Environmental Assessment

of the

Panjsher Road Improvement Project

A part of the Afghanistan Rehabilitation of Economic Facilities and Services (REFS) Program

Contract 306-C-00-02-00500-00

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EXHIBIT 3-1
POTENTIAL IMPACTS AND MITIGATION

The following summarizes standard environmental provisions incorporated in REFS road contracts. Depending on the nature of the work to be undertaken, not all provisions may be relevant to all projects.

ENVIRONMENTAL CRITERIA	POTENTIAL IMPACTS	Avoidance / Mitigation Action
1.0 PHYSICAL RESOURCES		
1.1 Topography & Land Forms	Cut & Fill and Borrow Pits	Designs will balance all cut and fill activities within the construction site insofar as it is possible to do so. Provisions for the treatment of slopes to ensure stabilization are incorporated in the contract provisions. Requirements for fill may necessitate the use of borrow pits which may cause drainage and visual problems and present a potential for increased vector activity (e.g., water contamination). Provisions for the restoration of borrow pits to their former condition are incorporated in the contract provisions.
	Quarry Operations	Only licensed quarrying operations are to be used; if licensed quarries are not available the Sub-Contractor will be responsible for setting up their dedicated crusher plants at approved quarry sites.
	Erosion/Scour	No significant adverse erosion/scour impacts area anticipated. No mitigation actions required.
1.2 Soils	Erosion/Scour	See **1.1** above.
	Contamination Due to Spills	Fuel and chemical storage will be sited on an impervious base within a bund and secured by fencing. The storage area shall be located away from any watercourse or wetlands. The base and bund walls shall be impermeable and of sufficient capacity to contain 110 percent of the volume of tanks. Filling and refueling shall be strictly controlled and subject to formal procedures. All valves and trigger guns shall be resistant to unauthorized interference and vandalism and be turned off and securely locked when not in use. The contents of any tank or drum shall be clearly marked. Measures shall be taken to ensure that no contaminated discharges enter any drain or watercourses. The contract specifications also require the preparation of an Emergency Response Plan to deal with accidents and emergencies, including environmental/public health emergencies associated with hazardous material spills and similar events.
1.3 Seismic & Geological Characteristics	Demand for Quarried Materials	Only licensed quarrying operations are to be used; if licensed quarries are not available the Sub-Contractor will be responsible for setting up their dedicated crusher plants at approved quarry sites.
	Seismic Vulnerability	Design standards incorporated to prevent landslides affecting the Project road from falling debris.
1.4 Hydrology	Surface Hydrology	No significant interruptions or diversions or flow are anticipated. No significant increase in water usage is anticipated. Potential impacts during the rehabilitation process will be mitigated through coordination with local land use planning authorities and local residents. Construction camps and other potential sources of secondary impacts must be properly sited and provided with drainage and wastewater facilities. During rehabilitation all projects works should impact as little as possible on the supply of water to the downstream irrigation system and subsequent agricultural lands. There will be no disruption to water supply during rehabilitation works, all waters shall be diverted to ensure constant supply. Rehabilitation activities should be timed so minimal disruption to agricultural areas is achieved. Construction-related interference with the supply to, of abstraction from, of the pollution of, water resources is prohibited. The Sub-Contractor shall not discharge or deposit any matter arising from the execution of the Work into any waters except with the permission of the regulatory authorities concerned. Existing stream courses and drains must be kept safe and free from any debris and any materials.
	Area Wetland	No impacts identified. No mitigation actions required.

	Subsurface Hydrology	No impacts to subsurface hydrology are anticipated. The Sub-Contractor is required to prevent interference with the supply to, of abstraction from, or pollution of, water resources including underground percolating water…"
	Flood characteristics	No impacts resulting from flood conditions are anticipated. No mitigation actions required.
1.5 Air Quality & Climate	Rehabilitation Impacts	Contract provisions shall state: ▪ The Sub-Contractor will be required to spray road surfaces, excavation and construction sites. ▪ Trucks carrying earth, sand or stone will be covered with tarps. ▪ Contract provisions allow suspension of work in unfavorable condition. ▪ Machinery and equipment will be fitted with pollution control devices and checked at regular intervals. ▪ Open burning will be prohibited in populated areas.
1.6 Mines and Unexploded Ordnance	Uncontrolled Detonation	The Project has received a Certificate from the United Nations Mine Action Center that there are no mines/UXO at or near the site.
2.0 NATURAL/BIOLOGICAL RESOURCES		
2.1 Flora	Destruction of Habitat	The project is not anticipated to have significant negative impacts to flora within the vicinity of the Project Road.
2.3 Fauna	Destruction of Habitat	The project is not anticipated to have significant negative impacts to fauna within the vicinity of the Project Road.
2.3 Aquatic Habitat	Destruction of Habitat	The project is not anticipated to have significant negative impacts on natural habitats within the vicinity of the Project Road.
2.4 Protected Areas	Rehabilitation Impacts	The Project road is located more than 150km from the nearest protected area (Kole Hashmat Khan).
3.0 OTHER ENVIRONMENTAL CONCERNS NOTED BY 22 CFR 216		
3.1 Land Use and Development Policies and Controls	Potential PAPs Impacts	No impacts to project-affected persons (PAPs) as that term is generally defined by the international assistance community (i.e., persons whose livelihood is directly or indirectly affected by a project) have been identified. Adoption of guidelines attached as **Appendix B** are recommended in the event that such impacts emerge unexpectedly.
	Rehabilitation Impacts	Coordination with local land use planning authorities is required. Construction camps and other potential sources of secondary impacts must be properly sited and provided with drainage and wastewater facilities.
	Operational Impacts	Impacts are expected to be minimal. No mitigation actions warranted.
3.2 Energy & Conservation	Exploitation of Energy Resources	Impacts are expected to be minimal. No mitigation actions warranted.
	Demand for Petroleum Products	Impacts are expected to be minimal. No mitigation actions warranted.
3.3 Use of Natural / Depletable Resources	Exploitation of Natural Resources	Impacts are expected to be minimal. No mitigation actions warranted.
	Demand for Construction Materials	Impacts are expected to be minimal. No mitigation actions warranted.
3.4 Urban Quality / Design of the Built Environment	Impacts to Roadside Structures and Activities	Impacts are expected to be minimal. No mitigation actions warranted.
3.5 Historic & Cultural Resources	Demolition or Damage Due to Rehabilitation	The Massoud Tomb is within close proximity to the Project Road. To avoid potential adverse impacts to this and other identified historic and cultural resources, the Project specifications will state that the Sub-Contractor shall: ▪ Consult with provincial-level representatives of the Archaeological Committee under the Ministry of Information and Culture, obtain any necessary clearances in regard to historic and cultural resources prior, and provide written documentation of these consultations to the

		Contractor prior to the initiation of work. ▪ Protect sites of known antiquities, historic and cultural resources by the placement of suitable fencing and barriers; ▪ Adhere to accepted international practice and all applicable historic and cultural preservation requirements of the Government of Afghanistan, including all appropriate local government entities. In the event of unanticipated discoveries of cultural or historic artifacts, the Sub-Contractor is obligated to shall take all necessary measures to protect the findings and shall notify the Contractor and provincial-level representatives of the Archaeological Committee and the Ministry of Information and Culture. If continuation of the work would endanger the finding, project work shall be suspended until a solution for preservation of the artifacts is agreed upon.

4.0 ADDITIONAL ENVIRONMENTAL CONCERNS RAISED BY SIMILAR PROJECTS		
4.1 Socio-Economic Considerations	Impacts are Deemed Beneficial	No mitigation actions warranted.
4.2 Public Health & Safety	Disease Transmission	The Sub-Contractor is required to provide basic emergency heath facilities for workers.
	Access to Heath Facilities	Access to health facilities will be improved by Project activities. No mitigation actions required.
	Contamination Due to Spills	See **1.4** above.
	Air and Noise Impacts	See **1.5** above.
4.3 Noise	Noise impacts to Sensitive Receptors	Impacts are not expected to significantly affect sensitive receptors within proximity to the Project Road. No mitigation actions required other than those specified on contract provisions.
4.4 Other Infrastructure Networks	Water Supply & WW Collection Networks	Impacts are expected to be minimal. No mitigation actions warranted.
	Irrigation Systems	Impacts are expected to be minimal. No mitigation actions warranted.

- Topography (Item 3.2.1)
- Soils (Item 3.2.2)
- Seismic & Geological Characteristics (Item 3.2.3)
- Hydrology (Item 3.2.4)
- Air Quality & Climate (Item 3.2.5)
- Mines and Unexploded Ordnance (Item 3.2.6).

<u>Item 3.3 (Natural/Biological Resources)</u> - the natural/biological aspects of the potentially affected environment. These are discussed under the sub-headings of:

- Flora (Plant Species) (Item 3.3.1)
- Fauna (Wildlife) (Item 3.3.2); and
- Protected Areas (Item 3.3.3);

In addition to these requirements, Paragraph 216.6 of the Procedures states that "… *Environmental Assessment(s) should include discussions of ….. possible conflicts between the proposed action and land use plans policies and controls for the areas concerned; energy requirements and conservation potential of various alternatives and mitigation measures; natural or depletable resource requirements and conservation*

- Proper use of solvents and volatile materials.
- Blasting (if any) to be carried out using small charges.
- Transport of dust-generating items using tarps and other devices to minimize impacts.
- Spraying of road surfaces, excavation and construction sites to keep them moist for dust control as determined advisable by the SE.

EXHIBIT 4-1
ENVIRONMENTAL MITIGATION FINAL DESIGN CHECKLIST
For Air Quality, Water, Soil, Noise and Social Impacts

AIR QUALITY

Potential Impact Source	Mitigation Objective	Mitigation Measure	Implementation Mechanism & Responsibility
Material Transport	Minimization of dust during transport of fill and construction material	Rock, sand and other dust producing material will be sprayed prior to transport. Trucks must be covered with tarps. Only approved transport routes will be used.	Required by Project Contracts. Enforced by the Supervising Engineer (SE).
Earthwork Activities	Minimization of dust dispersal due to earthworks.	Sub-Contractors are required to spray roadways to minimize dust in dry conditions.	Required by Project Contracts. Enforced by SE.
Concrete Batching and Structural Work	Minimization of airborne particulate and gas emitted during the construction process.	Contracts specify that batch sites shall be located away from human settlements.	Required by Project Contracts. Enforced by SE.
Emissions from Asphalt Plants	Minimization of smoke, soot, airborne particulates and gas emitted due to plant operations.	Asphalt plants may not be located within 500 meters of human settlements. Baseline and periodic air quality monitoring is required.	Required by Project Contracts. Enforced by SE.
Emissions from Construction Equipment & Solvents.	Avoidance of excessive emissions due to poorly maintained equipment.	Contract stipulations require all construction equipment to meet acceptable standards and to be properly maintained. Solvents and volatile materials must be used properly to the satisfaction of the SE.	Required by Project Contracts. Enforced by SE.
On-Site Burning.	Avoidance of smoke and gases which may constitute a nuisance.	On-site burning to be banned in populated areas	Required by Project Contracts. Enforced by SE.

WATER QUALITY

Potential Impact Source	Mitigation Objective	Mitigation Measure	Implementation Mechanism & Responsibility
Uncontrolled Runoff During Construction Activities	Avoidance of inadequately planned runoff due to development of staging areas, labor camps, etc.	Runoff from during construction will be strictly controlled as a part of construction supervision activities. Monitoring will be undertaken as a routine part of construction supervision.	Required by Project Contracts. Enforced by SE.
Disruption of Irrigation	Avoidance of interruptions to irrigation flows due to construction activities.	Irrigation systems have been taken into account in design. Alternative water sources will be developed as warranted due to temporary interruptions.	Required by Project Contracts. Enforced by SE.
Relocation of Wells	Ensure adequate planning for relocation and use of temporary sources.	Locations of existing wells have been taken into account in design. Alternative water sources will be developed as warranted due to temporary interruptions.	Required by Project Contracts. Enforced by SE.
Effects of Construction Camps & Staging Areas	Avoidance of inappropriate wastewater disposal and runoff.	Provisions for the location and design standards for land use, drainage, health facilities, etc., are established by construction documents.	Required by Project Contracts. Enforced by SE.

SOILS

Potential Impact Source	Mitigation Objective	Mitigation Measure	Implementation Mechanism & Responsibility
Loss of Agricultural Land	Minimize use of farmland for road improvement purposes.	Loss of agricultural land has been avoided as much as possible. Use of corridors already dedicated to agricultural use minimizes the need for additional agricultural land. All fill material will be obtained from non-agricultural areas.	Avoidance of agricultural land has been incorporated in the decision-making process.
Borrow Pits in Inappropriate Locations	Avoid loss of agricultural land or other resources	Only government sanctioned quarries and construction material sources will be used.	Required by Project Contracts. Enforced by SE.
Inappropriate Exploitation and Restoration of Borrow Pit Areas.	Minimize loss of topsoil and creation of drainage problems and unsightliness.	Topsoil to re-vegetate the pits to the satisfaction of the SE. Borrow pit areas will be graded to ensure drainage and visual uniformity or to create permanent tanks/dams. Additional borrow pits will not be opened without the restoration of those areas no longer in use.	Required by Project Contracts. Enforced by SE.
Inadequate Slope Stabilization	Minimize soil loss during slope creation and due to erosion and slope failure in the longer-term.	Side slopes standards have been established to reduce erosion potential and/or, if necessary, stabilized, covered with rip-rap or other material to prevent soil erosion. Where appropriate embankment slopes and road cuts will be stabilized by re-vegetation with grazing resistant plant species,	Incorporated in design. Enforced by SE. Operational maintenance by MPW.

		placement of fiber mats, rip-rap, rock gabions, or other appropriate technologies.	
Soil Loss Due to Water-Related Erosion.		Discharge zones from drainage structures will be furnished with rip-rap when warranted, particular in instances in which drainage structures are installed and/or road formation levels are raised and create bare slopes that require stabilization. Down drains/chutes will be lined with rip-rap/masonry or concrete to prevent erosion.	Incorporated in design. Enforced by SE. Operational maintenance by MPW.
Uncontrolled Runoff from Construction & Labor Camps	Avoid soil due to poorly designed and/or maintained constructor and labor camps.	Runoff will be controlled by proper siting of construction camps and staging areas.	Required by Project Contracts. Enforced by SE.
Inappropriate Use of Dredge Material	Ensure that any dredged material is properly handled.	Dredge material free of contaminants shall be used for reclamation and agricultural uses as appropriate.	Required by Project Contracts. Enforced by SE.

NOISE

Potential Impact Source	Mitigation Objective	Mitigation Measure	Implementation Mechanism & Responsibility
Blasting (if any)	Minimize high noise levels and high stress levels due to unanticipated blasting. Control time.	Blasting and drilling times will be limited. Public notification of blasting will be required.	Required by Project Contracts. Enforced by SE.
Pile Driving	Minimize high noise levels, vibrations and time of occurrence.	To be mitigated through use of : - Time limits for pile-driving activities. - Bored piles in sensitive areas. - Shrouds where warranted.	Required by Project Contracts. Enforced by SE.
Earth Moving	Minimize high noise levels and times of occurrence	Limit earth-moving times. Limit number of working vehicles. Use of low-noise emission vehicles. Proper maintenance of equipment. Use of noise barriers where warranted.	Required by Project Contracts. Enforced by SE.
Paving And Other Construction Activities.	Minimize high noise levels and times of occurrence.	Limit construction hours in sensitive areas. Use of properly maintained equipment. Use of noise barriers where warranted.	Required by Project Contracts. Enforced by SE.

SOCIAL

Potential Impact Source	Mitigation Objective	Mitigation Measure	Implementation Mechanism & Responsibility
Disruption of Economic Activities	Minimize loss of income due to disruptions.	Contractors are required to minimize disruption due to traffic detours and construction activities. Unavoidable disruptions will be compensate per the recommended Guidelines.	GOA and SE.
Dislocation of	Minimize loss of	Relocations, resettlement and income	GOA.

Homes and Businesses	social connections and income.	restoration will be mitigated per the Guidelines.	
Removal of Graves	Avoidance of family and social stress.	Mitigated in accordance with the recommended Guidelines.	GOA
In-migration of Labor	Avoidance of social tensions. due to competition for resources.	Mitigated by control of labor camps (if any) employee orientation and public information programs.	Construction requirements enforced by SE.
Traffic and Transport Disruption	Avoid social tensions and the opportunity cost of time lost due to traffic delays.	Public information programs to alert the public of detours, etc., are required. Adequate posting and directional assistance at detours will be enforced.	SE.

- **Water Quality Impacts.** Potential water quality impacts during the construction phase will also be mitigated through the controlled location of asphalt plants and similar sources of runoff, erosion controls, proper siting and provision of facilities at construction camps as tabulated by **Exhibit 4.1** with compliance assured through the oversight of the SE.

- **Soils Impacts.** Potential soil impacts will be mitigated through the control of waste disposal practices and runoff as tabulated by **Exhibit 4.1** as a routine part of construction supervision and enforced through the monitoring of the SE.

  - Embankment & Erosion Prevention Requirements

  - Borrow Pit Restoration Requirements.

  - Mining/Quarry Activities – i.e., the requirement that only licensed quarrying operations are to be used for material sources, if available, and the contingency provisions in the contracts if they are not. Selections of quarries used for the rehabilitation of the Project Road will require the approval of the SE.

  - Controls of hazardous materials.

- **Social Impacts.** Potential issues related to transport of construction materials, labor camps and other social impacts will be mitigated as a routine part of construction supervision. Compliance with the contract stipulation in regard to the use of local labor to the maximum extent feasibility will also be monitored by the SE.

- **Public Health**. Compliance with contract provisions to control potential contamination of local water supplies during construction; to control air pollution and noise levels; to provide basic emergency heath facilities for workers; and encourage programs aimed at the prevention of sexually transmitted diseases as a part of all construction employee orientation programs; and other factors having a potential impact will be assured through the oversight of the SE. Although it is beyond the scope of the proposed Project, the establishment of STD awareness programs is recommended

- **Safety**. Detours and traffic re-routing schemes will require the approval of the SE. Contract documents state that "*The Sub-Contractor shall provide the Contractor with a written traffic control plan which is to include when and where flagmen shall be employed and when and where traffic cones or other devices such as barricades and/or*