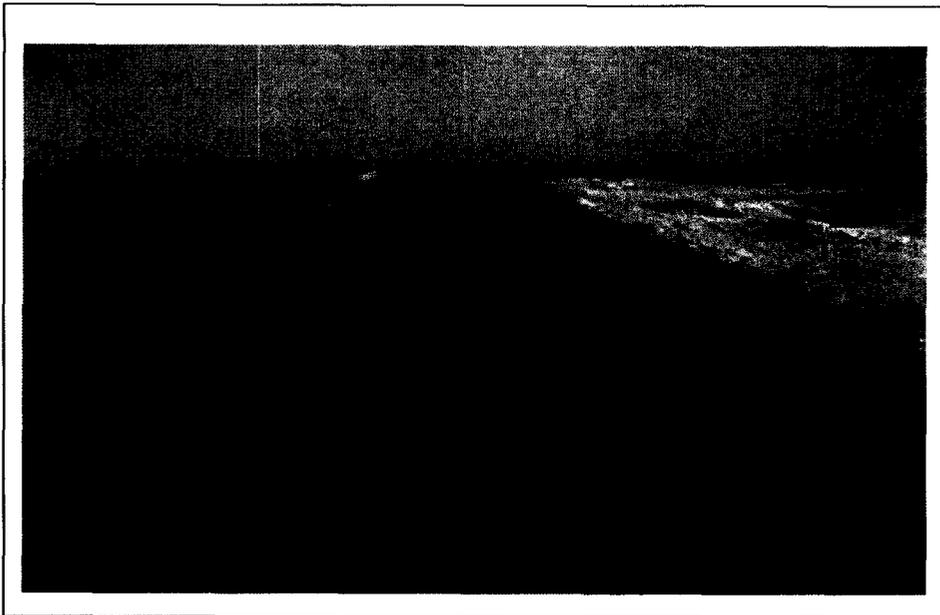




USAID
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Environmental Assessment of the Southern Afghanistan Provincial Roads Project

A part of the Afghanistan Rehabilitation of Economic Facilities and Services (REFS) Program
Contract 306-C-00-02-00500-00



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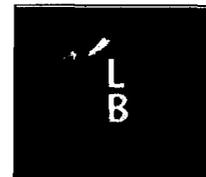


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LIST OF ACRONYMS/GLOSSARY

| | | | |
|--------------|------------------------------------------------------------------------------------------------------------|--------------|--------------------------------------------------------|
| A | | MIWRE | Ministry of Irrigation Water Resources and Environment |
| ACCA | Afghan Assistance Coordination Authority | MMI | Ministry of Mines and Industry |
| ACIA | Afghanistan Civil Infrastructure Assessment | MOC | Ministry of Communications |
| ADB | Asian Development Bank | MOI | Ministry of Interior |
| AIA | Afghanistan Interim Administration | MOIC | Ministry of Information and Culture |
| B | | MOP | Ministry of Power |
| BOD | Biological Oxygen Demand | MPW | Ministry of Public Works |
| C | | msl | Mean Sea Level |
| CFR | Code of Federal Regulations | N | |
| COPA | Conditions of Particular Application | NGO | Non-Governmental Organization |
| CSC | Construction Supervision Consultant | NMT | Non-Motorized Traffic |
| D | | NO | Nitrogen Oxide |
| dB | Decibel | P | |
| DO | Dissolved Oxygen | PAP | Project Affected Person |
| E | | Pb | Lead |
| EA | Environmental Assessment | PCF | Post Conflict Fund |
| EIA | Environmental Impacts Assessment | R | |
| F | | REFS | Rehabilitation of Economic Facilities and Services |
| FIDIC | <i>Federation International Des Ingenieurs Conseils</i> (International Federation of Consulting Engineers) | S | |
| G | | SE | Supervising Engineer |
| GC | General Contractor | <i>Shura</i> | District (typically 15-20 <i>gozars</i>) |
| GCOC | General Conditions of Contract | SPM | Suspended Particulate Matter |
| <i>Gozar</i> | Neighborhood | SS | Suspended Solids |
| GoA | Government of Afghanistan | STD | Sexually Transmitted Disease |
| GPD | Gross Domestic Product | T | |
| GPS | Global Positioning System | TOR | Terms of Reference |
| H | | TSP | Total Suspended Particulate |
| Ha | Hectare | U | |
| I | | UN | United Nations |
| ICB | International Competitive Bidding | UNDP | United Nations Development Fund |
| IDA | International Development Association | UNEP | United Nations Environment Program |
| IEE | Initial Environmental Examination | UNMAC | United Nations Mine Action Center |
| ISAF | International Security Assistance Forces | USAID | United States Agency for International Development |
| ICUN | International Union for the Conservation of Nature | USAID/GC | USAID General Contractor |
| J | | UXO | Unexploded Ordnance |
| K | | V | |
| KM | Kilometer | W | |
| L | | X | |
| LCB | Local Competitive Bidding | Y | |
| M | | Z | |
| M | Meters | | |
| MHBTP | Ministry of Housing, Building and Town Planning | | |

ENVIRONMENTAL ASSESSMENT
Of The:
SOUTHERN AFGHANISTAN PROVINCIAL ROADS PROJECT
Proposed As Part Of The
REHABILITATION OF ECONOMIC FACILITIES AND SERVICES (REFS) PROGRAM
With Funding Provided By
UNITED STATES AGENCY FOR INTERNATIONAL DEVELOPMENT
Contract 306-C-00-02-00500-00

Summary of Findings

Proposed Action. The United States Agency for International Development (USAID) proposes to fund the Southern Afghanistan Provincial Roads Rehabilitation (SAPR) Project as a part of its Afghanistan Rehabilitation of Economic Facilities and Services (REFS) Program. The SAPR Project includes Farah – Ring Road (68km) and Lashkar Gah – Ring Road (49km). Both routes form part of an important network for the movement of people and produce in the southern provinces of Farah and Helmand.

Examination Methodology. Pursuant to Environmental Procedures established by Title 22 of the U.S. Code of Federal Regulations, Part 216 (22 CFR 216), USAID made a *Positive Determination* for REFS Component 1 (the Component of which the proposed Project is a part), i.e., a determination that environmental documentation will be required on a project-by-project basis. The USAID Mission in Kabul has determined that an EA is warranted for this project. In accordance with the recommended EA format, the initial section of the EA (the section in hand) presents a Summary of Findings pursuant to 22 CFR 216.6 (c) (1) 22 which states (in its entirety) that the initial section of the EA shall be a summary and that “*the summary shall stress the major conclusions, areas of controversy, if any, and the issues to be resolved*”. Accordingly, the Summary of Findings is organized to present:

- **Major Conclusions** (Item 1);
- **Areas of Controversy** (Item 2); and
- **Issues to be Resolved** (Item 3).

1. MAJOR CONCLUSIONS

The Environmental Assessment finds that:

- No significant adverse impacts are likely to result from the proposed Project, provided that the actions to avoid or otherwise mitigate potential adverse impacts are incorporated in the Project as specified herein. Specific environmental provisions for the Project’s contractual Conditions of Particular Application (COPA) are provided by **Appendix A**.
- The Project is not expected to result in significant impacts to residences and agricultural land, however in the event that such issues do arise recommended guidelines to mitigate impacts to project-affected persons (PAPs), based on the precedents set by related policies in Afghanistan, are provided by **Appendix B**.
- Consideration of additional actions beyond the scope of the Project are warranted

including:

- Assist MPW in the Establishment of a Traffic Safety Program;
- Assist Coordination of Future Land Use & Transport Plans; and
- Integrate Road Rehabilitation with REFS Institutional Strengthening Initiatives.

2. AREAS OF CONTROVERSY

The phrase “Areas of Controversy” in this context is taken to mean areas of disagreement emerging from public comment and participation in the definition of the Project and the Proposed Action. No such areas of controversy have emerged.

3. ISSUES TO BE RESOLVED

No environmental issues are to be resolved.

1.0 INTRODUCTION

1.1 PURPOSE OF THE EA

This document presents an Environmental Assessment (EA) of the Southern Afghanistan Provincial Roads Project (SAPR) proposed for funding by the United States Agency for International Development (USAID) as part of its Afghanistan Rehabilitation of Economic Facilities and Services (REFS) Program. The purpose of the EA is to ensure that environmental issues have been foreseen in its development and implementation plans. The administrative and strategic context provided by the REFS Program is explained in **Item 1.2** below. Details of the proposed Project are provided by **Section 2.0**, Project Description.

To ensure that environmental issues associated with projects such as the SAPR Project are adequately foreseen, all projects identified for funding by USAID are subject to the Environmental Procedures established by Title 22 of the U.S. Code of Federal Regulations, Part 216 (22 CFR 216). The USAID Mission in Kabul has recommended that the SAPR Project requires an EA.

1.2 ADMINISTRATIVE & STRATEGIC CONTEXT

The REFS Program of which the SAPR Project is a part was developed on the basis of an Afghanistan Civil Infrastructure Assessment (ACIA) for which field investigations were undertaken in the period from 13 June to 18 July 2002 and documented by a Final Report to USAID/Afghanistan on 20 August 2002. The purpose of the ACIA was to identify and prioritize Afghanistan's civil infrastructure and its reconstruction, repair and rehabilitation needs and the need for agricultural market centers. The ACIA recommended a prioritized program for:

- Labor-intensive inter-provincial road rehabilitation projects;
- Development of rural market centers ;
- Major roads and bridge projects;
- A National Secondary Roads Program; and
- A National Primary Roads Program.

The REFS Program was developed on the basis of the ACIA specifically *"to promote economic recovery and political stability in Afghanistan by repairing selected infrastructure needed to lower transportation cost, improve the provision of water and sanitation services, increase access to education, health and local government facilities, restore electrical transmission and distribution systems, and repair/reconstruct irrigation systems, dams/diversions and canals critical to the reactivation of the agricultural sector, the dominant means of livelihood in the country."*¹

To achieve these goals, the REFS Program consists of three components:

- Rehabilitation and Construction Projects (Component 1);
- Institutional strengthening of selected public services (Component 2); and
- Purchase, importation and distribution of construction materials and supplies not otherwise available in Afghanistan (Component 3).

In accordance with its internal procedures and in accordance with the regulations as outlined above, USAID made a Positive Determination for REFS Component 1, i.e., a determination that environmental documentation will be required on a project-by-project basis for projects involving civil works. The EA herewith provides that documentation for the Project that forms part of Component 1.

1.3 ORGANIZATION OF THE EA

The EA is organized as follows:

- **Section 1.0: Introduction.** The section in hand provides introductory information.
- **Section 2.0: Project Description.** Section 2.0 presents details of the proposed Project and a description of the existing environmental policies and procedures in Afghanistan.
- **Section 3.0: Environmental Screening.** Section 3.0 presents the relevant environmental criteria as identified based on USAID regulations, and additional environmental considerations and issues associated with rehabilitation projects and the specifics of the SAPR Project. The discussions of the criteria present statements of:
 - Potential Impacts and Anticipated Design Avoidance/Mitigation Actions; and
 - Additional Recommendations.
- **Section 4.0: Environmental Guidelines.** The Environmental Guidelines presented in Section 4.0 present:
 - A Recommended Checklist - Completion of the Checklist is recommended as a part of final Project design; and
 - Recommended Monitoring.
- **Section 5.0: Conclusions and Recommendations.**

¹ REFS Contract, page C-2.

2.0 PROJECT DESCRIPTION

2.1 OVERVIEW

The SAPR rehabilitation work includes three roads, Farah to Ring Road, Lashkar Gah to Ring Road and Kandahar to Tirin Kot. All three roads traverse predominantly flat agricultural / scrub land and are part of an important transport network for the movement of people and agricultural produce in the southern provinces of Kandahar, Helmand, Farah and Uruzghan. **Exhibit 2-1** illustrates the location of the Project Roads within the context of Afghanistan, **Exhibits 2-2, 2-3 & 2-4** indicate the Project Roads locations within the Provinces of Kandahar, Helmand, Farah and Uruzghan. Details of the existing conditions in the potentially affected area are provided item-by-item under the headings of the relevant environmental criteria in **Section 3.0**.



Exhibit 2-1. Shiberghan – Sar-e-pul Road, Afghanistan

Farah – Ring Road. This road connects Farah, the Capital of Farah Province, to the Ring Road (also known as the Kandahar – Herat Road) in the south of Afghanistan. The region is politically and socially unstable and much of the economy relies upon poppy cultivation and the production of Opium. The road from Farah to the Ring Road is 68km long, and requires rehabilitation of the existing alignment.

Lashkar Gar – Ring Road. This road section connects Lashkar Gah, the Capital of Helmand Province, to the Ring Road in the south. As with Farah, this region of Afghanistan is unstable and has seen a dramatic rise in Taliban led violence during the past year. Helmand Province produces 80% of Afghanistan's Opium, most of which is exported to Europe. The road is 49km long, and requires rehabilitation of the existing alignment.

Kandahar – Tirin Kot. The road starts on the outskirts of the City of Kandahar and weaves its way through the desert landscape into the desolate Uruzghan Province. As with Farah and Helmand, this region of Afghanistan suffers from significant instability, politically and socially. Opium production is less of an issue in these provinces but lawlessness remains high on the agenda. The road is 128km long, and requires rehabilitation of the existing alignment.

2.2 DETAILS OF THE PROPOSED ACTION

In order that the project will be started and completed in a timely manner, consistent with the requirements of the Client, a detailed design phase will not be possible prior to the start of construction works. A methodology of carrying out a detailed preliminary inspection of the road in order to formulate a conceptual design has been carried out.

The preliminary pavement design will be developed in order to allow the Contractor's to price and bid the projects. As the camps becomes established, the Contractor's will compile detailed design information such as subgrade CBR surveys, and detailed traffic counts.

The Preliminary Design Report estimates the existing sub grade at CBR Of 4% with a traffic loading calculated from an estimated AADT determined from a moving traffic count during the initial survey of the roads. The roads will be 6.0 meter wide overlain with Double Bituminous Surface Treatment with 1.0 meter wide shoulders sealed with DBST.

2.3 AFGHAN ENVIRONMENTAL POLICIES AND PROCEDURES

2.3.1 General

In June 2002, for the first time in the history of Afghanistan, an authority for environmental management was mandated in the newly formed government – The Ministry of Irrigation, Water Resources and Environment (MIWRE). Since 2002 several ministerial changes have occurred, MIWRE is now defunct and has been replaced by the Ministry of Energy and Water (MoEW). Of most relevance to this report is the creation of the new National Environmental Protection Agency (NEPA), whom, with the aid of UNEP have produced draft environmental legislation shortly to be enacted.

2.3.2 Legislative Framework

The proposed Environmental Management Act (EMA) drafted by NEPA focuses on several areas including:

- Integrated Environmental Management
 - Environmental Impact Assessment
 - Integration of Environmental Issues into Development Planning
- Integrated Pollution Control
 - Pollution Prevention Control (including licensing)
 - Waste Management (duty of care, waste management licenses etc)
- Water Resource Conservation and Management
- Biodiversity and Natural Resource Conservation and Management
 - National Biodiversity Strategy
 - Protected Areas Management
 - Sustainable Use and Conservation of Species
 - Species Trade
 - Access to Genetic Resources
- Compliance and Enforcement

As mentioned, the Act is currently in Draft form and is likely to be enacted shortly. Accordingly, this report conforms to the regulations stipulated by Title 22 of the U.S. Code of Federal Regulations, Part 216 (22 CFR 216). Future reports prepared under the REFS programme will however adhere to both 22 CFR 216 regulations and the new EMA.

In addition to the EMA several other environmental related laws currently exist as illustrated by the table below.

| Afghan Environmental Law | Date |
|--------------------------------------------------------------|-------------|
| Water Law | 1981 |
| The Forestry Law | 2000 |
| Law for Land Ownership | 2000 |
| Nature Protection Law | 1986/2000 |
| Hunting and Wildlife Protection Law | 2000 |
| Range Management Law | 2000 |
| Agriculture Cooperative Development Law | 2000 |
| Charter for the Development of Fertilizer and Agro-chemicals | 2000 |

2.3.3 Afghan Environmental Assessment Procedures

Prior to 2005 no formal EIA process has been practiced in Afghanistan. As a result many projects, such as deep-well drilling or large-scale irrigation projects were conducted without considering the environmental consequences of such activities. Additionally, there wasn't, and in some circumstances, still isn't any consistent application of EIA amongst donor agencies and international organizations currently working in the country.

Specific guidelines have now been produced as part of the Draft Environmental Management Act to deal with Environmental Impact Assessment. In theory there are several key stages in the assessment procedure as follows:

1. Any project, plan or policy of significant size or scope (no screening list defined as yet) shall submit to NEPA a brief containing enough information to enable NEPA to determine the potential adverse effects and positive impacts of the project, plan or policy.
2. After reviewing the brief and acting on behalf of the EIA Board of Experts (yet to be established) NEPA will either:
 - a. Recommend the project proceeds without further environmental assessment;
or
 - b. Submit an environmental assessment / comprehensive mitigation plan
3. The outline of the EIA is roughly similar to that contained herewith, however, alternatives should also be considered, e.g. alternative design, technologies, routes etc.
4. Once the EIA has been approved by the Executive Secretary General (acting on the advice of the EIA Board of Experts) a permit is granted allowing continuation of the proposed project, plan or policy. If the permit is refused for whatever reason an appeal can be submitted within 60 days of the refusal.

The draft regulations also state that Public Participation should also be part of the EIA process. Public participation in this sense includes distributing copies of the EIA to affected persons and undertaking public hearings.

3.0 ENVIRONMENTAL SCREENING

As noted in Section 1.2, USAID has determined that REFS Component 1 activities require an environmental screening to identify the appropriate level of documentation for infrastructure activities. This section of the EA provides the necessary screening for the SAPR Project.

3.1 SCREENING METHODOLOGY

Introduction. To establish the context for the environmental screening, the following:

- Reviews the definition of environmental criteria as established by the applicable USAID regulations and other considerations;
- Defines the Project Area for the purpose of the screening;
- Explains the screening process used to identify:
 - Potential impacts based on the proposed actions and the sensitivity of the environment in which they will occur;
 - Provisions to avoid or otherwise mitigate actions incorporated in the Project; and
 - Additional recommendations.

The screening process is presented by **Exhibit 3-1**.

Potential Impact Identification Methodology. Potential impacts have been identified on the basis of experience on similar projects and in similar circumstances; and, insofar as possible, a "scoping process" incorporating consultations with local stakeholders with intimate knowledge of the Project Area. Persons beyond the immediate Project Area having expertise relevant to the environmental aspects of the proposed action have consulted in the process, including representatives of the Afghan and local host governments, public and private institutions, the USAID Mission staff and the staff of other concerned agencies such as the UNEP. A list of organizations and individuals contacted is provided by **Appendix B**.

Environmental Criteria. The environmental criteria applied in the screening process have been determined on the basis of applicable USAID regulations and other considerations as follows:

- **Applicable USAID Regulations.** Paragraph 216.1 (c) (10) of the Agency Environmental Procedures states that the "*term environment, as used in these procedures with respect to effects occurring outside the United States, means the natural and physical environment*". Accordingly, the screening addresses:

Physical Resources. Physical resources are generally defined to include topographic, soil, geological and related attributes. Sub-headings in this section are:

- Topography;
- Soils;
- Seismic & Geological Conditions;
- Hydrology; and
- Climate and Air Quality

Natural/Biological Resources - the natural/biological aspects of the potentially affected

environment. These are discussed under the sub-headings of:

- Fauna (Wildlife);
- Flora (Plant Species);
- Aquatic Habitat; and
- Protected Areas.

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 potential of various requirements and mitigation measures; urban quality; historic and cultural resources; design of the built environment; reuse and conservation potential of various alternatives and mitigation measures; and means to mitigate adverse environmental impacts*". Accordingly, these issues are addressed under the following heading and subheadings:

Other Environmental Concerns Noted by 22 CFR 216) describes these aspects of the environment under the following sub-headings:

- Land Use/Controls;
- Energy & Conservation;
- Use of Natural/Depletable Resources;
- Urban Quality/Design of the Built Environment; and
- Historic and Cultural Resources

- **Additional Considerations Generally Associated with Rehabilitation Projects.** Additional environmental issues are generally associated with rehabilitation projects and are addressed as:

Additional Environmental Concerns Noted for Consideration. These are discussed under the sub-headings of:

- Socio-Economic Considerations;
- Public Health;
- Safety;
- Other Infrastructure Networks; and
- Noise

Definition of the Project Area. The potentially impacted area of a given project (generally referred to as the Project Area) is defined by the nature of the proposed action and the sensitivity and circumstances of the environment in which it will occur.

Potential direct impacts of a project such as the SAPR will be largely confined to the Project's construction limits and immediately adjacent environs. The conceptual limits of the Project Area must be expanded, however, to include the potential impacts of network improvements and other indirect and cumulative impacts in accordance with the circumstances of the particular environmental characteristic under discussion.

Generally, however, given the limited nature of the action included in the Project limit the potential for direct impact to the immediate environs of the road. Indirect impacts may also

occur as a result of Project activities.

Types of Impacts Considered. Environmental consequences resulting from the impacts of rehabilitation projects include:

- Direct Impacts
- Indirect Impacts
- Cumulative Impacts

Impacts in all three categories may be either short term or long term. Both short-term and long-term impacts may be either beneficial or adverse. Short-term positive impacts will include, for example, the generation of employment opportunities during the rehabilitation period. Long-term benefits will include improved traffic flow / access and increased road safety.

Determination of the Scope & Significance of Issues. To determine the scope and significance of issues to be analyzed, including direct and indirect effects of the Project on the environment, the following examines each environmental criterion identified above and presents:

- Potential Impacts and Avoidance/Mitigation Measures. Potential impacts and measures incorporated in the Project to avoid or otherwise mitigate the potential impacts are identified. These include measures incorporated in contracting procedures and the Project design. Cognizance of the Project's design and contracting provisions is deemed to be an important means of "*narrowing the discussion of these issues to a brief presentation of why they will not have a significant impact on the environment*" in accordance with the 22 CFR 216 Procedures.
- Additional Recommendations. The examination also identifies the issues for which mitigation beyond that already incorporated in the Project design and standard contracting procedures are considered warranted, including recommendations beyond the scope of the SAPR Project, but within the scope of REFS.

3.2 SCREENING

The following section provides the necessary screening for the SAPR Project in tabular format. The purpose of the table is to provide a summary description of any potential socio-environmental impacts that may arise as a result of Project activities.

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 | <p>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.</p> <p>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.</p> |
| | 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 | <p>Potential erosion impacts will be avoided by:</p> <ul style="list-style-type: none"> ▪ Lining spillage ways with riprap to prevent undercutting. ▪ Improvements in drainage structures ▪ Soils will be stabilized to reduce erosion. ▪ Storm drainage will be upgraded and drainage ways will be adequately sized, lined and contoured to minimize erosion potential. <p>Contract documents shall state that ditches are to be designed for the toe of slopes in cut sections with gutters or drainage chutes being employed to carry water down slopes to prevent erosion. Interceptor ditches shall be designed and constructed near the top of the back of slopes or on benches in the cut slopes as well as when there is a slope on adjacent ground toward the fill. When the roadway has a steep longitudinal slope, a drain is to be designed and constructed at the down-slope end of the cut to intercept longitudinal flow and carry it safely away from the fill slopes.</p> |
| 1.2 Soils | Erosion/Scour | See 1.1 above. |
| | Contamination Due to Spills | <p>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.</p> <p>Filling and refueling shall be strictly controlled and subject to formal procedures.</p> <p>All valves and trigger guns shall be resistant to unauthorized interference and vandalism and be turned off and securely locked when not in use.</p> <p>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.</p> |
| 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 | Earthquake Loading Design is specified for the Project. |

| | | |
|-------------------------------------------------------------|-------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1.4 Hydrology | Surface Hydrology | <p>No significant interruptions or diversions or flow are anticipated. No significant increase in water usage is anticipated.</p> <p>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 canal rehabilitation works, all waters shall be diverted to ensure constant supply.</p> <p>Rehabilitation activities should be timed so minimal disruption to agricultural areas is achieved. On embankment areas less than three meters in height and where surface runoff is low, ditches shall be placed adjacent to the toe. For higher fills (if any), the ditch shall be separated from the fill by a three-meter wide bench.</p> <p>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.</p> |
| | Area Wetland | No wetlands of biological significance have been identified within the vicinity of the Project Road. |
| | 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 | <p>Contract provisions shall state:</p> <ul style="list-style-type: none"> ▪ 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 100km from the nearest protected area. |
| 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 | <p>There are several graveyards within close proximity to the Project Road. To avoid potential adverse impacts to these and other identified historic and cultural resources, the Project specifications will state that the Sub-Contractor shall:</p> <ul style="list-style-type: none"> ▪ 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. <p>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.</p> |
| 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 health facilities for workers. |
| | Access to Health 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. |

4.0 ENVIRONMENTAL GUIDELINES

For projects such as the SAPR Project the REFS TOR states that *"the Contractor shall prepare **environmental guidelines** that will be used to minimize and mitigate potential environmental impacts. Included in the guidelines will be an **environmental mitigation checklist** to be completed as a part of final design for each project. Where the analysis indicates that negative environmental effects could occur, the project will be designed to avoid or mitigate those effects. The guidelines will also describe procedures for **monitoring rehabilitation activities** to assure that identified mitigation measures have been implemented as planned"* (Emphasis added). Accordingly, the following presents the examination's findings in regard to the environmental mitigation final design checklist (**Item 4.1**) and monitoring (**Item 4.2**). Additional recommendations for environmental actions beyond the scope of the Project, but within the scope of REFS, are presented in **Item 4.3**.

4.1 Environmental Mitigation Final Design Checklist

The preferred form of mitigation is avoidance of impacts through the adoption of enforceable measures and precautions rather than amelioration after the fact. This preferred form of mitigation has been incorporated in the recommended contract provisions attached hereto as **Appendix A**.

An environmental and final design checklist is provided by **Exhibit 4-1**.

4.2 Monitoring

Monitoring of projects such as the SAPR Project generally includes observational monitoring to enforce contract provisions to avoid adverse impacts and may include instrumented monitoring of environmental parameters such as air quality, when warranted.

Monitoring of environmental impacts during the rehabilitation process will be the responsibility of the USAID General Contractor (USAID/GC) as a part of contract supervision procedures. A Supervising Engineer (SE) will be assigned to the Project. Compliance procedures will include routine site visits, including the ancillary facilities associated with that package (labor camps, asphalt plants, etc.).

Major issues to be addressed in the monitoring and compliance reports will include:

- **Air Quality Impacts.** The Supervising Engineer (SE) will be responsible for compliance with contract provisions that specify:
 - Controlled locations of asphalt plants and similar sources of air pollution, use of quarries, etc., as tabulated by **Exhibit 4.1**.
 - Proper use of water sprays and other techniques to lessen dust impacts.
 - Prohibitions against open burning in populated areas.
 - 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 systems have been taken into account in design. Alternative water | Required by Project Contracts. |

| | | | |
|-----------------------------------------------|------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------|
| | irrigation flows due to construction activities. | sources will be developed as warranted due to temporary interruptions. | 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, placement of fiber mats, rip-rap, rock gabions, or other appropriate technologies. | Incorporated in design. Enforced by SE. Operational maintenance by MPW. |
| 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. |

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 Homes and Businesses | Minimize loss of social connections and income. | Relocations, resettlement and income restoration will be mitigated per the 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 health 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.
- **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 lights will be used. Where ... traffic diversions area planned for ...additional areas (will) be de-mined and the diversions clearly defined for travel.”* Enforcement of these and related safety provisions during the construction process will be the responsibility of the SE. Safety issues related to the shoulder provisions for the accommodation of NMT are a design rather than a compliance issue and, as previously noted, will require resolution by the funding agencies.
- **Impacts to Other Infrastructure Networks.** Responsibility to ensure compliance with contract provisions to coordinate with all relevant agencies and organizations to avoid disruption of other infrastructure services (water supply, irrigation systems, electricity, etc.) rests with the SE.
- **Noise and Vibration Impacts.** Contract provisions for the control of noise and vibration impacts during the construction phase through the use of site controls, site controls, time and activity constraints and public awareness efforts as tabulated by **Table 4.1** with compliance monitored by the SE.

4.3 Recommended Actions Beyond the Scope of the Project

Recommendations for actions beyond the scope of the Project, but generally within the scope of the REFS Program, are as follows:

- **Assist MPW in the Establishment of a Traffic Safety Program.** In addition to the safety requirements to be observed during the construction period, safety during the

operational phase of the Project is a major concern. Routine monitoring of accident data to ensure that the points of major conflicts are identified as they emerge is recommended. It is also recommended that MPW take the lead in the establishment of a safety enhancement program to include:

- Use of Lights and Reflectors. Increased use of lights and reflectors should be strongly encouraged for both motorized and non-motorized traffic, particularly bicycles and other slow-moving vehicles. Such a program might include the free or subsidized distribution of reflectors. Such a program could be supported by corporate sponsors or non-governmental organizations (NGOs).
- Public Awareness Programs. The increased traffic and traffic speed in portions of the rehabilitation corridor will be a major change in the environment for many residents. Programs to heighten awareness are recommended for incorporation in the Project before construction.

Initiatives in this area are recommended for consideration as part of REFS Component 2.

- **Assist Coordination of Future Land Use & Transport Plans.** The long-term impacts of the Project Road could be more significant than the short-term impacts of the construction period and are largely beyond the scope of the Project. REFS Component 2 can assist in the inter-governmental action necessary to monitor these impacts and ensure that they are adequately managed in concert with other concerned agencies.
- **Integrate Road Rehabilitation with REFS Institutional Strengthening Initiatives.** Institutional strengthening actions will be necessary as a part of the Project to ensure that the road is adequately maintained in the future, to ensure that future bidding and tendering procedures are in place and to ensure that environmental issues incorporated in these activities. REFS Component 2 offers an opportunity to provide the necessary institutional initiatives.

5.0 CONCLUSIONS AND RECOMMENDATIONS

Project works are not anticipated to induce any significant impacts on the environmental or social characteristics of the Project Area. However, minor impacts will result from some rehabilitation activities as noted in **Section 3.0**. Notwithstanding the above, all of the identified impacts can be appropriately managed or mitigated by the measures outlined in **Sections 3.0 & 4.0** and provided as Recommended Contract Provisions as **Appendix A**.

In addition to the above, the following recommendations are made:

- Adoption of the Guidelines for the compensation of project-affected persons (PAPs) as provided by **Appendix B** for use in the event that unexpected impacts are encountered.

The EA also recommends actions beyond the scope of the Project, but within the scope of the REFS Program, specifically:

- Assist MPW in the Establishment of a Traffic Safety Program;
- Assist Coordination of Future Land Use & Transport Plans; and
- Integrate Road Rehabilitation with REFS Institutional Strengthening Initiatives.

APPENDIX A

CONDITIONS OF PARTICULAR APPLICATION

ENVIRONMENTAL PROVISIONS

The following has been extracted from the Conditions of Particular Application (COPA) prepared for use in the SAPR Project.

4.0 ENVIRONMENTAL

4.1 General Provisions and Precautions

The Sub-Contractor shall take all necessary measures and precautions and otherwise ensure that the execution of the Works and all associated operations on the Work Sites or off-site are carried out in conformity with statutory and regulatory environmental requirements of Afghanistan including those established by local governments. The Sub-Contractor shall take all measures and precautions to avoid any nuisance or disturbance arising from the execution of the Work. This shall, wherever possible, be achieved by suppression of the nuisance at source rather than abatement of the nuisance once generated. In the event of any spoil or debris or silt from the Work Sites being deposited on any adjacent land, the Sub-Contractor shall immediately remove all such spoil debris or silt and restore the affected area to its original state to the satisfaction of the responsible authorities.

4.2 Water Quality

The following conditions shall apply to avoid adverse impacts to water quality:

- The Sub-Contractor shall prevent any interference with the supply to, or abstraction from, water resources and the pollution of water resources (including underground percolating water) as a result of the execution of the Works.
- Areas where water is regularly or repetitively used for dust suppression purposes (if any) shall be laid to fall to specially-constructed settlement tanks to permit sedimentation of particulate matter. After settlement, the water may be re-used for dust suppression and rinsing. All water and other liquid waste products arising on the Site shall be collected and disposed of at a location on or off the Site and in a manner that shall not cause either nuisance or pollution.
- 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 Contractor and regulatory authorities concerned.
- The Sub-Contractor shall at all times ensure that all existing stream courses and drains within and adjacent to the Site are kept safe and free from any debris and any materials arising from the Works.
- The Sub-Contractor shall protect all watercourses, waterways, ditches, canals, drains, lakes and the like from pollution, silting, flooding or erosion as a result of the execution of the Works.

4.3 Air Quality

The following conditions shall apply to avoid adverse impacts to air quality:

- Open burning will be prohibited.
- Solvents and volatile materials will be used and stored in manners satisfactory to the Contractor.
- Blasting (if any) will be carried out using small charges, and dust-generating items will be conveyed under cover.
- In periods of high wind, dust-generating operations shall not be permitted within 200 meters of residential areas having regard to the prevailing direction of the wind.
- Asphalt and hot-mix plants sites shall not be established prior to the approval of the Contractor and shall be located at least 500 meters away from the nearest sensitive receptor (e.g., schools and hospitals). Operators will be required to install emission controls.
- Water sprays shall be used during the delivery and handling of materials when dust is likely to be created and to dampen stored materials during dry and windy weather.
- Stockpiles of materials shall be sited in sheltered areas or within hoarding, away from sensitive areas. Stockpiles of friable material shall be covered with clean tarpaulins, with application of sprayed water during dry and windy weather. Stockpiles of material or debris shall be dampened prior to their movement whenever warranted.
- Vehicle with an open load-carrying area used for transporting potentially dust-producing material shall have properly fitting side and tailboards. Materials having the potential to produce dust shall not be loaded to a level higher than the side and tail boards, and shall be covered with a clean tarpaulin in good condition. The tarpaulin shall be properly secured and extend over the edges of the side and tailboards.
- In periods of adverse weather adverse impacts to adjacent residents or site employees during construction will be mitigated by either discontinuing until favorable conditions are restored, or, if warranted, sites may be watered to prevent dust generation, particularly at crushing plants.
- Machinery and equipment will be fitted with pollution control devices, which will be checked at regular intervals to ensure that they are in working order. Best available pollution control technologies will be required.
- Pre-construction monitor of existing ambient air quality may be undertaken to provide a baseline for the measurement of air quality impacts during the construction period if considered warranted by the Contractor.
- Periodic air quality monitoring may also be required in areas of high potential impact (asphalt plants, construction camps, etc) during the life of the Project if considered warranted by the Contractor.

4.4 Protection of Soils

Cut and Fill Activities. In undertaking cut and fill activities associated with the Works the Sub-Contractor shall:

- Select less erodable material, placement of gabions and riprap and good compaction, particularly around bridges and culverts.
- Complete final forming and re-vegetation will be completed as soon as possible following fill placement to facilitate regeneration of a stabilizing ground cover.
- Trench where necessary to ensure successful establishment of vegetation.
- Seed with a fast growing crop and potential native seed mix immediately after fill placement to prevent scour and to encourage stabilization.
- Stabilize embankment slopes and road cuts by re-vegetation with grazing resistant plant species, placement of fiber mats, riprap, rock gabions, or other appropriate technologies.

- Complete discharge zones from drainage structures with riprap to reduce erosion when required.
- Line down drains/chutes with rip-rap/masonry or concrete to prevent erosion.
- Adjust side slopes adjusted in the range from based on soil and other conditions and within a range as determined in consultation with the Contractor to reduce erosion potential or, if necessary, cover with riprap or other material to prevent soil erosion.
- Use stepped embankments for embankments greater than six meters.

Borrow Pits. The following conditions shall apply to borrow pits:

- Borrow areas will be located outside the ROWs.
- Pit restoration will follow the completion of works in full compliance all applicable standards and specifications.
- The excavation and restoration of the borrow areas and their surroundings, in an environmentally sound manner to the satisfaction of the Contractor is required before final acceptance and payment under the terms of contracts.
- Borrow pit areas will be graded to ensure drainage and visual uniformity, or to create permanent tanks/dams.
- Topsoil from borrow pit areas will be saved and reused in re-vegetating the pits to the satisfaction of the Contractor.
- Additional borrow pits will not be opened without the restoration of those areas no longer in use.

Quarries. To ensure adequate mitigation of potential adverse impacts, only licensed quarrying operations are to be used for material sources. If licensed quarries are not available the Sub-Contractors may be made responsible for setting up their dedicated crusher plants at approved quarry sites

Erosion. To avoid potential adverse impacts due to erosion, the Sub-Contractor shall:

- Line spillage ways with riprap to prevent undercutting.
- Provide Mitigation plantings and fencing where necessary to stabilize the soil and reduce erosion.
- Upgrade and adequately size, line and contour storm drainage to minimize erosion potential.
- As noted in elsewhere in these Specifications, ditches shall be designed for the toe of slopes in cut sections with gutters or drainage chutes being employed to carry water down slopes to prevent erosion. Interceptor ditches shall be designed and constructed near the top of the back of slopes or on benches in the cut slopes as well as when there is a slope on adjacent ground toward the fill. When the roadway has a steep longitudinal slope, a drain is to be designed and constructed at the down-slope end of the cut to intercept longitudinal flow and carry it safely away from the fill slopes.

4.5 Avoidance of Social Impacts

To avoid adverse social impacts, the Sub-Contractor shall:

- Coordinate all construction activities with neighboring land uses and respect the rights of local landowners. If located outside the ROW, written agreements with local landowners for temporary use of the property will be required and sites must be restored to a level acceptable to the owner within a predetermined time period.

- Maintain and cleanup campsites.
- Attend to the health and safety of their workers by providing basic emergency health facilities for workers and incorporate programs aimed at the prevention of sexually transmitted diseases as a part of all construction employee orientation programs.
- Obtain approval of all diversions and accommodations of traffic. As stipulated by Section ___ which states 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 lights will be used. Where ... traffic diversions area planned for ...additional areas (will) be de-mined and the diversions clearly defined for travel."
- Construct and maintain by-passes around bridges to be reconstructed until such time as the bridge is open for traffic. By-passes will be removed and the affected areas re-graded so as to blend in with the existing contours when the bridge is opened.

4.6 Noise

To avoid adverse impacts due to noise, the Sub-Contractor shall:

- Consider noise as an environmental constraint in his planning and execution of the Works.
- Use equipment conforming to international standards and directives on noise and vibration emissions.
- Take all necessary measures to ensure that the operation of all mechanical equipment and construction processes on and off the Site shall not cause any unnecessary or excessive noise, taking into account applicable environmental requirements.
- Maintain exhaust systems in good working order; properly design engine enclosures, use intake silencers where appropriate and regularly regular maintain noise-generating equipment.
- Use all necessary measures and shall maintain all plant and silencing equipment in good condition so as to minimize the noise emission during construction works.
- Schedule operations to coincide with periods when people would least likely be affected and limit work hours and work days to less noise-sensitive times. Hours-of-work will be approved by the Contractor having due regard for possible noise disturbance to the local residents or other activities. Construction activities will be strictly prohibited between 10 PM and 6 AM in the residential areas. When operating close to sensitive areas such as residential, nursery, or medical facilities, the Sub-Contractor's hours of working shall be limited to 8 AM to 6 PM.
- Incorporate noise considerations in public notification of construction operations and specify methods to handle complaints. Disposal sites and haul routes will be coordinated with local officials to avoid adverse traffic noise.
- Undertake pre-construction monitor of existing noise and vibration if determined warranted and requested by the Contractor to provide a baseline for the measurement of impacts during the construction period. Routine monitoring may also be required in areas of high potential impact (e.g., pile-driving sites and areas of intensive noise-generating activities) if considered warranted by the Contractor.

4.7 Fuel and Chemical Storage

The following conditions to avoid adverse impacts due to improper fuel and chemical storage:

- All fuel and chemical storage (if any) shall 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.

4.8 Protection of Historic and Cultural Resources

To avoid potential adverse impacts to historic and cultural resources, the Sub-Contractor shall:

- 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 (movable or immovable) in the course of the work, the Sub-Contractor shall take all necessary measures to protect the findings and shall notify the Contractor and provincial-level representatives of the Archaeological Committee under 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.

4.9 Protection of Utilities

To avoid potential adverse impacts to utilities, the Sub-Contractor shall:

- Ascertain and take into account in his method of working the presence of utility services on and in the vicinity of the Site.
- Take into account in his program the periods required to locate, access, protect, support and divert such services, including any periods of notice required to effect such work in consultation with authorities operating such services.
- Assume all responsibility to locate or to confirm the details and location of all utility services on or in the vicinity of the Site.
- Exercise the greatest care at all times to avoid damage to or interference with services.
- Assume responsibility for any damage and/or interference caused by him or his agents, directly or indirectly, arising from actions taken or a failure to take action, and for full restoration of the damage.
- Wherever existing ground surfaces are to be disturbed for construction of the Works, carry out full and adequate preliminary investigations to locate all services in the area by means of hand-dug trial holes and trenches in combination with electronic and electro-mechanical devices, where appropriate,. Each service thus exposed shall be identified. Every such service at risk shall be fully exposed and adequately protected and supported in situ or diverted to the satisfaction of the appropriate authority prior to the

- commencement of such construction.
- When working in the vicinity of overhead power cables, ascertain and satisfy himself about the safe clearances to be maintained from the power cables in consultation with the authority operating the power line. Where existing overhead power lines, communications cables or other major utilities require relocation, the Sub-Contractor will use the services of specialist enterprises with the necessary skills and technology to carry out the work.

APPENDIX B

GUIDELINES FOR LAND AND ASSET ACQUISITION, ENTITLEMENTS AND COMPENSATION

The following presents the Guidelines for Land and Asset Acquisition, Entitlements and Compensation drafted for use in the World Bank Afghanistan Emergency Infrastructure Project. Adaptation of the guidelines is recommended for incorporation in the SAPR Project and other projects included in the USAID Afghanistan Rehabilitation of Economic Facilities and Services (REFS) Program.

Guidelines for Land and Asset Acquisition, Entitlements and Compensation

I. Objectives

Land acquisition will be kept to a minimum and no person will be involuntarily displaced under subprojects financed by the proposed emergency reconstruction operations. Subproject proposals that would require demolishing houses or acquiring productive land should be carefully reviewed to minimize or avoid their impacts through alternative alignments. Proposals that require more than minor expansion along rights of way should be reviewed carefully. No land or asset acquisition may take place outside of these guidelines. A format for Land Acquisition Assessment is attached as Attachment 2(i).

These guidelines provide principles and instructions to compensate affected persons to ensure that all such persons negatively affected, regardless of their land tenure status, will be assisted to improve, or at least to restore, their living standards, income earning or production capacity to pre-project levels.

Categorization

Based on the number of persons that may be affected by the project (Project Affected People, PAPs) and the magnitude of impacts, projects may be categorized as S-1, S-2, or S-3 projects:

- S-1 projects are those that will involve the resettlement of more than 200 PAPs and where a full Resettlement Action Plan (RAP) must be produced. Such interventions will be ineligible for support under the proposed emergency reconstruction operations.
- S-2 projects are those which will involve the resettlement of less than 200 persons. In such cases, the following documentation is required:
 - A land acquisition assessment,
 - Minutes or record of consultations which assess the compensation claimed and agreement reached, and
 - A record of the receipt of the compensation, or voluntary donation, by those affected (see below).
- S-3 projects are not expected to have any land acquisition or any other significant adverse social impacts; on the contrary, significant positive social impact and improved livelihoods are expected from such interventions.

II. Eligibility

PAPs are identified as persons whose livelihood is directly or indirectly affected by the project. PAPs deemed eligible for compensation are:

- Those who have formal legal rights to land, water resources or structures/buildings, including recognized customary and traditional rights;
- Those who do not have such formal legal rights but have a claim to usufruct right rooted in customary law;
- Those whose claim to land and water resources or building/structures do not fall within(1) and (2) above, are eligible to assistance to restore their livelihood.

Acquisition of Productive Assets and Compensation

PAPs are eligible for replacement costs for lost assets as described below:

- *Voluntary contributions.* In accordance with traditional practices, individuals may elect to voluntarily contribute land or assets and/or relocate temporarily or permanently from their land without compensation.
- *Contributions against compensation.* A contributor/asset loser considered "affected" will be eligible for compensation from the local community or alternatively from the Government. A PAP shall lodge his/her claim for compensation to the local community representative/shura head and it shall be verified by the implementing agency. The claim shall be lodged within 2 weeks of completion of the consultations with the concerned community, and before project implementation begins.

Voluntary contribution, or contribution against compensation, should be documented. The documentation should specify that the land is free of any squatters, encroachers or other claims. A format is attached in Attachment 2(i), which includes a Schedule to be followed to assess any compensation claimed and the agreement reached.

III. Compensation Principles

The project implementing agencies shall ensure that any of the following means of compensation are provided in a timely manner to affected persons:

- Project affected persons losing access to a portion of their land or other productive assets with the remaining assets being economically viable are entitled to compensation at replacement cost for that portion of land or assets lost to them. Compensation for the lost assets will be according to following principles:
 - replacement land with an equally productive plot, cash or other equivalent productive assets;
 - materials and assistance to fully replace solid structures that will be demolished;
 - replacement of damaged or lost crops and trees, at market value;
 - other acceptable in-kind compensation;
 - in case of cash compensation, the delivery of compensation should be made in public, i.e. at the Community Meeting.
- Project affected persons losing access to a portion of their land or other economic assets rendering the remainder economically non-viable, will have the option of

compensation for the entire asset by provision of alternative land, cash or equivalent productive asset, according to the principles in (1) a-d above.

Consultation Process

The implementing agencies will ensure that all occupants of land and owners of assets located in a proposed subproject area are consulted. There will be gender separate community meetings for each affected mantaqa/gozar (urban infrastructure) or village (other projects) to inform the local population about their rights to compensation and options available in accordance with these guidelines. The minutes of the community meetings shall reflect the discussions held, agreements reached, and include details of the agreement based on the format provided in Attachment 2(ii).

The implementing agency shall provide a copy of the minutes to affected persons and confirm in discussions with each of them their requests and preferences for compensation, agreements reached, and any eventual complaints. Copies will be recorded in the posted project documentation and be available during supervision.

Subproject Approval

In the event that a subproject involves acquisition against compensation, the implementing agency shall:

- Not approve the subproject unless a satisfactory compensation has been agreed between the affected person and the local community;
- Not allow works to start until the compensation has been delivered in a satisfactory manner to the affected persons;
- If more than 200 persons are affected and require compensation, the subproject shall be deemed ineligible for support under the emergency reconstruction operations.

Complaints and Grievances

All complaints should first be negotiated to reach an agreement at the local community/village level. If this fails, complaints and grievances about these guidelines, implementation of the agreements recorded in the community meeting minutes or any alleged irregularity in carrying out the project can also be addressed by the affected persons or their representative at the municipal or district level. If this also fails, the complaint may also be submitted to the relevant implementing agency for a decision.

Verification

The community meeting minutes, including agreements of compensation and evidence of compensation having been made shall be provided to the municipality/district, to the supervising engineers, who will maintain a record hereof, and to auditors and socio-economic monitors when they undertake reviews and project post-assessment. This process shall be specified in all relevant project documents, including details of the relevant authority for complaints at municipal/district or implementing agency level.

Attachment 2(i)

Land Acquisition Assessment Data Sheet

(To be used to record information on all land to be required)

1. Quantities of land/structures/other assets required:
2. Date to be acquired:
3. Locations:
4. Owners:
5. Current Uses:
6. Users:
 - Number of Customary claimants:
 - Number of squatters:
 - Number of encroacher:
 - Number of owners:
 - Number of tenants:
 - Others (specify): Number:
7. How land/structures/other assets will be acquired (identify one):
 - Donation
 - Purchase
8. Transfer of title:
 - Ensure that these lands/structures/other assets free of claims or encumbrances
 - Written proof must be obtained (notarized or witnessed statements) of the voluntary donation, or acceptance of the prices paid, from those affected together with proof of title being vested in the community, or guarantee of public access, by the title holder.
9. Describe grievance mechanisms available:

Attachement 2(ii)

Format to Document Contribution of Assets

The following agreement has been made on.....day
of.....between.....resident of(the owner) and
.....(the recipient).

1. That the owner holds the transferable right ofjerib of
land/structure/asset in.....
2. That the owner testifies that the land/structure is free of squatters or encroachers
and not subject to other claims.
3. That the owner hereby grants to the recipient this asset for the construction and
development offor the benefit of villagers and the public at large.

(Either, in case of donation :)

4. That the Owner will not claim any compensation against the grant of this asset

(Or, in case of compensation :)

5. That he Owner will receive compensation against the grant of this asset as per the
attached Schedule.
6. That the Recipient agrees to accept this grant of asset for the purposes mentioned.
7. That the Recipient shall construct and develop the and take all
possible precautions to avoid damage to adjacent land/structure/other assets.
8. That both the parties agree that the so constructed/developed
shall be public premises.
9. That the provisions of this agreement will come into force from the date of signing of
this deed.

Signature of the Owner:

Signature of the Recipient:

Witnesses:

1. _____

2. _____

(Signature, name and address)

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