



United States Agency For International Development

Initial Environmental Examination of the Shash Darak 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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ACRONYMS/GLOSSARY

LIST OF ACRONYMS/GLOSSARY

A

ACCA	Afghan Assistance Coordination Authority
ACIA	Afghanistan Civil Infrastructure Assessment
ADB	Asian Development Bank
AIA	Afghanistan Interim Administration

B

BOD	Biological Oxygen Demand
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C

CFR	Code of Federal Regulations
COPA	Conditions of Particular Application
CSC	Construction Supervision Consultant

D

dB	Decibel
DO	Dissolved Oxygen

E

EA	Environmental Assessment
EIA	Environmental Impacts Assessment

F

FIDIC	<i>Federation International Des Ingenieurs Conseils</i> (International Federation of Consulting Engineers)
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G

GC	General Contractor
GCOC	General Conditions of Contract
<i>Gozar</i>	Neighborhood
GoA	Government of Afghanistan
GPD	Gross Domestic Product
GPS	Global Positioning System

H

Ha	Hectare
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I

ICB	International Competitive Bidding
IDA	International Development Association
IEE	Initial Environmental Examination
ISAF	International Security Assistance Forces
ICUN	International Union for the Conservation of Nature

J

K

KM	Kilometer
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L

LCB	Local Competitive Bidding
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M

MHBTP	Ministry of Housing, Building and Town Planning
MIWRE	Ministry of Irrigation Water Resources and Environment
MMI	Ministry of Mines and Industry
MOC	Ministry of Communications
MOI	Ministry of Interior
MOIC	Ministry of Information and Culture
MOP	Ministry of Power
MPW	Ministry of Public Works
MSL	Mean Sea Level

N

NGO	Non-Governmental Organization
NMT	Non-Motorized Traffic
NO	Nitrogen Oxide

P

Pb	Lead
PCF	Post Conflict Fund

R

REFS	Rehabilitation of Economic Facilities and Services
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S

SE	Supervising Engineer
<i>Shura</i>	District (typically 15-20 <i>gozars</i>)
SPM	Suspended Particulate Matter
SS	Suspended Solids
STD	Sexually Transmitted Disease

T

TOR	Terms of Reference
TSP	Total Suspended Particulate

U

UN	United Nations
UNDP	United Nations Development Fund
UNEP	United Nations Environment Program
UNMAC	United Nations Mine Action Center
USAID	United States Agency for International Development
USAID/GC	USAID General Contractor
UXO	Unexploded Ordnance

V

W

X

Y

Z

INITIAL ENVIRONMENTAL EXAMINATION
Of The:
SHASH DARAK ROAD IMPROVEMENT 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
AUGUST 2004

Summary of Findings

Proposed Action. The United States Agency for International Development (USAID) proposes to fund the Shash Darak Road Improvement Project as a part of its Afghanistan Rehabilitation of Economic Facilities (REFS) Program.

Shash Darak Road, located in central Kabul, is a major component of the Urban Roads Program of REFS. The aim is to by-pass the road in front of the US Embassy. The actual condition of the road requires widening from 2 to 4 lanes, leveling course and a new wearing course for operating under increasing traffic load.

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 Initial Environmental Examination (IEE) has been structured to provide the required guidelines and to provide the procedural documentation to support a project-level Threshold Decision (i.e., a determination whether a full project-level EA is or is not warranted) based on environmental screening criteria pursuant to the requirements of 22 CFR 216 and other environmental considerations.

Findings and Recommendations. The IEE recommends a determination that an EA is not warranted, provided that the recommended environmental guidelines (incorporating a checklist for use as a part of final Project design and a recommended monitoring program) are adopted. To facilitate the adoption the IEE provides:

- Recommended Environmental Contract Provisions (**Appendix A**)
- Identification of specific institutional strengthening activities to ensure that the rehabilitated road is adequately maintained;
- Assist MPW in the Establishment of a Traffic Safety Program; and
- STD Awareness Program

1.0 INTRODUCTION

1.0 INTRODUCTION

1.1 PURPOSE OF THE IEE

This document presents an Initial Environmental Examination (IEE) of the Shash Darak Road Improvement Project (the Project) 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 IEE 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 Shash Darak Road 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). Unless they are categorically excluded as a meeting established criteria (including a criterion which states that the project "*does not have an effect on the natural or physical environment*"), all projects require the preparation of an IEE and/or an Environmental Assessment (EA).¹

The intent of the IEE is to allow a "Threshold Decision" defined by the regulations as a "*formal Agency decision which determines...whether a proposed Agency action is a major action significantly affecting the environment*" and, therefore, does require preparation of an EA (referred to as a "Positive Determination"); or, conversely, finds the data and safeguard commitments provided by the IEE are sufficient to conclude the contrary i.e., a finding that there is sufficient analysis to conclude that the Project will not have an adverse effect on the environment (referred to as a "Negative Determination").

A Negative Determination allows the project to proceed without further environmental investigation except as may be noted in the conditions of the determination. The IEE step is not always necessary. Certain categories of projects are generally deemed to have a significant effect on the environment may proceed directly to the preparation of an EA. For all other projects, however, and for projects generally deemed to have a significant effect but for which the originator of the project "*believes that the project will not have a significant effect on the environment*", preparation of an IEE is an essential step in the project approval process.

The Shash Darak Road Project, like any rehabilitation project, will have some minor effect on the physical and natural environment and does not qualify for a categorical exclusion. The IEE as documented herein, however, indicates that:

- These effects will be beneficial;

¹ Projects having as potential for impact on the global environment or outside the jurisdiction of any country may require the preparation of an Environmental Impact Statement as defined by the National Environmental Policy Act. None of the actions discussed herein fall within this definition.

- The Project will not be undertaken in a highly sensitive environment that would raise concerns to a level requiring the preparation of an EA (as documented by **Section 3.0**, Environmental Screening);
- The potential less-than-significant adverse impacts generally associated with rehabilitation projects can be avoided through the provisions stipulated herein (**Section 4.0**, Environmental Guidelines); and
- A Negative Determination is recommended (**Section 5.0**).

Details are as follows.

1.2 ADMINISTRATIVE & STRATEGIC CONTEXT

The REFS Program of which the Shash Darak Road Improvement 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."*²

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. Component 2 was determined to warrant a Categorical Exclusion, i.e., a determination that the component meets the pre-established criteria rendering an EA unnecessary. A Negative Determination was made in regard to

² REFS Contract, page C-2.

Component 3, i.e., a determination that, after due consideration, an EA is unnecessary for this component.

In regard to the Component 1 activities the Determination specifically noted that *“Not all infrastructure activities financed under Component 1 will require an Environmental Assessment. The Contractor shall conduct environmental screening to identify and document those infrastructure activities that are smaller in scale and lower in risk. For these activities, 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 construction activities to assure that identified mitigation measures have been implemented as planned.”*³

The IEE provides the required screening in regard to the Shash Darak Road in **Section 3.0**. The recommended environmental guidelines are presented in **Section 4.0**. Based on these findings and application of the guidelines, it has been concluded that the IEE leads to a Negative Determination i.e., that the preparation of an EA is not required provided that the recommendations presented herein are incorporated in the Project. The conclusion and its rationale are presented in **Section 5.0**.

1.3 ORGANIZATION OF THE IEE

The IEE 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 Shash Darak Road Project. The discussions of the criteria present statements of:
 - Existing Conditions;
 - 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: Recommended Threshold Decision.** Section 5.0 recommends a

³ USAID Environmental Threshold Decision, REFS Program, dated 4 September 2002, signed 24 October 2002.

determination that the preparation of an EA is not warranted based on the data and rationale presented therein.

2.0 PROJECT DESCRIPTION

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2.1 OVERVIEW

Shash Darak Road, located in central Kabul is currently a two lane roadway (approximately six meters in width and 1.2km in length) having a limited traffic capacity at intersections with both Massoud Road and Wazir Akbar Khan Road. The proposed project will include widening the existing alignment to four lanes with shoulders (commensurate with Massoud Road) and provide intersections improvements at three locations to improve traffic flow and reduce congestion.



EXHIBIT 2.1. KABUL, AFGHANISTAN

The purpose of the Shash Darak roadway improvement project is to provide a permanent traffic solution to congestion and security concerns in around the US Embassy and the Presidential Palace. Currently, traffic is limited on Massoud Road in front of the US Embassy by "make shift" traffic control barriers and armed guards at the intersections of Shash Darak and Massoud Circle. While these interim traffic measures are effective, they do not provide the necessary long term solutions or address the needs of the Embassy or traffic demands. By constructing permanent traffic devices on Massoud Road unofficial travel to and from the Presidential Palace and Embassy will prevented. The result of permanent access control on

Massoud Road will be that all north-south traffic will be required to use Shash Darak Road as the primary Major Arterial within one of the central corridors of Kabul.

The current estimated construction cost for this project is this work \$700,000 US dollars. 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**.

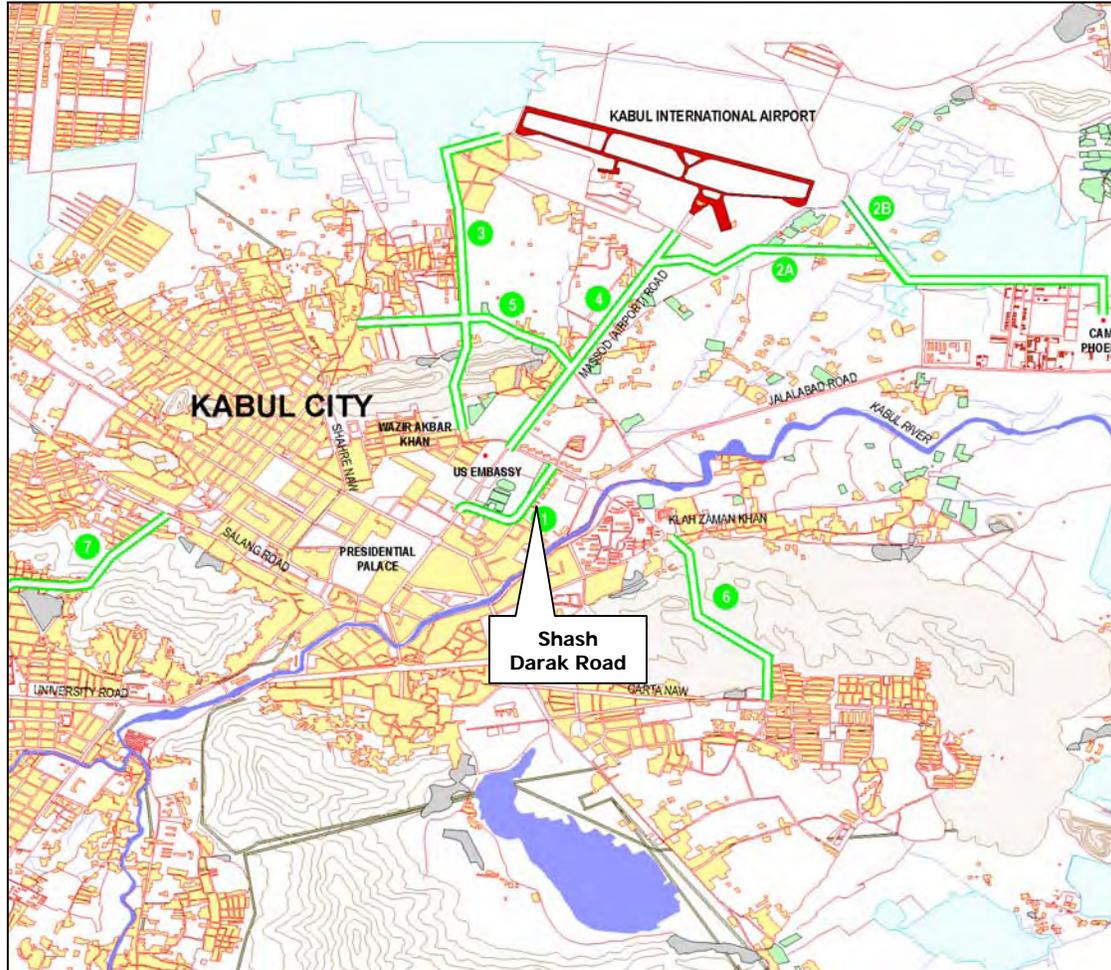


EXHIBIT 2-2. LOCATION OF SHASH DARAK ROAD, KABUL CITY

2.2 DETAILS OF THE PROPOSED ACTION

The primary objective of the Project is to rehabilitate and upgrade the Shash Darak Road. The work to be performed includes only the necessary construction to rehabilitate the road. The proposed schedule of works is as follows:

- Upon Contract award surveying teams will start for surveying works
- One back-hoe loader and one grader will be mobilized to site.
- The production of pre-cast curbstones will start.
- Back-hoe loader will start working for the earthworks for widening of the road.
- Grader will work for the required improvements of the existing roads which are going to be used for diverting the traffic during construction of Shash Darak Road.

- One roller will be mobilized to site
- Base material will be laid where required for improvement of the diversion roads with the grader.
- One layer of asphalt will be laid where required for the improvement of the diversion roads.
- Base material will be laid for the widening of the road with grader.
- During all earthworks and base course activities on the Shash Darak Road, the traffic will be running normally and the road will not be closed.
- After completion of the base course on the widened section of the road, curbstones will be placed.
- One layer of asphalt will be laid to have an even surface with the existing asphalt on Shash Darak Road.



Shash Darak Road looking south east. To the left of the road is the ISAF compound. Sections of this security wall will be moved to accommodate the improved pavement



Shash Darak Road looking north west. Earth lined side drains such as that illustrated above will be replaced with concrete lined side drains



Shash Darak Road looking north west. Note the ISAF viewing tower to the right, this will be moved back to accommodate improvements to the Project Road.



Shash Darak Road looking south east. The ISAF security tower illustrated currently restricts line of sight to those approaching the junction. The tower will be removed and a traffic roundabout may be introduced at the junction to facilitate the flow of traffic

- First 500 meters starting from Massoud Road end of Shash Darak Road will be closed to traffic while traffic is diverted through the roads nearby Shash Darak Road.
- Levelling Course for the first 500 meters will be laid.
- First 500 meters will be open to traffic and the remaining 800 meters will be closed.

- Levelling course for the last 800 meters will be laid
- Last 800 meters will be open to traffic and the first 500 meters will be closed.
- Wearing course for the first 500 meters will be laid
- First 500 meters will be open to traffic and the remaining 800 meters will be closed.
- Wearing course for the last 800 meters will be laid
- Last 800 meters will be open to traffic.



Shash Darak Road looking north east. The derelict land to the right of the road will be landscaped to include pedestrian pavement. The concrete lined side drain will remain.



The blocked access route through Wazir Akbar Khan (opposite Shash Darak Road) will be re-opened to traffic.

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). A Department of Environment has been created within MIWRE but it does not, at present, have any dedicated staff working specifically on environmental issues and comprises exclusively the Minister, the Deputy Minister for environmental affairs and the Director of Planning. The United Nations Environment Program (UNEP) is currently undertaking a capacity-building program to develop the Department and new environmental policy.

2.3.2 Legislative Framework

In the current transition period, it has been determined (Bonn Agreement, 2001) that the 1964 constitution enacted under the monarchy shall continue to govern Afghanistan's legal system. Based on this legal framework, the following laws containing important and valid environmental provisions have been identified:

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

None of the current laws accurately reflect the new institutional arrangements, or contain modern provisions for environmental management. In the absence of adequate environmental legislation, the Transitional Authority has issued various decrees of sorts banning certain activities, such as hunting. However, it has proven difficult to enforce these measures for reasons such as lack of human resources, funding and, as identified above, lack of capacity.



EXHIBIT 2-3 SATELLITE IMAGE OF SHASH DARAK ROAD

2.3.3 Afghan Environmental Assessment Procedures

No formal EIA process has been, or is in place, in Afghanistan. As a result many projects, such as deep-well drilling or large-scale irrigation projects, are being conducted without considering the environmental consequences of such activities. Additionally, there is no consistent application of EIA amongst donor agencies and international organizations

currently working in the country. MIWRE, in association with the UNEP, is currently developing a capacity building program to facilitate an Environmental Assessment policy framework for Afghanistan.

3.0 ENVIRONMENTAL SCREENING

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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 IEE provides the necessary screening for the Shash Darak Road Improvement 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 Shash Darak Road 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:

- Existing Conditions. The current statement of existing conditions is drawn primarily from site observations in May 2004.
- 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 Shash Darak Road, but within the scope of REFS.

3.2 SCREENING

The following section provides the necessary screening for the Shash Darak Road in tabular format. The purpose of the table is to indicate the existing environmental conditions of the Project area and provide a summary description of any potential socio-environmental impacts that may arise as a result of Project activities.

EXHIBIT 3-1 EXISTING CONDITIONS, POTENTIAL IMPACTS AND MITIGATION

ENVIRONMENTAL CRITERIA	EXISTING CONDITIONS	POTENTIAL IMPACTS	AVOIDANCE / MITIGATION ACTION	ADDITIONAL RECOMMENDATIONS
1.0 PHYSICAL RESOURCES				
1.1 Topography & Land Forms	The site of the Shash Darak Road is central Kabul (see Exhibit 2-2), which itself is located in the north eastern area of Afghanistan (see Exhibit 2-1) at approximately 1800 meters above msl. The topography of the 'L' shaped road is flat. No unusual topographic conditions in the area have been identified.	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.	None warranted. Provisions incorporated in the design, contracting process and provisions for contract supervision are such that the potential for adverse impacts to topography is obviated.
		Cut and Fill Requirements	No cut and fill activities are likely to occur on the Project Road	
		Borrow Pit Excavations	Contract documents will specify that <ul style="list-style-type: none"> ▪ Borrow areas will be located outside the ROWs. ▪ Pit restoration will follow the completion of works in full compliance all applicable standards and specifications. ▪ Arrangements for opening and using material borrow pits will contain enforceable provisions. ▪ The excavation and restoration of the borrow areas and their surroundings, in an environmentally sound manner to the satisfaction of the USAID General Contractor (USAID/GC) will be required before final acceptance and payment under the terms of contracts. ▪ Borrow pit areas will be graded to ensure drainage and visual uniformity. ▪ Topsoil from borrow pit areas will be saved and reused in re-vegetating the pits to the satisfaction of the USAID/GC. ▪ Additional borrow pits will not be opened without the restoration of those areas no longer in use. 	
1.2 Soils	Soils in and around Kabul generally	Contamination	<ul style="list-style-type: none"> ▪ Fuel and chemical storage will be sited on 	None warranted.

	<p>comprise loam, sandy loam or loessy loam. Within the vicinity of the Kabul River soils are gravel or sand and gravel.</p>	<p>Due to Spills</p>	<p>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> <ul style="list-style-type: none"> ▪ 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. 	
		<p>Erosion</p>	<p>No significant erosion impacts are anticipated. No mitigation actions required.</p>	
		<p>Borrow Pits</p>	<p>See 1.1 above.</p>	
<p>1.3 Seismic & Geological Characteristics</p>	<p>There is a history of damaging earthquakes that are most frequent in the northeast of Afghanistan. Kabul is potentially prone to earthquakes varying from 6.5 to 7.3 on the Richter scale.</p>	<p>Seismic Vulnerability</p>	<p>No significant issues identified requiring mitigation</p>	<p>None warranted.</p>
<p>1.4 Hydrology</p>	<p>The nearest hydrological feature within the vicinity of the Project Road is the Kabul River, approximately 250 meters south east of the most southerly portion of the Project Road. No other surface water courses or wetlands have been</p>	<p>Surface Hydrology</p>	<p>Potential adverse impacts to surface hydrology and the Kabul River in the construction phase of the Project will be avoided through the enforcement of contract provisions and oversight by the USAID/GC. Within the operational phase of the Project</p>	<p>None warranted.</p>

	<p>identified that may be subject to adverse impacts.</p>		<p><i>the proposed upgrading will reduce erosion from the roadway and will result in minor improvements in water quality (i.e. reduced silt loads). Provision of side drainage in villages and towns could improve in human health conditions along the alignment by reducing human contact with pollutants and disease sources.</i></p> <p><i>Road drainage provisions and other rehabilitation activities are not expected to alter the current status of natural water bodies or irrigation structures in the vicinity of the roadway. In addition to adherence to good engineering and construction practices and the enforcement of contract provisions related to drainage during both the construction and operational stages of the Project, Sub-Contractors will be obligated to coordinate with local land use planning authorities. Contract provisions will ensure that construction camps and other potential sources of secondary impacts are properly sited and provided with drainage and wastewater facilities.</i></p>	
		<p><i>Wetlands</i></p>	<p><i>No wetlands of significant biological importance are within the vicinity of potentially affected area. No mitigation actions are warranted.</i></p>	
		<p><i>Subsurface Hydrology</i></p>	<p><i>No impacts to groundwater resources are anticipated as a result of the proposed actions in the corridor in either the construction or operational phases of the Project. No wells/hand pumps within the proposed construction zones are located in the area of potential impact. There will be no net loss of water access points. The Sub-Contractor is required to prevent interference with the supply to, of abstraction from, or pollution of, water resources including underground percolating water..."</i></p>	

		<i>Flood characteristics</i>	<i>No impacts resulting from flood conditions are anticipated. No mitigation actions required.</i>	
<p>1.5 Air Quality and Climate</p>	<p><i>Winter in Kabul is cold. Mostly clear weather predominates. Normal temperatures are 2-5°C in the daytime with light frosts down to -5°C or below at nighttime. Precipitation generally falls as drizzle, less often as snow. Snow cover usually persists for only 10-15 days per annum. Spring lasts from March through April, the weather can be unstable and wet. Days are warm and nights are cool. Precipitation falls as brief but heavy rain. Summer in Kabul is hot. The weather is mostly clear and dry with prevailing temperatures in the hottest months (June through August) ranging from 25-30°C in the daytime and 18-22°C at night. Precipitation in the summer is very rare (1-2 rainy days June through September). Fall lasts from October through till November. The season begins dry, then turns relatively wet.</i></p> <p><i>Winds are predominantly southerly and southeasterly during the year with a mean speed of 1-4 meters per second (m/s). The area is characterized by local mountain-valley winds; blowing up the valleys and mountainsides in the daytime and back at night.</i></p> <p><i>The existing traffic volumes along the Shash Darak road are moderate; however dust and vehicle emissions in Kabul are the main factors negatively affecting air quality. Most of the cars, trucks and busses within Kabul run on low grade fuel emitting high levels of Polyaromatic Hydrocarbons (PAH).</i></p>	<p><i>Rehabilitation Impacts, e.g. Impacts during construction can be anticipated due to fugitive dust generation in and around construction activities and related activities such as asphalt plants.</i></p> <p><i>Operational Impacts</i></p>	<p><i>The Sub-Contractor will be required to spray road surfaces, excavation and construction sites.</i></p> <ul style="list-style-type: none"> ▪ <i>Trucks carrying earth, sand or stone will be covered with tarps.</i> ▪ <i>Contract provisions allow suspension of work in unfavorable condition.</i> ▪ <i>Machinery and equipment will be fitted with pollution control devices and checked at regular intervals.</i> ▪ <i>Open burning will be prohibited in populated areas.</i> <p><i>The improvement activities will allow the traffic generated by the improved economic conditions to flow more smoothly and efficiently and will thus be beneficial in terms of air quality. The improved layout is unlikely to significantly increase traffic levels within Kabul. No mitigation related to potential air quality impacts during the operational phase of the Project is considered warranted.</i></p>	<p><i>Other than verification of provisions noted within the contract documents, none warranted.</i></p>

2.0 NATURAL/BIOLOGICAL RESOURCES				
2.1 Flora	A number of trees line the Shash Darak Road, however, they will not be removed as part of the Project. Apart from these trees little fauna exists within the vicinity of the Project Road. No protected species have been identified in the Project Area.	Destruction of Habitat	The project is not anticipated to have significant negative impacts to flora within the vicinity of the road.	None warranted.
2.3 Fauna	Due to the city center location of the Project Road little in the way of fauna is present within the projects vicinity.	Destruction of Habitat	The project is not anticipated to have significant negative impacts to fauna within the vicinity of the Project.	None warranted.
2.3 Aquatic Habitat	No aquatic environments are present within 250 meters of the Project Road.	Destruction of Habitat	The project is not anticipated to have significant negative impacts on the Kabul River.	None warranted.
2.4 Protected Areas	The nearest protected are is Kole Hashmat Khan Waterfowl Sanctuary approximately 5km from the Project Road.	Rehabilitation Impacts	There are no protected areas within 5 kilometers of the Project site.	None warranted.
3.0 OTHER ENVIRONMENTAL CONCERNS NOTED BY 22 CFR 216				
3.1 Land Use/Controls	Land uses within the vicinity of the Project Road are exclusively urban. The location of the Shash Darak Road is unique in that it runs parallel to the ISAF HQ and provides a strategic link between the Massoud Road and Wasim Akbar Khan Road. However due to the lack of residential properties within the corridor or right of way, the assessment indicates that there is likely to be little if any impact to residences along the ROW as a result of the Proposed Action	Potential PAPA 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	None warranted.
		Rehabilitation Impacts	Coordination with local land use planning authorities is required. Construction camps/equipment/materials storage 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	Afghanistan's power grid has been severely damaged by years of war, and less than 10 percent of its population currently has access to electricity, with Kabul suffering power shortages. Three hydro-electric power dams provide baseload power to Kabul: the 100 MW	Exploitation of Energy Resources	Impacts are expected to be minimal. No mitigation actions warranted.	None warranted.

	<p><i>Naghlu dam, the 66-MW Mahi Par dam, and the 22-MW Sarobi dam. Due to a lack of water flow on the Kabul River, only the Naghlu Dam, which has a sizable reservoir capacity, is operational all-year round to meet the needs of Kabul. The dams are located about 50 miles from Kabul. Prior to the early 1990s, Kabul also had two gas-fired power plants located on the outskirts of the city. ABB recently refurbished one of the plants, which has a 45-MW capacity. It is anticipated to be used to meet peaking demand for the foreseeable future. In addition to commercial energy, Afghanistan utilizes such traditional, "non-commercial" energy sources as wood. According to a study by the ADB, more than 85% of Afghanistan's energy needs are met by such traditional fuels.</i></p>			
<p>3.3 Use of Natural / Depletable Resources</p>	<p><i>Rehabilitation of the Shash Darak Road will require the use of certain natural resources such as rock, sand and other quarried construction materials as required for the proposed rehabilitation activities. Such materials are in plentiful supply within Afghanistan.</i></p>	<p><i>Exploitation of Natural Resources</i></p>	<p><i>Impacts are expected to be minimal. No mitigation actions warranted.</i></p>	<p><i>None warranted.</i></p>
		<p><i>Demand for Construction Materials</i></p>	<p><i>Impacts are expected to be minimal. No mitigation actions warranted.</i></p>	
<p>3.4 Urban Quality / Design of the Built Environment</p>	<p><i>The Project Road is located within the central urban area of Kabul City. Details of land uses and potential impacts in immediate proximity to the road are discussed in 3.1 above.</i></p>	<p><i>Impacts to Roadside Structures and Activities</i></p>	<p><i>Impacts are expected to be minimal. No mitigation actions warranted.</i></p>	<p><i>None warranted.</i></p>
<p>3.5 Historic & Cultural Resources</p>	<p><i>At km0+500 there is a tombstone located within the roads right of way. The tombstone is located on this spot as it was the location where Mr Keramuddin Jami was killed by a mortar in 1992. The location of the Tombstone and further details are listed in Appendix B. According to Afghani traditions it is common that the body is removed from</i></p>	<p><i>Demolition or Damage Due to Rehabilitation</i></p>	<p><i>To avoid potential adverse impacts to the tombstone the Sub-Contractor shall protect the site during Project works with the placement of suitable fencing and barriers.</i></p> <p><i>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</i></p>	<p><i>None warranted.</i></p>

	<p><i>the site and the remaining monument represents the location where Mr. Keramaddin Jami was killed.</i></p> <p><i>As currently located, the tombstone is not in conflict with the proposed geometric alignment of the road and will not be disturbed during construction of roadway improvements. However, with the agreement of the Ministry of Information and Culture and Mr Keramaddin Jami's Family, the tombstone will be moved back from the roadside approximately 2-3 meters to protect it from damage by road traffic.</i></p>		<p><i>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.</i></p>	
4.0 ADDITIONAL ENVIRONMENTAL CONCERNS RAISED BY SIMILAR PROJECTS				
<p>4.1 Socio-Economic Considerations</p>	<p><i>Kabul (pop. 2,206,300) is the capital of Afghanistan and the capital of Kabul Province. The city is the countries largest industrial, business, finance and cultural center with the countries only international airport. The industrial factories within the city include machine building and metal working, light industry, woodworking, and food production. However, the majority of the population continues to suffer from insufficient food, clothing, housing, and medical care, problems exacerbated by military operations and political uncertainties. Inflation remains a serious problem.</i></p> <p><i>Within the vicinity of the project road activities are predominantly commercial and are unlikely to be affected significantly by project works.</i></p>	<p><i>Impacts are Deemed Beneficial</i></p>	<p><i>No mitigation actions warranted.</i></p>	<p><i>None warranted.</i></p>
<p>4.2 Public Health</p>	<p><i>Access to adequate and safe water and sanitation facilities is limited within Afghanistan as a whole and within Kabul</i></p>	<p><i>Disease Transmission</i></p>	<p><i>The Sub-Contractor is required to provide basic emergency health facilities for workers.</i></p>	<p><i>Although mitigation of such impacts is beyond the scope of the proposed</i></p>

	<p>itself. The newer areas of the city (Wasim Akbar Khan and within the vicinity of the Project road) have running water and sewers.</p> <p>Currently, there is a concentration of health facilities in urban areas such as Kabul, which for example, has 12% of the population but nearly half of all the hospital beds in the country. Additionally in Kabul, there is one doctor per 1,000 people compared with the central province of Bamyán where there is just one doctor per 100,000 people.</p>	Access to Health Facilities	Access to health facilities will not be affected by Project activities. No mitigation actions required.	<p>Project, the establishment of STD awareness programs is recommended.</p>
		Contamination Due to Spills	See 1.4 above.	
		Air and Noise Impacts	See 1.5 & 4.5.	
4.3 Safety	<p>In terms of traffic safety, traffic volumes are relatively light and due to the city center location of the road excessive speeds are largely precluded. Non-motorized traffic (NMT) is encountered, but is very light.</p>	Conflicts with NMT	Impacts to safety in circumstances such as Afghanistan's could occur due to the incorporation or absence of provisions for non-motorized traffic (NMT).	<p>Traffic Safety Programs are recommended for consideration as part of REFS Component 2.</p>
		Detours & Diversions	Diversions and detours are an inevitable impact of road rehabilitation projects and could give rise to safety issues.	
		Excessive Speeds	No mitigation actions warranted.	
4.4 Other Infrastructure Networks	<p>Water supply, waste water and electricity supply systems are present in the vicinity of the Project Area. Some systems are poorly maintained and in need of rehabilitation. No irrigation systems are present within the vicinity of the Project Road.</p>	Water Supply	<p>Road rehabilitation activities could impact other infrastructure systems such as water supply and wastewater collection networks, electrical lines, etc. Sub-Contractors are required to coordinate with all relevant officials to avoid significant adverse impact to other infrastructure systems.</p>	<p>None warranted.</p>
		WW Collection Networks		
		Electrical Systems		
4.5 Noise	<p>Ambient noise levels in the Project Area are relatively low. Field investigations did not reveal the presence of "sensitive receptors", i.e., recipients of sound for whom exposures to excessive sound levels are detrimental - hospitals, for example - in proximity to the Project Road.</p>	Rehabilitation Phase	Contracts will contain provisions to mitigate potential noise and vibration impacts during construction	<p>None warranted.</p>
		Operational Phase	No mitigation actions warranted.	

4.0 ENVIRONMENTAL GUIDELINES

4.0 ENVIRONMENTAL GUIDELINES

For projects such as the Shash Darak Road Improvement 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 Shash Darak Road 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 SE will be responsible for compliance with contract provisions that specify:
 - Controlled locations of sources of air pollution.
 - 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.
 - Controls of hazardous materials.
 - 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, Noise and Social Impacts

AIR QUALITY

Potential Impact Source	Mitigation Objective	Mitigation Checklist Do designs and bid documents include the following provisions?	Implementation Mechanism & Responsibility
Material Transport	Minimization of dust during transport of 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).
Material Storage	Minimization of dust during storage of construction material.	Stockpiles of materials shall be sited in sheltered areas away from sensitive areas and covered with tarps if 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 and located at least 50 meters from the nearest sensitive receptor. Solvents and volatile materials must be used and stored 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.	Required by Project Contracts. Enforced by SE.
Dust Generating Operations	Avoidance of dust generating operations during periods of high wind	In periods of high winds, dust generating options shall not be permitted within 50 meters of sensitive sites given the direction of the prevailing wind.	Required by Project Contracts. Enforced by SE.

WATER QUALITY

Potential Impact Source	Mitigation Objective	Mitigation Checklist Do designs and bid documents include the following provisions?	Implementation Mechanism & Responsibility
Uncontrolled Runoff During Project Works	Avoidance of inadequately planned runoff due to development of staging areas, labor camps, etc.	Runoff from during project works 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.

NOISE

Potential Impact Source	Mitigation Objective	Mitigation Checklist Do designs and bid documents include the following provisions?	Implementation Mechanism & Responsibility
Construction Machinery	Minimize high noise levels, vibrations at time of occurrence	Use equipment conforming to international standards and directives on noise and vibration. Maintain exhaust systems in good working order, properly design engine	Required by Project Contracts. Enforced by SE.

		enclosures, use intake exhaust silencers and regularly maintain noise generating equipment.	
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.
Paving And Other Rehabilitation Activities.	Minimize high noise levels and times of occurrence.	Limited construction hours in sensitive areas. Use of properly maintained equipment. Use of noise barriers where warranted. Public notification of construction activities and timing of activities generating significant noise and vibration levels.	Required by Project Contracts. Enforced by SE.

SOCIAL

Potential Impact Source	Mitigation Objective	Mitigation Checklist Do designs and bid documents include the following provisions?	Implementation Mechanism & Responsibility
Temporary Impacts Due to Rehabilitation Works	Minimize temporary impacts to residents and surrounding environment.	Coordinate all construction activities with neighboring land uses and respect rights of local landowners.	Construction requirements enforced by SE.
Health and Safety Impacts to Workers	Attend to the health and safety of Workers	Provide local, basic emergency health facilities for workers.	Construction requirements enforced by SE.

- **Water Quality Impacts.** Potential water quality impacts during the rehabilitation phase will also be mitigated through the controlled location of asphalt plants and similar sources of runoff, proper siting tabulated by **Exhibit 4.1** with compliance assured through the oversight of the SE.
- **Social Impacts.** Potential social issues 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 rehabilitation; to control air pollution and noise levels; to provide basic emergency health facilities for workers and other factors having a potential impact will be assured through the oversight of the SE.
- **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 SE.
- **Noise and Vibration Impacts.** Contract provisions for the control of noise and vibration impacts during the rehabilitation phase through the use of site controls and time and activity constraints as tabulated by **Exhibit 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:

- **Integrate 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.
- **STD Awareness Program.** Although mitigation of such impacts is beyond the scope of the proposed Project, the establishment of STD awareness programs is recommended.
- **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. The Shash Darak Road is one of a number of urban roads within Kabul subject to rehabilitation / upgrading. Increased vehicular activity combined with roadside development and ineffective access and crossing provisions are inherent safety problems. 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 throughout Kabul 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. Potential increased traffic and traffic speeds on this and other urban roads may 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.

5.0 RECOMMENDED THRESHOLD DECISION

5.0 RECOMMENDED THRESHOLD DECISION

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**.

Accordingly, a Threshold Decision documenting a **Negative Determination With Conditions** (i.e., adoption of the mitigation and contingency provisions as stipulated herein) is recommended. These conditions are identified as:

- Adoption of the Contract Provisions as provided by **Appendix A**;
- Identification of specific institutional strengthening activities to ensure that the rehabilitated road is adequately maintained;
- Assist MPW in the Establishment of a Traffic Safety Program; and
- STD Awareness Program

APPENDIX A

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 Shash Darak Road Improvement 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."

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

APPENDIX B

HISTORICAL AND CULTURAL RESOURCES



EXHIBIT B-1. POSITION OF MR. KERAMUDDIN JAMI'S GRAVE SITE AT THE 0+500 KM LOCATION OF THE SHASH DARAK ROAD



EXHIBIT B-2. THE TRANSLATION OF THE WRITING ON THE HEADSTONE OF THE TOMB LOCATED ON THE SHASH-DARAK ROAD. IT READS AS:

THE MARTYRED KERAMADDIN JAMI SON OF WALI-UDDIN JAMI ZADA FROM THE FAMILY OF KHAWAJA ABDUL BASSIRUDDIN FAMOUS TO KHWAJA-MULLAH FROM THE FOLLOWER OF THE PROPHET MUHAMMAD, AND RELATIVE OF SHARKH AHAD JAMI (ZENDA PIR), OR AHMAD ARABI. HE WAS A CLOSE RELATIVE OF HAZRAT JARIR. HE WAS MURDERED ON SATURDAY 5TH OF SAWR (1372) OR APRIL 26, 1992. HE WAS MURDERED AT 8:00 AM AT THE AGE OF 23 YEARS OLD. A MORTAR MINE WAS FIRED FROM AN UNKNOWN LOCATION AND LANDED IN THAT SPOT, AND KILLED HIM.

THE OTHER INSCRIPTIONS ON THE TOMB ARE CHAPTER/VERSES FROM THE HOLY QURAN, AND ALSO A POEM TO THE DECEASED BY HIS MOTHER.



EXHIBIT B-3. LOCATION OF THE TOMBSTONE ON THE CORNER OF SHASH DARAK ROAD
OPPOSITE THE ISAF HQ

APPENDIX C

APPENDIX C PERSONS CONTACTED

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APPENDIX D

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Important contributions to the IEE have been made by all members of the Louis Berger Group, Inc. (LBG) team for the Afghanistan Rehabilitation of Economic Facilities and Services (REFS) Program.