

1. Environmental and Social Management, Monitoring Plan (ESMMP) and Operational Environmental and Social Management Plan (OESMP)

The main mitigation activities are described in Environment and Social Management and Monitoring Plan (ESMMP) given in Table 1 and Table 2.

Environment and Social Management and Monitoring Plan (ESMMP) identifies the environmental impacts during preparatory and construction - rehabilitation phase, mitigation measures and responsibilities for implementation of mitigation measures.

Mitigation is an integral part of impact evaluation. It looks the better ways of taking actions so that the negative impacts are eliminated or minimized.

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Table 1. Environment and Social Management Plan (ESMP)

Phase	Environmental/ Social Risks/Benefits	Mitigation measures	Responsibility		Target Date by year end / Project Phase	Related documents
			Implementation	Supervision		
PRECONSTRUCTION	GENERAL PROJECT ASPECTS					
	Following National Legislative and EBRD PRs for environmental/social risk or benefit	Design of main project according to National Legislative and EBRD PRs	PESR			National Legislation and EBRD PR 1-10
		The project designer to provide basement measurements in the Elaborate for Environmental Protection	Designer			National Legislation and EBRD PR 1-10
		The project designer to provide road safety measures in the Basic Traffic Design (installation of horizontal and vertical signalization, replacement of the new road equipment, road safety measures etc.-)				
	Stakeholder involvement	Contractor to put in place Grievance Mechanism; Information to the local population about the project activities;	PESR, Contractor Engineer		Pre-construction and construction	National Legislation and EBRD PR 10
	DEVELOPMENT OF CONSTRUCTION ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN (CESMP) The Contractor prepares the implementation of the accompanying Plans described in the Environmental Management Plan to ensure compliance with legal requirements and lender requirements <ol style="list-style-type: none"> 1. Construction site Management Plan, 2. Traffic management Plan 3. Dust and Air Management Plan, 4. Watercourse Management Plan, 	Contractor		Reviewed and approved by Engineer.	Reviewed and approved by Engineer.	

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	<p>5. Grievance mechanism;</p> <p>6. Emergency and Response Management Plan</p> <p>7. Location of the loan site, as well as remediation measures for the loan sites and access roads after completion of the project</p> <p>8. Waste and wastewater Plan in accordance with the Law on Waste Management.</p> <p>9. Community/Occupational Health and safety Plan</p> <p>All necessary licences and permits in relation to environment, safety and labour must be obtained before rehabilitation activities starts.</p>					
	ENTERING THE CONSTRUCTION SITE					
	Project health and safety induction will be delivered to all workers and site visitors based on Occupational Health and Safety Plan, including the obligation to wear personal protective equipment and protecting the environment.		Contractor		Licensed company / expert present full time on site	National Legislation EBRD PR 4
	PROCUREMENT OF MATERIALS					
	Asphalt base	The asphalt base should have licence for operational work	Asphalt base	Asphalt base		National Legislation
	Ground material	The contractor has to have contract or approval with the Municipality authority to place the ground material for the road requirements	Contractor	Contractor		National Legislation
CONSTRUCTION	CONSTRUCTION SITE					
	Implementation of all measures of the approved CESMP (based on this ESMP):					
	Air quality	<p>Dust</p> <p>Exhaust gases</p>	<p>Contract for monitoring of air emissions</p> <p>Use of standardized fuels for mechanization</p> <p>Minimizing emissions through regular spraying with water during the construction works</p> <p>Clean truck's tires before entering and using public roads</p>	Contractor (Con)	Engineer (Eng)	<p>Licensed company</p> <p>Law of Ambient Air Quality;</p> <p>Law on the Environment,</p> <p>EBRD PR 3</p>

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			<p>Using technically correct machinery,</p> <p>Route planning and factor of loading and unloading to reduce of fuel consumption and emissions of exhaust gases and fugitive dust emissions</p> <p>Cover truck loads and using trucks by not exceeding their load capacity;</p> <p>Moisten the truck load;</p> <p>Trucks shall be covered to minimize dust and material spillage</p> <p>Avoid working on machinery in so called "idle", turn off mechanization when is not necessary;</p> <p>Covering vehicles that transport solid material;</p> <p>Moisten the transport vehicles;</p> <p>Provide minimal size of work site.</p>				
	Waste management	<p>Waste generation</p> <p>Waste management</p>	<p>Contract for management of all waste types;</p> <p>Contractor must obtain permit for temporary disposal for scrapped asphalt;</p> <p>Implementation of key principles for sustainable waste management according Waste Law Management;</p> <p>Separation of different types of waste;</p> <p>Waste produced by the workers (communal waste) to be hand over</p>	Con	Eng	<p>Licenced company</p> <p>Communal Public Enterprise</p> <p>Appropriate PCE in the municipality</p>	<p>Law on waste management, Law on the Environment, EBRD PR 3</p>

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			<p>Placement of appropriate containers for collection of municipal waste on location</p> <p>Collecting and further management of different types of waste;</p> <p>The demolition waste (asphalt) to be reused, in accordance with the needs of the Municipality.</p>			<p>Municipality authority</p> <p>Municipality authority</p>	
Soil contamination	Soil pollution and contamination	<p>Termination of construction activities in case of uncontrolled spills of fuel, oil, lubricants and other chemicals, sprinkle with sand and removal of polluted soil layer;</p> <p>Polluted soil layer would be treated as a hazardous waste;</p> <p>Contract for placing mobile toilets on certain places along the section and contracting with the company which will undertake and clean them;</p> <p>Washing of the construction mechanization to be done on proper location;</p> <p>Proper handling of lubricants, oil, fuel etc.</p>	<p>Con</p> <p>Con</p>	Eng	<p>Authorized company</p>	<p>Law on Environment, EBRD PR 3</p>	
Noise and vibrations	Increased noise level and vibrations	<p>Contract for monitoring of noise levels</p> <p>Planning the construction procedures due to minimizing emitted noise (in time and intensity),</p> <p>Turning off the engines of vehicles and construction machinery when they are not in use,</p>	Con	Eng		<p>Law on noise protection in the environment, Rulebook on limits on level values on noise level in the environment, law on the environment, EBRD PR 3</p>	

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			Maintenance of vehicles and construction mechanization in a technically correct condition; Limit activities to daylight working hours from 8 am - 5 pm;				
	Labour and Working Conditions	Worker's health and safety	Contractor to organize training before construction activities starts; Workers need to have contracts in place before start construction work; Keep records on labour and working conditions policy and trainings held and any unlikely event (such as incidents and accidents);	Con	Con	Licenced company	Law on Occupational Health and Safety ,National legislation and EBRD PR 2 and PR 4 requirements (child and forced labour are forbidden), EBRD PR. 4
		Traffic Safety Management	Provide workers with safety instructions and appropriate protective gear such as protective clothing, safety boots, helmets, gloves, goggles, ear protection, etc., Regulation of traffic during the project activities; Notify the authorities for any traffic disruption and collaborating with them when required by local laws; Procedure for providing adequate information road signs; Providing adequate signalization; Traffic safety signs; Flag persons for traffic control; Apply appropriate warning signs (slip, landslide, wet or slippery roadway, dangerous curve, pedestrian or animal crossing, school, slow vehicle movement in traffic), Fluorescent (reflective) markings indicating steep slopes or convex mirrors to traffic from the opposite direction could be	Con	Eng		

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			<p>monitored in inconspicuous curves, erected warning signs in places deemed appropriate by good engineering practice or as agreed with public authorities.</p> <p>As appropriate, road safety audits should be undertaken for each phase of the project and routinely monitor incident and accident reports to identify and resolve problems or negative safety trends.</p>				
Biodiversity protection	Impacts on flora and fauna	<p>Perform project construction activities on minimal space;</p> <p>Reuse of topsoil as appropriate and replant any lost vegetation (native species only);</p> <p>Minimal removal of the vegetation alongside the section during the preparation activities;</p> <p>Temporary waste disposal sites along the route not to be created;</p> <p>On the riverbed in vicinity of the section any kind of material disposal (construction material, waste etc.) and placement of temporary objects is forbidden;</p> <p>Hunting and fishing, collecting forest berries, bird eggs etc, by the workers is not allowed;</p> <p>Prohibition to lighting open fire.</p>	Con	Eng		<p>Law on nature protection Law on Environment, Birds Directive, Habitat Directive</p> <p>EBRD PR 6.</p>	
Cultural Heritage Protection	Cultural Heritage, Chance finds	<p>Contractor to develop Chance find procedure</p>	Con	Eng		<p>Law on Protection of Cultural Heritage,</p> <p>EBRD PR 8</p>	

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OPERATION	<p>DEVELOPMENT AND IMPLEMENTATION OF OPERATIONAL ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN (OESMP)</p> <p>The OESMP must include sub plans relating to air quality, noise management, soil management, waste management, biodiversity management, traffic management, health and safety, community, water management and drainage, emergency response, stakeholder management and road maintenance and road safety inspection and audits.</p>	PESR / Engaged company	PESR / Engaged licensed company	OESMP developed and implemented.	National Legislation and EBRD PR 1-10
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Table 9. Monitoring Plan

Phase	What parameter is to be monitored?	Where is the parameter to be monitored?	How is the parameter to be monitored?	When is the parameter to be monitored? Frequency	Responsibility	Reports Documents /	Indicative costs (euros)
Traffic safety	Implementation of Traffic Management Plan	On project site	Visual inspection by engineer and relevant authorities	During rehabilitation phase	Contractor Supervision Engineer	Quarterly Report AESR	Price to be offered by the Contractor in the BoQ
Road Safety	Implementation of the Road safety measures (installation of horizontal and vertical signalization, replacement of the new road equipment)	On project site	Road safety reports	During rehabilitation phase	Contractor Supervision Engineer	Quarterly Report AESR	Price to be offered by the Contractor in the BoQ

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<p>General Work Safety</p> <p>Safety of the employees, visitors on site</p>	<p>Implementation of the Plan for Occupational Health and Safety</p>	<p>On project site</p>	<p>The status of implementation of mitigation measures; number of injures at workplace; appointed person/officer for health and safety on site.</p>	<p>During rehabilitation phase</p>	<p>Contractor Supervision Engineer</p>	<p>Quarterly Report AESR</p>	<p>Price to be offered by the Contractor in the BoQ</p>
<p>Air pollution</p> <p>(fugitive emission of dust, emission of exhaust gases from construction mechanization)</p>	<p>Exhaust fumes (CO, NO_x, SO₂, PM), Dust</p>	<p>On project site</p>	<p>Visual inspection, and</p> <p>Measurement of PM₁₀ on one point in Makedonska Kamenica and in the village Sasa (2 locations)</p>	<p>Dust shall be monitored on daily basis visually when machinery is working or there is delivery of materials on site and in dry weather conditions.</p> <p>Instrumental measurements shall be done minimum in one baseline measurement during project preparation and one measurement on 2 stated sites during the rehabilitation activities when works are ongoing on these locations in accordance with Programme of works.</p>	<p>Contractor Supervision Engineer</p> <p>Licenced company</p>	<p>Report from the measurement prepared by the licenced company</p> <p>Quarterly Report AESR</p>	<p>Price to be offered by the Contractor in the BoQ</p>
<p>Potential pollution of soil and groundwater/ contamination of surface water</p>	<p>Soil quality</p>	<p>On project site</p>	<p>Visual inspection for spills and leaks which might impact soil quality (and potentially groundwater)</p>	<p>During rehabilitation activities</p>	<p>Contractor Supervision Engineer</p>	<p>Quarterly Report AESR</p>	<p>Price to be offered by the Contractor in the BoQ</p>

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<p>Waste generation (Municipal waste from engaged employees, demolition waste etc.)</p>	<p>Implementation of Waste Management Plan</p>	<p>On project site</p>	<p>Visual inspection, contracts with authorized legal/physical entities for waste handling in compliance with national legislation</p>	<p>During rehabilitation activities</p>	<p>Contractor Supervision Engineer</p>	<p>Quarterly Report AESR</p>	<p>Price to be offered by the Contractor in the BoQ</p>
<p>Noise and vibrations</p>	<p>Noise levels (in dB)</p>	<p>On project site</p>	<p>Measurement of noise levels on one point in Makedonska Kamenica and in the village Sasa (2 locations)</p>	<p>Instrumental measurements shall be done minimum in one baseline measurement during project preparation and one measurement on 2 stated sites during the rehabilitation activities when works are ongoing on these locations in accordance with Programme of works.</p>	<p>Licensed company</p>	<p>Report from the measurement prepared by the licensed company Quarterly Report AESR</p>	<p>Price to be offered by the Contractor in the BoQ</p>
<p>Material transport</p>	<p>Truck load covered</p>	<p>On project site</p>	<p>Visual inspection</p>	<p>During rehabilitation activities</p>	<p>Contractor Supervision Engineer</p>	<p>Quarterly Report AESR</p>	<p>/</p>
<p>Construction site</p>	<p>Technical features of the construction equipment</p>	<p>In authorized services and on site</p>	<p>Supervisory Inspection</p>	<p>During rehabilitation activities During operation of the mechanization</p>	<p>Contractor Supervision Engineer</p>	<p>Quarterly Report AESR</p>	<p>Price to be offered by the Contractor in the BoQ</p>

2. Roles and responsibilities for implementation of ESMMP

During rehabilitation of the road section Makedonska Kamenica - Sasa mitigation and monitoring activities will run parallel to the rehabilitation activities and in compliance with Programme of works on site. They will commence at the time when employees, equipment and/or materials are moved to the site and will end after the job is completed and all employees, equipment and/or materials are removed from the site and the work at location is complete.

Contractor should provide monthly reports to Public Enterprises for State Roads (PESR), including aspects for implementation of the foreseen environmental and social measures. The Engineer will prepare Quarterly Environmental Reports for submission to the PESR according to the received data from the Contractor, authorized bodies of state administration for such type of activities.

The Contractor shall prepare, and the Engineer shall approve and submit to the PESR the AESR during the construction phase, to be further submitted to EBRD. PESR will be responsible for preparation and submission of AESRs during the operation phase.

Roles and responsibilities for implementation of Environmental and Social Management and Monitoring Plan (ESMMP) are given in Table .

Table 10. Roles and Responsibilities for implementation of ESMMP

Company/Unit	Responsibilities
Environmental Protection and Social Aspects Unit (EPSAU) (PESR)	<p>This Unit is responsible for monitoring the implementation of EBRD's environmental safeguard policies in all stages and process of the project. Specifically, this unit will be responsible for:</p> <p>i) reviewing the subproject: ESAR, ESMMP prepared by consultants to ensure quality of the documents; ii) providing relevant inputs to the consultant selection process; iii) reviewing reports submitted by the Contractor, Supervision, Monitoring contractor; iv) conducting periodic site checks; v) advising PESR management on solutions to environmental issues of the project; and vi) preparing environmental performance section on the progress and review reports to be submitted to the EBRD.</p>
Contractor	<p>Based on the approved ESMMP and the Elaborate for environmental protection, the Contractor will be responsible for establishing a site-specific ESMMP (or CESMMP) for the project site, submit the plan to Supervision Contractor (Engineer) and PESR for review and approval before commencement of rehabilitation</p>

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Company/Unit	Responsibilities
	<p>works. In addition, it is required that the Contractor get all permissions for construction (traffic control and diversion, excavation, labour safety, etc. before civil works) following current national regulations.</p> <p>The Contractor shall be required to appoint a competent individual as the contractor 's on-site <i>Health, Safety and Environmental Officer (HSEO)</i> who will be responsible for monitoring the Contractor's compliance with the ESMMP requirements and the environmental specifications.</p>
Supervision Engineer	<p>The Supervision Engineer will be responsible for supervising and monitoring all project activities and for ensuring that Contractor comply with the requirements of the contracts and the ESMMP. The Supervision Engineer shall engage sufficient number of qualified staff (e.g. Environmental Engineer) with adequate knowledge on environmental protection and construction project management to perform the required duties and to supervise the Contractor's performance.</p>
Ministry of Environment and Physical Planning (MoEPP)	<p>MoEPP is responsible for issuing a decision for approval of Elaborate for Environmental Protection (equivalent to the ESAR) and monitoring of the state of implementation of all mitigation measures for environmental protection described in Elaborate for environmental protection.</p>