high noise levels	Restrict works between 06:00 to 21:00 hours within 500m of the settlements. In addition, a limit of 70 dbA will be set in the vicinity of the construction site and strictly respected.	Contractor	PM/RDMRDI
	Water collecting and drainage	Special attention will be paid to works in the proximity of rivers and bridges in order to avoid the risk of involving construction materials eliminating the possibility of dropping materials in riverbeds and drainage structures.	Contractor	PM/RDMRDI
	Temporary disturbance of small roadside businesses close to the road	The kiosks/wooden stalls for selling local agricultural products and meat can be easily lifted and relocated outside the construction areas. Assistance for physical relocation of roadside stalls/kiosks shall be provided.	Contractor	PM/RDMRDI

Prior to commencement of any activities, the works contractor shall submit for approval to the RDMED the following.

1. Schematic map of entire territory of the construction site with the following objects depicted:
  - (a) Location of a construction camp;
  - (b) locations for temporary piling of construction materials;
  - (c) locations for temporary storage of construction and other solid waste;
  - (d) locations for parking, servicing, fueling and lubricating of construction machinery and vehicles;
  - (e) access roads to the construction site;
  - (f) in case of a need to revert traffic from the road under construction works, temporary alternative routs of transportation.
  
2. On-site safety and pollution management plan describing:
  - (a) solutions for water supply, sanitation, solid waste collection and disposal at the construction site;
  - (b) roadside and other marking of construction site to ensure safety of traffic and pedestrian movement in its vicinity;
  - (c) Emergency response to accidental spills, fire, and injuries of construction workers.



**APPENDIX 2. ENVIRONMENTAL MONITORING PLAN**

<b>Aspect</b>	<b>Parameters to be monitored</b>	<b>Location</b>	<b>Methodology</b>	<b>Timing</b>	<b>Institutional Responsibility for Monitoring</b>
Site organization, permits and clearances	Possession of official approval or valid operating license  Existence of permits from MoE for disposal sites as clearance for establishment and operation of work camps.	Site camp	Inspection	Before commencement of site works or installation of facilities	PM/RDMRDI
Contractor's yard	Solid waste handling and disposal facilities Drainage conditions Sanitation facilities and sewage disposal Heath facilities	Contractor's yard	Inspections, observations	Unannounced inspections during construction	PM/RDMRDI
Material supply	Possession of official approval or valid operating license	Supplier of materials (cement and gravel)	Inspection	Before work begins	Plant operator; oversight PM
Material transport	Truck loads covered/ wetted  Transport according to the schedule and routes defined for deliveries	Construction site	Supervision	Unannounced inspections during work hours	Works contractors; oversight PM
	Dust emission	Throughout project road, access roads and construction	Visual inspections	During material delivery and periodically in dry periods during construction.	Oversight PM

<b>Aspect</b>	<b>Parameters to be monitored</b>	<b>Location</b>	<b>Methodology</b>	<b>Timing</b>	<b>Institutional Responsibility for Monitoring</b>
Top-soil stripping	Top-soil storage (correct disposal and protection against bad weather).  Reinstatement (correct disposal).	Construction site	Supervision	Periodic (Unannounced inspections during work hours); Following completion of the works.	Works contractors; oversight PM
Various construction activities	Exhaust fumes and noise due to operation of heavy equipment  Vibration from use of heavy equipment	At site	Inspection, observations and consultations with nearby communities; noise measuring device	Periodic inspections (average once per week); following complaints;	Works contractors; oversight PM
Tree cutting and reinstatement	Obtain permits from MoE for tree cutting.  Replacement of removed vegetation after completion of construction.	At or near construction site	Supervision, inspections	Check permits.	Works contractors; inspections by PM
Fauna	Protection of ichthyofauna by prevention water pollution.	At or near construction site	Supervision, inspections	Supervision during working hours; unannounced inspections	Works contractors; inspections by PM

<b>Aspect</b>	<b>Parameters to be monitored</b>	<b>Location</b>	<b>Methodology</b>	<b>Timing</b>	<b>Institutional Responsibility for Monitoring</b>
Traffic Management	Existence of traffic management plan approved by the local traffic authority  Implementation of various provisions in the traffic management plan. Vehicle/ pedestrian access Visibility/ appropriate signs	Construction site	Inspection, observations and consultations with nearby communities	Prior to construction (traffic plan)  During construction period (once per week during the evening)	Works contractors; oversight PM
Material and waste storage and handling	Run off from site; Condition of material storage areas; Wash down areas; Waste storage and handling practices; Drainage conditions	Contractor's yard	Inspections, observations	During material delivery and periodically during construction (average 1/week), especially during precipitation (rain/ snow/ etc).	Works contractors; oversight PM
Equipment maintenance and fueling	Storage and handling practices; Conditions of storage facilities of fuel, lubricants and paints; Spillage prevention	Contractor's yard	Inspections, observations	Periodically during construction (average 1 per week) especially during precipitation (rain, snow, etc)	Works contractors; oversight PM
Worker safety	Provision and use of appropriate personnel safety equipment	Construction site	Inspections; observations and interviews	Unannounced inspections during construction	Works contractors; oversight PM

## APPENDIX 3. SUMMARY OF PUBLIC CONSULTATION

### *Ministry of Regional Development and Infrastructure of Georgia Roads Department of Georgia*

#### **Minutes** *of Public Consultation Meeting at Shukruti on Environmental Management Plan for Rehabilitation works of Secondary and Local Roads Project*

Public consultation on Environmental Management Plan for the rehabilitation of Shukruti-Usakhelo-Korbouli road was held on 20 April 2010 at Shukruti Municipality. The goal of the public discussion was to inform the local communities about the purpose of the upcoming works, their timeline; temporary inconvenience expected from the construction works; and planned measures for mitigating the negative environmental impact.

Attendees had possibility to ask questions and express their opinion during the public discussion, so that their comments could have been considered in the final version of the Environmental Management Plan.

Attendees:

Name	Name of Organization
Otar Khatiashvili	Roads Department of Georgia
Luiza Bubashvili	Roads Department of Georgia

Local authorities and representatives of communities were attending the Public Consultation.

Mr. Otar Khatiashvili and Luisa Bubashvili informed attendees about the Environmental Management Plan of rehabilitation works under Secondary and Local Roads project.

Mr. Otar Khatiashvili opened the meeting and informed attendees about the roads construction on the territory of municipality, also was discussed the meaning of Secondary and Local Roads rehabilitation project for Georgian economic development.

Mrs. Luisa Bubashvili made a presentation of Environmental Management Plan. She covered the scope of planned works, their possible impact on the natural environment and human health. Also was overviewed mitigation measures proposed to reduce negative environmental impacts of the project in the construction and operation phases.

Questions regarding technical side of the project were answered by Mr. Otar Khatiashvili.

All asked questions were answered by the staff of Roads Department of Georgia. Please find all questions and answers in the annex 1.

George Tsereteli

Deputy Chairman, Roads Departments of Georgia (signed and sealed)

Staff of the Roads Department of Georgia:

Otar Khatiashvili (signed)

Luiza Bubashvili (signed)

*Public Consultation Meeting on Environmental Management Plan for  
Rehabilitation works of Secondary and Local Roads Project*

**Annex №1**

<b>Author of Question/Comment</b>	<b>Contents of Question/Comment</b>	<b>Remarks</b>
Tengiz Samkharadze	What advantages will the population have in terms of employment?	Local residents with relevant construction experience will get a preference in the process of hiring for civil work.
Gocha Pkhaladze	Who will approve the location of construction camps?	Location of construction camps will be agreed with the local self-government

სახელი გვარი	სოფელი, ორგანიზაცია	ხელისმოწერა
<p>მღვიმე ყმათაშვილი  დავით შიხიაძე  მუხრანის საზღვარსაღ  დავით ლომიძე  დამიძისი ჭილაშვილი  სოფელი ჭაჩუაძე  იშვანაძე აბოლაძე  ვაჟა მჭედიაძე  ბიჭუჭყალი  გუგუნიძე სიმონ  სოფელი გუგუნიძე  თევზაძის საზღვარსაღ  ვინა მუხრანაძე  ფიჭუშვილი შაველი  სოფელი მთიანეთი  სოფელი მჭედიაძე</p>	<p>ითხვისის ც.შ.თ  ითხვისის ც.შ.თ მხკ.თო  ნიკოლოზის ც.შ.თ მხკ.თო  ნიკოლოზის ც.შ.თ  ნიკოლოზის ც.შ.თ  საჩხვიძის ც.შ.თ  სოფელი გ.შ.თ  ითხვისის ც.შ.თ  სოფელი  სოფელი  სოფელი  თიბოშეთი  სოფელი  სოფელი საზღვარსაღ  მუხრანის საზღვარსაღ  სოფელი მთიანეთი</p>	<p><i>[Handwritten signatures and initials]</i></p>

**APPENDIX 4: PERMITS AND AGREEMENTS**

**Permission for Waste Disposal**

საქართველო



ჭიათურის მუნიციპალიტეტის გამგეობა

ჭიათურა ნინოშვილის 7 № 25-21-53, 25-21-70

Chiatura Ninoshvili 7, E-mail: [chiatura@imereti.ge](mailto:chiatura@imereti.ge)

GEORGIA

CHIATURA MUNICIPALITY BOARD

№ 30.10

„ 24 “ 10 2012 წ.

ს.ს. “კავკასმაგისტრალი“-ს გენერალურ დირექტორს  
ბატონ ვიქტორ მარშანიას

ბატონო ვიქტორ

ჭიათურის მუნიციპალიტეტის გამგეობაში შემოსული ოქვენი №30.10 2012 წ. წერილის პასუხად, სადაც ითხოვთ ტერიტორიის გამოყოფას გრუნტის და სამშენებლო ნარჩენებისათვის გაცნობებთ, რომ შეგიძლიათ ისარგებლოთ პერევისის ტერიტორიული ორგანოს სოფელ კალაურში საფეხბურთო მოედნის ტერიტორიით, რომლის შემდეგაც უნდა მოხდეს აღნიშნული ტერიტორიის მოსწორება.

პატივისცემით

ჭიათურის მუნიციპალიტეტის გამგებელი

სულხას მახათაძე



License for Quarry Operation



Հայաստան

Հանրապետության կառավարություն

Կահուցանող Կառավարման մարմնի կազմակերպություն

Կոդ 100902

Լիցենզիայի թվաթիվը Կառավարման մարմնի կազմակերպության կողմից

20 10 Ված 02 օգոստոս

Քաղաքը և համայնքը ՄԱԼ «Ճանապարհամշին» - ԿԳ

(Կղզեցի հիդրոէլեկտրակայանի շրջանային շահագործման համար)

05.03.2002 թ., N 204979408

Ֆ. Գևորգյանի «Կահուցանող»

Կառավարման կազմակերպության կողմից

Վաճառված, կառ. կահուցանող

Կառավարման մարմնի կազմակերպության կողմից

Երկրի տարածքի մասնագիտացված կազմակերպության կողմից

Լիցենզիայի տեսակը Կառավարման մարմնի կազմակերպության կողմից

1, 2, 3, 4, 5, 6, 7, 8, 9 թ 1

Լիցենզիայի տեսակը Կառավարման մարմնի կազմակերպության կողմից

Լիցենզիայի տեսակը Կառավարման մարմնի կազմակերպության կողմից

Լիցենզիայի տեսակը Կառավարման մարմնի կազմակերպության կողմից

Լիցենզիայի տեսակը Կառավարման մարմնի կազմակերպության կողմից



# Permit for Asphalt Production



საქართველოს გარემოს დაცვისა  
და ბუნებრივი რესურსების სამინისტრო

გარემოზე ზემოქმედების ნებართვა N 00056

კოდი M\_0\_1 " 25 " 08 " 2010წ.

- ნებართვის მიმღები სუბიექტი სს „კავკასიუმისტრალი“
- საქმიანობის მიზანი ასფალტის წარმოება
- განსახორციელებელი საქმიანობის ადგილმდებარეობა ქ. ჭიათურა  
საჩხერის ქ. N2
- დოკუმენტაციის მომამზადებელი ორგანიზაცია ი. შ. ზაალ მოქმანაშვილი
- ნებართვის მისაღებად წარმოდგენილი დოკუმენტაცია გარემოზე ზემოქმედების  
შეფასების ანგარიში
- ნებართვის გაცემის საფუძველი ეკოლოგიური ექსპერტიზის დასკვნა  
N59; 23.08.2010წ
- ნებართვის პირობები ნებართვა მოქმედებს ეკოლოგიური ექსპერტიზის დასკვნით  
გათვალისწინებული პირობების შესრულებას შემთხვევაში

გარემოზე ზემოქმედების ნებართვა გაცემულია საქართველოს გარემოს დაცვისა და ბუნებრივი რესურსების სამინისტროს მიერ.

საქართველოს გარემოს დაცვისა და ბუნებრივი რესურსების სამინისტროს უფლებამოსილი წარმომადგენელი (გვარი, სახელი, თანამდებობა) **ლიენწიუტისა და ნიპაჩიუკის სახსერის უფროსი ნიკოლოზ ჭახნავია**

ბ.ა.

დამკვეთი: საქართველოს გარემოს დაცვისა და ბუნებრივი რესურსების სამინისტრო; დამამუშავებელი შპს „კავადიმი“  
სტრ.-ს რეგისტრაციის N 10-2419