



Environmental Management Plan

for
rehabilitation of Local road

Chiatura-Perevisa-Sveri-Tsrukveti-Tvalueti-Gezruli
Stage-I: Tsrukveti-Tvalueti-section
km 17+200 - km 20+500

Tbilisi, Georgia
2014



PART 1: GENERAL PROJECT AND SITE INFORMATION

| INSTITUTIONAL & ADMINISTRATIVE | | | | |
|---|---|---|---|----------------------------------|
| Country | Georgia | | | |
| Project title | Rehabilitation of Local road Chiatura-Perevisa-Sveri-Tsrukveti-Tvalueti-Gezruli Stage I: Tskhrukveti-Tvalueti section km 17+200 - km 20+500 | | | |
| Scope of project and activity | This road section had originally an asphalt surface and remaining asphalt patches can still be found, but due to age and lack of maintenance the asphalt surface has already completely deteriorated to a gravel road. At several locations severe erosion by surface water has been taken place at road edges and at embankment slopes, in particular at km5 and km7 of the road. The aforementioned erosion is caused by non-existence of drain systems avoiding surface and slope waters from the carriage way. Artificial structures (culverts, supporting walls, drainage systems) existing along the road requires rehabilitation. The condition of round reinforced concrete culvert heads is not satisfactory). Concrete structures are dismantled and cracked and require substitution At the entrance of village Tvalueti at km 19 STA9+20 installation of new box culverts in side drains is necessary to avoid ravine (along the road) and slope waters and to pass the ravine water. | | | |
| Institutional arrangements (Name and contacts) | WB (Project Team Leader) Joseph Melitauri | Project Management Giorgi Tsereteli RDMRDI | Local Counterpart and/or Recipient Chiatura Municipality | |
| Implementation arrangements (Name and contacts) | Safeguard Supervision WB Darejan Kapanadze | Local Counterpart Supervision Technical Supervisor (not selected yet) | Local Inspectorate Supervision - | Contractor (not selected yet) |
| SITE DESCRIPTION | | | | |
| Name of site | Tskhrukveti-Tvalueti road section km 17+200 - km 20+500 | | | |
| Describe site location | Tskhrukveti -Tvalueti road section is located in central part of Georgia. The road is located in Imereti region and crosses the territory of Chiatura Municipality. The section starts from Tskrukveti (KM17.2) to Tvalueti (KM 20.5) is about 3.1 km long. Tskhrukveti -Tvalueti road section is crossed by small two gullies. The relieph is low land with some agricultural land plots and populated villages. | | | |



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| Who owns the land? | Chiatura Municipality |
| Description of geographic, physical, biological, geological, hydrographic and socio-economic context | <p><u>Location</u> - Tskhrukveti -Tvalueti road section is a local road with gravel surface. Average width of the road bed is 8 m. Tskhrukveti -Tvalueti road section passes through the densely populated villages where the distance between fences and structures is 6-8 meters. Actual topographical survey of the study road section shows that the road starts at km 17+200 from village Tskhrukveti and ends at village Tvalueti entrance at km 20+500.</p> <p><u>Air</u> - Air quality in the project area is good due to low traffic levels and the absence of industrial facilities.</p> <p><u>Water and Soil</u> - No pollution is reported.</p> <p><u>Flora</u> - The construction activities will be carried out in the existing alignment and without alteration of the existing elements (straights, curves, widths etc.). Vegetation would only be affected in the sections where 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.</p> <p><u>Fauna</u> – 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.</p> <p><u>Noise</u> - The current noise level is low due to low traffic levels and a lack of industrial facilities. The project will have modest impact on the village population, as construction works will constraint movement only of those people who reside immediately along the road and this impact will be limited to the rehabilitation phase.</p> |
| Locations and distance for material sourcing, especially aggregates, water, stones? | (To be decided by Contractor and entered hereby thereafter) |
| LEGISLATION | |
| Identify national & local legislation & permits that apply to project activity | <p>The project triggers World Bank OP/BP 4.01 - Environmental Assessment and, according to its principles, has been classified as environmental Category B. The present EMP has been prepared to meet requirements of OP/BP 4.01.</p> <p>Georgian legislation does not require any type of environmental review, approval, or permitting for the project. Though according to the national regulatory system,</p> <ul style="list-style-type: none"> (i) works contractor must be licensed, (ii) construction materials must be obtained from licensed providers, (iii) if contractor wishes to open quarries or extract material from river bed (rather than purchasing these materials from other providers), then the contractor must obtain licenses for extraction, (iv) if contractor wishes to operate own asphalt or concrete plant (rather than purchasing these materials from other providers), then the contractor must obtain an environmental permit with an established ceiling of pollutant concentrations in emissions. |



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| | <p>(v) disposal of the construction waste into a landfill or permanent placement of access inert material generated in the course of earth works in a selected location must be approved by local (municipal) governing bodies in written.</p> <p>Copies of extraction licenses (if applicable), permits for operating asphalt/concrete plants (if applicable), and waste disposal permits will be attached to this EMP after the contractor receive and submit with RD.</p> |
| PUBLIC CONSULTATION | |
| <p>Identify when / where the public consultation process took place</p> | <p>Environmental Management Framework for the Secondary and Local Roads Project II was disclosed through the RDMRD1 web page and a stakeholder consultation meeting was held on 03/02/2012. The present site-specific EMP was disclosed through the same media and also delivered in hard copies to the municipality of Chiatura. Consultation meeting with local communities was held and the minutes of this meeting is attached to this EMP.</p> |
| Attachments | |
| | <p>Map and photos of the road Minutes of public consultation Waste disposal agreement (to be provided) Borrowing license (as applicable) Asphalt plant operation agreement (as applicable) Other (as applicable)</p> |



PART 2: SAFEGUARDS SCREENING AND TRIGGERS

| ENVIRONMENTAL /SOCIAL SCREENING FOR SAFEGUARDS TRIGGERS | | | |
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| | Activity/Issue | Status | Triggered Actions |
| Will the site activity include/involve any of the following?? | A. Roads rehabilitation | <input checked="" type="checkbox"/> Yes [] No | If "Yes", see Section A below |
| | B. New construction of small traffic infrastructure | [] Yes <input checked="" type="checkbox"/> No | If "Yes", see Section A below |
| | C. Impacts on surface drainage system | <input checked="" type="checkbox"/> Yes [] No | If "Yes", see Section B below |
| | D. Historic building(s) and districts | [] Yes <input checked="" type="checkbox"/> No | If "Yes", see Section C below |
| | E. Acquisition of land | [] Yes <input checked="" type="checkbox"/> No | If "Yes", see Section D below |
| | F. Hazardous or toxic materials | [] Yes <input checked="" type="checkbox"/> No | If "Yes", see Section E below |
| | G. Impacts on forests and/or protected areas | [] Yes <input checked="" type="checkbox"/> No | If "Yes", see Section F below |
| | H. Risk of unexploded ordinance (UXO) | [] Yes <input checked="" type="checkbox"/> No | If "Yes", see Section G below |
| | I. Traffic and Pedestrian Safety | <input checked="" type="checkbox"/> Yes [] No | If "Yes", see Section H below |

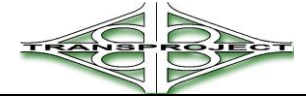


PART 3: MITIGATION MEASURES

| ACTIVITY | PARAMETER | MITIGATION MEASURES CHECKLIST |
|---|--------------------------------|--|
| 0. General Conditions | Notification and Worker Safety | <ul style="list-style-type: none"> (a) The local construction and environment inspectorates and communities have been notified of upcoming activities (b) The public has been notified of the works through appropriate notification in the media and/or at publicly accessible sites (including the site of the works) (c) All legally required permits have been acquired for construction and/or rehabilitation (d) The Contractor formally agrees that all work will be carried out in a safe and disciplined manner designed to minimize impacts on neighboring residents and environment. (e) Workers' PPE will comply with international good practice (always hardhats, as needed masks and safety glasses, harnesses and safety boots) (f) Appropriate signposting of the sites will inform workers of key rules and regulations to follow. |
| A. General Rehabilitation and /or Construction Activities | Air Quality | <ul style="list-style-type: none"> (a) During excavation works dust control measures shall be employed, e.g. by spraying and moistening the ground (b) Demolition debris, excavated soil and aggregates shall be kept in controlled area and sprayed with water mist to reduce debris dust (c) During pneumatic drilling or breaking of pavement and foundations dust shall be suppressed by ongoing water spraying and/or installing dust screen enclosures at site (d) The surrounding environment (sidewalks, roads) shall be kept free of soil and debris to minimize dust (e) There will be no open burning of construction / waste material at the site (f) All machinery will be well maintained and serviced and there will be no excessive idling of construction vehicles at sites |
| | Noise | <ul style="list-style-type: none"> (a) Construction noise will be limited to restricted times agreed to in the permit (b) During operations the engine covers of generators, air compressors and other powered mechanical equipment shall be closed, and equipment placed as far away from residential areas as possible |
| | Water Quality | <ul style="list-style-type: none"> (a) The site will establish appropriate erosion and sediment control measures such as e.g. hay bales and / or silt fences to prevent sediment from moving off site and causing excessive turbidity in canalization and nearby streams and rivers |
| | Waste management | <ul style="list-style-type: none"> (a) Waste collection and disposal pathways and sites will be identified for all major waste types expected from excavation, demolition and construction activities. (b) Mineral construction and demolition wastes will be separated from general refuse, organic, liquid and chemical wastes by on-site sorting and stored in appropriate containers. (c) Construction waste will be collected and disposed properly into formally agreed upon locations. (d) Whenever feasible Contractor will reuse and recycle appropriate and viable materials (except when containing asbestos) |
| B. Impacts on surface drainage system | Water Quality | <ul style="list-style-type: none"> (a) There will be no unregulated extraction of groundwater, nor uncontrolled discharge of process waters, cement slurries, or any other contaminated waters into the ground or adjacent streams or rivers. (b) There will be proper storm water drainage systems installed and care taken not to silt, pollute, block or otherwise negatively impact natural streams, rivers, ponds and lakes by construction activities. (c) There will be procedures for prevention of and response to accidental spills of fuels, lubricants and other toxic or noxious substances. (d) Construction vehicles and machinery will be washed only in designated areas where runoff will not pollute natural surface water bodies. |



| ACTIVITY | PARAMETER | MITIGATION MEASURES CHECKLIST |
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| C. Historic building(s) | Cultural Heritage | (a) If construction works take place close to a designated historic structure, or are located in a designated historic district, notification shall be made and approvals/permits be obtained from local authorities and all construction activities planned and carried out in line with local and national legislation. (b) It shall be ensured that provisions are put in place so that artifacts or other possible "chance finds" encountered in excavation or construction are noted and registered, responsible officials contacted, and works activities delayed or modified to account for such finds. |
| D. Acquisition of land | Land Acquisition Plan/Framework | (c) If expropriation of land was not expected but is required, or if loss of access to income of legal or illegal users of land was not expected but may occur, that the Bank's Task Team Leader shall be immediately consulted. (d) The approved Land Acquisition Plan/Framework (if required by the project) will be implemented |
| E. Toxic materials | Asbestos management | (a) If asbestos is located on the project site, it shall be marked clearly as hazardous material (b) When possible the asbestos will be appropriately contained and sealed to minimize exposure (c) The asbestos prior to removal (if removal is necessary) will be treated with a wetting agent to minimize asbestos dust (d) Asbestos will be handled and disposed by skilled & experienced professionals (e) If asbestos material is stored temporarily, the wastes should be securely enclosed inside closed containments and marked appropriately. Security measures will be taken against unauthorized removal from the site. (f) The removed asbestos will not be reused |
| | Toxic / hazardous waste management | (a) Temporarily storage on site of all hazardous or toxic substances will be in safe containers labeled with details of composition, properties and handling information (b) The containers of hazardous substances shall be placed in an leak-proof container to prevent spillage (c) The wastes shall be transported by specially licensed carriers and disposed in a licensed facility. (d) Paints with toxic ingredients or solvents or lead-based paints will not be used |
| F. Affected forests, wetlands and/or protected areas | Ecosystem protection | (a) All recognized natural habitats, wetlands and protected areas in the immediate vicinity of the activity will not be damaged or exploited, all staff will be strictly prohibited from hunting, foraging, logging or other damaging activities. (b) A survey and an inventory shall be made of large trees in the vicinity of the construction activity, large trees shall be marked and cordoned off with fencing, their root system protected, and any damage to the trees avoided (c) Adjacent wetlands and streams shall be protected from construction site run-off with appropriate erosion and sediment control feature to include by not limited to hay bales and silt fences (d) There will be no unlicensed borrow pits, quarries or waste dumps in adjacent areas, especially not in protected areas. |
| G. Risk of unexploded ordinance (UXO) | Hazard to human health and safety | (a) Before start of any excavation works the Contractor will verify that the construction area has been checked and cleared regarding UXO by the appropriate authorities |
| H Traffic and pedestrian safety | Direct or indirect hazards to public traffic and pedestrians by construction activities | (b) In compliance with national regulations the Contractor will insure that the construction site is properly secured and construction related traffic regulated. This includes but is not limited to <ul style="list-style-type: none"> ▪ Signposting, warning signs, barriers and traffic diversions: site will be clearly visible and the public warned of all potential hazards ▪ Traffic management system and staff training, especially for site access and near-site heavy traffic. Provision of safe passages and crossings for pedestrians where construction traffic interferes. ▪ Adjustment of working hours to local traffic patterns, e.g. avoiding major transport activities during rush hours or times of livestock movement |



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| | | <ul style="list-style-type: none">▪ If required, active traffic management by trained and visible staff at the site for safe passage for the public▪ Ensuring safe and continuous access to all adjacent office facilities, shops and residences during construction |
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PART 4: MONITORING PLAN

Construction Phase

| 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 of construction materials | Purchase of the construction materials from licensed providers | Offices and warehouses of material suppliers, and borrowing sites | Checking documents; Inspection of material quality | In the process of signing the agreements for material provision | Ensure technical quality of construction; Protect human health and environment | Roads Department (RD) |
| Transportation of construction materials and waste Movement of construction equipment | Technical condition of construction vehicles and machinery; Adequacy of the loading trucks for transported types of cargo, and canopy coverage of cargo transported in open trucks; Movement of construction vehicles and machinery along pre-defined routes. | Routes for transportation of construction materials and construction wastes | Inspection of roads adjacent to the construction site and included in the agreed-upon routes of transportation | Unannounced checks during the working hours | Avoid air and road pollution with dust and solid matter; Reduce traffic disruption | RD; Traffic Police |
| Operation of Construction machinery on site | Proper technical condition of construction machinery: <ul style="list-style-type: none"> • no excessive exhaust, • no fuel leakage, • respect of working hours | Construction site | Inspection | Within and off working hours | Reduce air and soil pollution caused by equipment operation; Reduce noise and dust nuisance to local population | RD |



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| <p>Servicing of construction machinery</p> | <p>Washing vehicles and machinery off-site or in the location sufficiently distant from water bodies;</p> <p>Servicing vehicles and machinery with oils and lubricants off-site or in an especially arranged location on-site;</p> <p>technical adequacy of the servicing location:</p> <ul style="list-style-type: none"> • solid, insulating floor or adsorbent layer (sand, gravel, membrane), • containment barriers allowing enough space for holding fuel over the maximum amount expected on the location at a time, • emergency fire-fighting kit, • sedimentation pool at car wash area. | <p>Construction site and construction base (if applicable)</p> | <p>Inspection</p> | <p>Entire period of machinery operation</p> | <p>Avoid land and water pollution with oil products due to servicing of vehicles and machinery;</p> <p>Be ready for fire emergency action to promptly localize fire source and minimize material damage</p> | <p>RD</p> |
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| <p>Extraction of inert material</p> | <p>Purchase of inert material from the existing providers if possible;</p> <p>Obtaining license for extraction of material by the Contractor and strict adherence to the terms of such license;</p> <p>Terrace processing of the borrow pits, backfilling of excess material, and harmonization with landscape;</p> <p>River bed gravel extraction away from water flow, arrangement of gravel barriers for isolating extraction area from water flow, prevention of water flow entry by vehicles and machinery;</p> <p>Demarcation of borrow areas with warning signs</p> | <p>Borrow areas</p> | <p>Checking documents</p> <p>Inspection of activities</p> | <p>The period of material extraction</p> | <p>Reduce slope erosion and damage to the ecosystem and landscape;</p> <p>Reduce river bank erosion, water pollution with suspended particles, and impact on the aquatic life;</p> <p>Protection of animals and people from accidents</p> | <p>RD</p> <p>Agency of Natural Resources</p> |
| <p>Generation of construction waste</p> | <p>Temporary storage of inert and hazardous wastes separately at the designated locations;</p> <p>Timely disposal of waste to the formally designated landfills;</p> <p>Hand-over of hazardous wastes to licensed deactivating and processing companies.</p> | <p>Construction site and base (if applicable);</p> <p>Locations designated for waste disposal</p> | <p>Checking documents;</p> <p>Visual observation</p> | <p>Entire period of construction</p> | <p>Avoid pollution of the environment</p> | <p>RD;</p> <p>Local Municipality</p> |



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| Accumulation of household waste | Provision of waste containers on-site; Agreement with local municipality for regular out-transporting of waste | Construction site and base (if applicable) | Visual inspection | Entire period of construction | Avoid pollution of soil and water with household waste | RD; Local Municipality |
| Generation of liquid waste | Arrangement and operation of toilets compliant with sanitary norms on-site; Arrangement of drainage system for storm water collection and periodic cleaning of the system from silt; Arrangement of sedimentation pool for waste water collection on-site | Construction site and base (if applicable) | Visual inspection | Entire period of construction Increased frequency of inspection in periods of high precipitation | Avoid flooding of construction site and base; Reduce pollution of surface and ground water | RD |
| Operation of asphalt-concrete plant | Obtaining permit for impacting environment by Contractor and strict adherence to its terms; Placement of plant in the location permissive for minimal disturbance of local population; Arranging sedimentation pool for capturing of liquid discharges from plant | Construction site and base (if applicable) | Checking documents Inspection | Before establishment of plant and during entire period of its operation | Reduce inconvenience for local population due to plant operation; Reduce air and surface water pollution from emissions and discharges from plant | RD; Environment Protection Agency |
| Safety of labor | - provision of Special Clothes and protective means for the contractors - Consistency with the rules of exploitation of the construction equipment and usage of | Construction site | Inspection of the activities | the whole construction period | reduce the probability of accidents | RD |



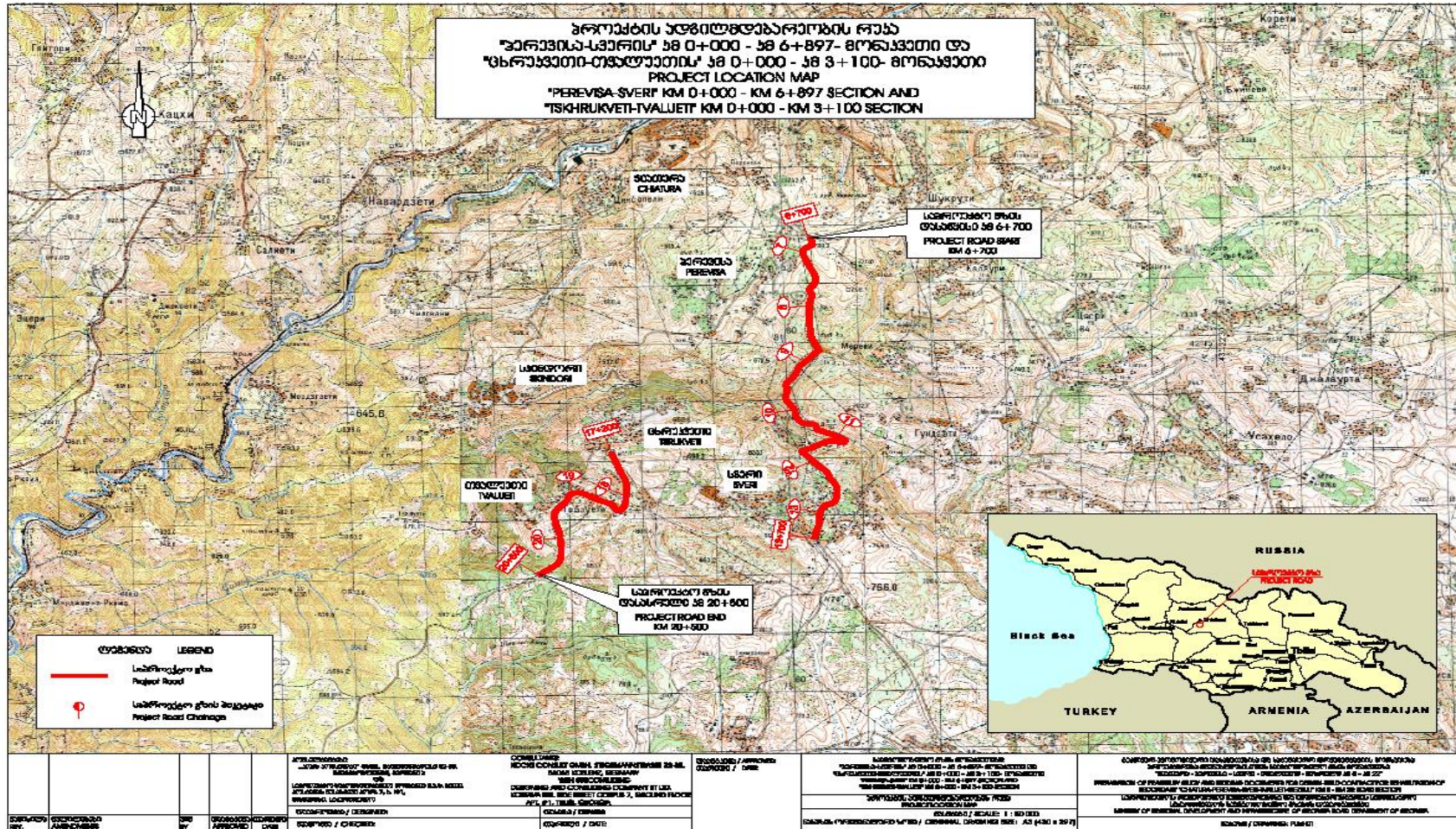
| | | | | | |
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| | private safety means | | | | |
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Operation Phase

| 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?) |
|---|--|---|--|---|--|---|
| Cleaning road surface and shoulders from waste | Trash deposited from moving vehicles timely collected and removed; Bodies of animals overrun by vehicles timely collected and removed | Carriageway and shoulders of the road section | Inspection | Quarterly | Prevent road littering; Road safety | Local municipality |
| Keeping road drainage system operational | Periodic cleaning of drainageditches from silt and trash | Drainage system long the road section | Inspection | Quarterly | Maintaining drainage system capacity for preventing road flooding and water damage | Local municipality |
| Confinement of accidental spills and clean-up | Timely confinement, deactivation, and removal of liquid or powder spills of cargo in case of road accidents | On the road and its immediate surroundings | Inspection | Upon occurrence of accidents, as required | Prevent pollution of soil and water | Traffic Police; Local municipality |
| Disposal of waste from regular road maintenance works | Collection and timely disposal of waste from maintenance works to the designated landfill | On the road and its immediate surroundings | Inspection | Towards completion of scheduled maintenance works | Prevent environment pollution | Local municipality |



Attachemnt 1: Project Location Map



Attachment 2: Minutes of Public Consultation Meeting

Public consultation on the draft Environmental Management Plan for the rehabilitation of secondary road Chiatura-Perevisa-Sveri-Tsrukveti-Tvalueti-Gezruli Stage-I Tsrukveti-Tvalueti-section km 17+200 km 20+500 was held on 03 October 2014 at Chiatura 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 expected negative environmental impact.

Local stakeholders 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.

Representatives of the Roads Department of Georgia included Luiza Bubashvili and Maya Vashakidze

The public meeting was attended by the population of the Chiatura, Sveri and Perevisa (see attachment).

Ms. Luiza Bubashvili and Ms. Maya Vashakidze informed attendees about the Environmental Management Plans of rehabilitation works under Secondary and Local Roads project.

Ms. Luiza Bubashvili 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.

Ms. Maya Vashakidze 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.

Irakli Litanishvili
Deputy Chairman, Roads Departments of Georgia

(signed and sealed)

Representatives of Roads Department of Georgia:

Luiza Bubashvili (signed)

Maya Vashakidze (signed)

List of Participants

ჭიანჭა - შუქვესა.

| სახელი და გვარი | სოფელი, დაბა, ორგანიზაცია | ხელისმოწერა. |
|----------------------|---------------------------|--------------|
| აივლიანი გაბრიელი | ჭიანჭა. | ა. ბრატა |
| ბერი ბერიძე | ჭიანჭა. | ბ. ხოსთაძე |
| ბერი ბერიძე | ჭიანჭა | ბ. ხოსთაძე |
| ბერი ბერიძე | საქი | ა. ბერიძე |
| ბერი ბერიძე | ჭიანჭა | ბ. ხოსთაძე |
| ბერი ბერიძე | საქი. | ბ. ბერიძე |
| ბერი ბერიძე | ჭიანჭა | ბ. ბერიძე |
| ბერი ბერიძე | ჭიანჭა. | ბ. ბერიძე |
| ბერი ბერიძე | ჭიანჭა | ბ. ბერიძე |
| ბერი ბერიძე | ჭიანჭა | ბ. ბერიძე |



Attachment 3. Agreement for Waste Disposal