



REPUBLIC of KAZAKHSTAN  
MINISTRY OF TRANSPORT AND COMMUNICATIONS  
COMMITTEE OF ROADS



CONSTRUCTION SUPERVISION OF THE ASPARA-BLAGOVESHENKA  
SECTION IN ZHAMBYL OBLAST, INVESTMENT PROGRAM PROJECT4  
(ADB Loan # L2735-KAZ, CAREC Transport Corridor I)

# BIANNUAL ENVIRONMENTAL MONITORING REPORT - JUNE 2013



CONSTRUCTION SUPERVISION CONSULTANT (CSP-7)  
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# Bi-annual Environmental Monitoring Report

Project Number: 41121-053  
{July 2013}

## KAZAKHSTAN: MFF CAREC Transport Corridor 1 (Zhambyl Oblast Section) [Western Europe- Western People's Republic of China International Transit Corridor] Investment Program - Project 4

(Financed by the Asian Development Bank and Government of  
Republic of Kazakhstan)

Prepared by Kocks Consult GmbH for the Asian Development Bank (ADB).

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## EXECUTIVE SUMMARY

The Asian Development Bank has provided a loan (L2735-KAZ) to the Government of Kazakhstan for the re-construction of CAREC Transport Corridor I within the country's territory. Part of this road is the 49km Blagoveshenka-Aspara Section (PROJECT 4) which starts at km 261+500 to 310+500 of the "Almaty-Korday-Blagoveshenka-Merke-Taskent-Termez" Road.

The Engineer (Kocks-KECC-Almaty Joba-Quality Plan Joint Venture) for this Blagoveshenka-Aspara Section has compiled this Bi-annual Environmental Monitoring Report consisting of the recently encountered environmental issues along the road sections under construction contract with KCC Engineering & Construction Co., Ltd (Korea), the Contractor. The environmental issues consisted of borrow pit management, dust control, and campsite solid waste management and oil contamination. These were encountered during inspection at road construction areas, bridge sites, contractor's material sources and processing plants, etc. Measures to mitigate impacts were recommended accordingly and discussed within this report.

This six (6) month environmental monitoring report covers the period from January 2013 to June 2013. Within this period, as per Contract, the Contractor undertook regular parametric measurements for air, noise and water at designated points. In addition, the CS Consultant regularly monitors environmental, health and safety issues which for immediate response of the Contractor.

## PART I: INTRODUCTION

### 1. PRELIMINARY INFORMATION

#### 1.1. Project Background and Objective of the Environmental Monitoring

The road Blogovoshenka-Aspara (Project 4) is a segment of the CAREC Transport Corridor I and within Kazakhstan territory which is being financed by the Asian Development Bank under loan agreement with the Government of Kazakhstan. This project is being executed by the Ministry of Transportation and Communication with the Committee for Roads overseeing the entire program project. The Engineer supervising this Project 4 component is Kocks-KECC-Almaty Joba-Quality Plan Joint Venture, as while the Contractor undertaking the construction is JSC "KCC Engineering & Construction Co. Ltd".

Project 4 is a 49km Blagoveshenka-Aspara Section (km261+500 to km 310+500) and involves the upgradation of a 49 km section from category-II (existing two-lane) to four lane category-IB from km 261.5 to km 310.5 within the existing right-of-way. The construction of this component started in February 2012 which was supervised by the Employer<sup>1</sup>.

This environmental monitoring of the Project 4 – (49km) Blagoveshenka-Aspara Section (km261+500 to km 310+500) by the International Environmental Specialist<sup>2</sup> covers the period from January 2013 to June 2013 in compliance with the environmental scope of the construction supervision. The main purpose of environmental monitoring works is to ensure that the environmental mitigation measures during construction are implemented through a thorough supervision by the Engineer during the construction phase. Environmental issues also are anticipated to be identified in advance for avoidance and ensure timely completion of the project.

#### 1.2. The Project Area

The project road sections 49km Blagoveshenka-Aspara Section (km261+500 to km 310+500) is part of the "Almaty-Korday-Blagoveshenka-Merke-Taskent-Termez" Road and is generally following the existing highway alignment within the Zhambyl Oblast. The area traversed by the road is generally classified as lowlands and plains. The mountainous portions that serve as borders with the Kyrgyz Republic are found 15km south of the corridor. Several small rivers cross the project road from south to north. The project road is shown in the figure below:

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<sup>1</sup> Kocks Consult GmbH. September 2012. Inception Report – Construction Supervision Services. Contract L2735-KAZ: MFF CAREC Transport Corridor I Investment Programme, Project 4 (Aspara-Blagoveshenka)

<sup>2</sup> Mr. Samuel E. Sapuay, International Environmental Specialist – Kocks Consult



Figure 1: Location of the Project Road

### 1.3. Technical Description of the Road Project

This Blagoveshenka-Aspara Section is designed for Category IB, as per the following design details:

- Width of the road embankment –27,5m;
- Carriageway width: 7,5 m (2 x 3, 75 m);
- Number of lanes : 4
- Width of shoulder: (2 x 3, 75 m). Shoulders 2 \* 0.75 m asphalted.
- Embankment slope ratio is changeable from max 1:1.5 to min 1:4, depend on height of embankment
- Cross slope of the carriageway 2 %;
- Shoulder cross fall 4 %;

There will be four Bridges built in the Project and drainage structures will be built. Details of the new bridges are shown in the following table.

**Table 1: Project Bridge Description**

New Station - km	Identification of Bridges	Note
<b>262+372.60</b> <b>Shu river</b>	5*24 T beam L=127,115m,S=3410m <sup>2</sup> W=11.5+5+11.5 Sidewalks 2*0.75	Existing bridge is on Kyrgyzstan land and bridge has to be built on new road.
<b>270+223.000</b> <b>Shorgo river</b>	Slabs 3*15 L=35.15m,S=1048m <sup>2</sup> , W=-9.5+5+9.5 m Sidewalks 2*0.75	Demolition of bridge and building a new one
<b>277+593</b> <b>Aksu river</b>	Slabs 3*15 L=50.2,S=1340m <sup>2</sup> , W=9.5+5+9.5 Sidewalks 2*0.75	Demolition of bridge and building a new one
<b>282+179.58</b> <b>Karabalta river</b>	Slabs 2*15 L=35.15m,S=1048m <sup>2</sup> , W=9.5+5+9.5 Sidewalks 2*0.75	Demolition of bridge and building a new one

In addition to the above water crossings, a number of pipe culverts have been installed for the project road. The existing culverts on the project road are predominantly concrete pipes from diameter 750mm up to diameter 1,500 mm. Some box culverts with varying sizes from 2x2m up to 4x4m exist. Neither condition nor the size of the existing culverts meet the requirements of the new category I road all culverts are being replaced by new ones. Hence, all of these have been replaced to conform to the required specifications.

#### 1.4. Environmental Characteristics of the Project Area

Prior to the ADB funded project, a two lane road existed already along the current alignment with a right-of-way of 40 meters. The project enlarges the right-of-way to 70 meters. Except in portions where the road avoids the Kyrgyz territory, the project road follows the original alignment. Hence as per previous determination, the project was judged to be Category IB project with limited impact to the existing environment.

The land relief along the project road can be generally described as slightly inclined alluvial-proluvial flatland with some areas of rigidly undulating and with rigid-valley formed by loess and silty-clay soil. The reconstructed alignment crosses the Shu River delta. Within this region a number of Shu River tributaries are crossed necessitating waterway infrastructures such as bridges and culverts.

Natural vegetation follows the floodplain of the Shu River tributaries and mostly consists of feather grass, fescue, anabases salsa, rare ephemera, black saxaul and willow. The fauna is represented by wild rams, roe, hare, pheasants and partridges.

The local climate is abrupt continental dry, with hot summer and moderately cold winter. Spring seasons is short and warm with frost still occurring in late months of May, while the autumn is dry and warm. Frost free conditions lasts to around 5-6 months within a normal year.

Shu region has population of around 93,000 with Shu as the center. Merke region has population of around 71,900 concentrated mainly in Merke. It is anticipated that the road

improvement project will enhance transport of fish, farm products and livestock in these regions and facilitate the delivery of cargoes to these centers.

During the archeological examination, around 13 artifacts with cultural and historical were discovered in the near the vicinity of the project but far enough to be affected by the project as they were 210m to 2146 m from the road centerline.

## PART II: ENVIRONMENTAL MONITORING

### 2. ENVIRONMENTAL MONITORING FRAMEWORK

The environmental monitoring framework for the project is based on the construction supervision ToR, GCC/PCC, Technical specifications, project IEE for Category B<sup>3</sup> and ADB guidelines.

#### 2.1. Methodology for Environmental Monitoring in Construction Supervision

As stipulated in the Contract for the project, the Contractor would adhere to the requirements of the environmental aspects of the contract document particularly in the General Conditions of Contract (FIDIC) as follows:

- 4.8 – Safety Procedure**
- 4.18 – Protection of Environment**
- 4.15 – Access Route**
- 4.24 – Fossils**
- 6.7 – Health & Safety**

In addition, detailed requirements are presented in the Technical Specifications particularly the following:

#### Section 106 – Protection of Environment

- A. General
- B. Fuel & Chemical Storage,
- C. Water Quality
- D. Air Quality.
- E. Noise, Earthwork,
- F. Preservation of Antiquities,
- G. Preservation of Antiquities
- H. Environmental Enhancement

#### Section 113 – Diversion and Traffic Control Measures – mainly the **B. Traffic Management Plan**

The initial obligation of the Contractor was to formulate a project Environmental Management Plan (EMP) based on the findings contained in the 2008 Environmental Impact Assessment (EIA) Report. In the succeeding months the Contractor's EMP was revised based on the comments of the international environmental specialist. Subsequently, the EMP was resubmitted and accepted with stipulations that the EMP will have to be revised should the need arises.

As the work progresses, the Consultant monitored the Contractor's compliance with the Environmental Management Plan and reported on the impacts encountered and mitigation measures employed and made further recommendations as deemed necessary. The periodic

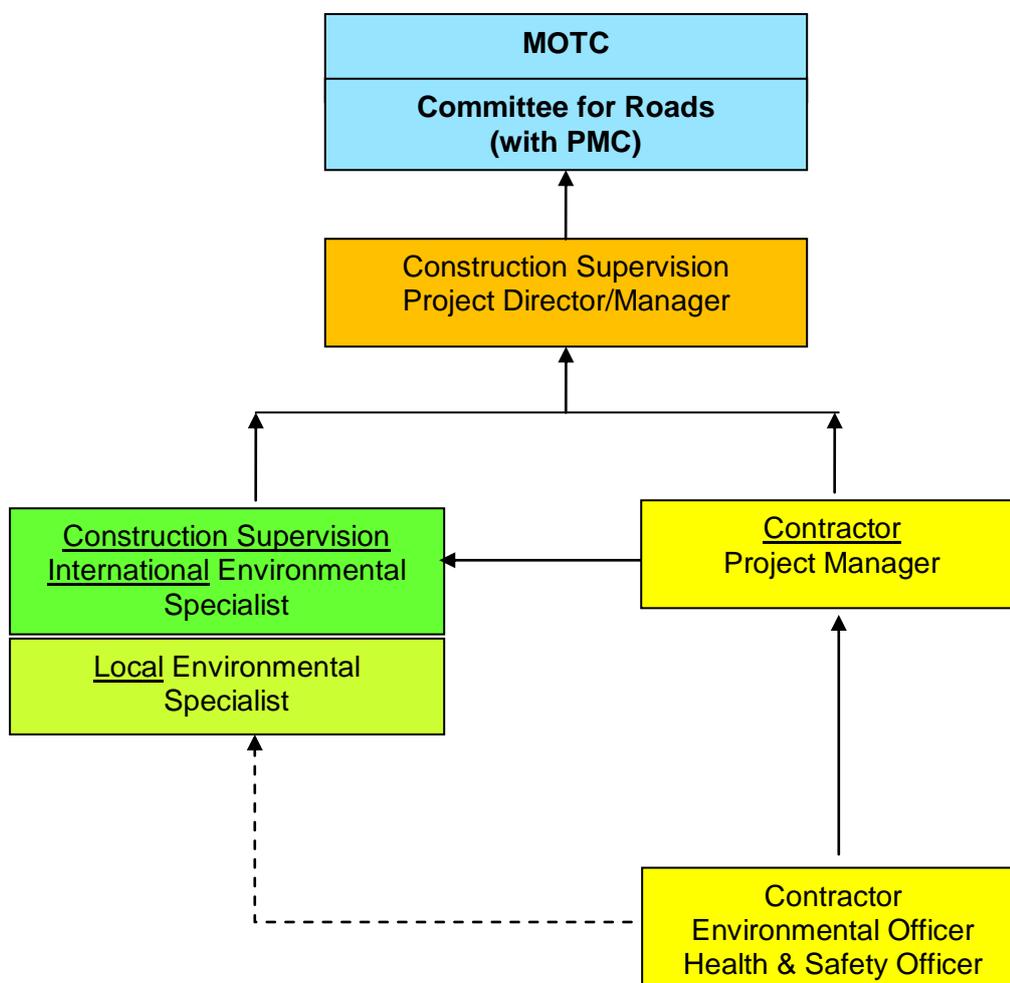
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<sup>3</sup> ADB's Safe Guard Category – Category B The proposed project's potential adverse environmental impacts are site-specific, few if any of them are irreversible, and in most cases mitigation measures can be designed more readily than for category A projects. An initial environmental examination (IEE), including an EMP, is required

inspection ensures that the Contractor is complying with the project EMP in all of the aspects of the work as part of their contractual obligations.

In general, as stipulated in the ToR for the Construction Supervision on the environmental aspect the Consultant shall “Carry out the following duties related to environmental mitigation measures during construction (a) to ensure that all the environmental mitigation measures required to be implemented are incorporated in the contract documents; (b) supervise and monitor the implementation of environmental (management)/mitigation plan (EMP); and (c) in case of unexpected environmental impacts, coordinate with the Project Director and PMC to recommend necessary measures to the Committee of Roads and ADB for Implementation”. Based on this the Environmental specialist shall establish coordinative work with relevant staff of the Consultant and the Contractor to ensure that environmental issues are recognized prior to or discovered during work implementation.

Coordinative communication channels shall be established according to the following work coordination chart:



**Figure 2: Work Coordination Arrangement**

## **2.2. CS Consultant (The Engineer) Environmental Monitoring Work Protocol**

Under the guidance of the International Environment Specialist, inspectors of the Engineer regularly conduct environmental monitoring on the Project. Findings and results of their monitoring activities are incorporated in the monthly and quarterly reports as well as in the Periodic Environmental Monitoring Reports for The Project.

During actual site visits of the International Environment Specialist, on-the-spot field inspections to various impact sites such as borrow pit, concrete plant, sand & gravel washing areas as well as contractor's campsite and residential and commercial areas along the project road are conducted. Environmental issues are noted down and presented to the Contractor as part of the consultation process, whereby issues will be resolved. The effectiveness of the mitigation measures is assessed after site implementation to determine if such measures were effective. In cases when they were ineffective, other measures will be implemented and further reassessed and when they are determined to be successful, the Contractor's measures are deemed compliant with the environmental requirements. This Environmental Monitoring Work Protocol is outlined below.

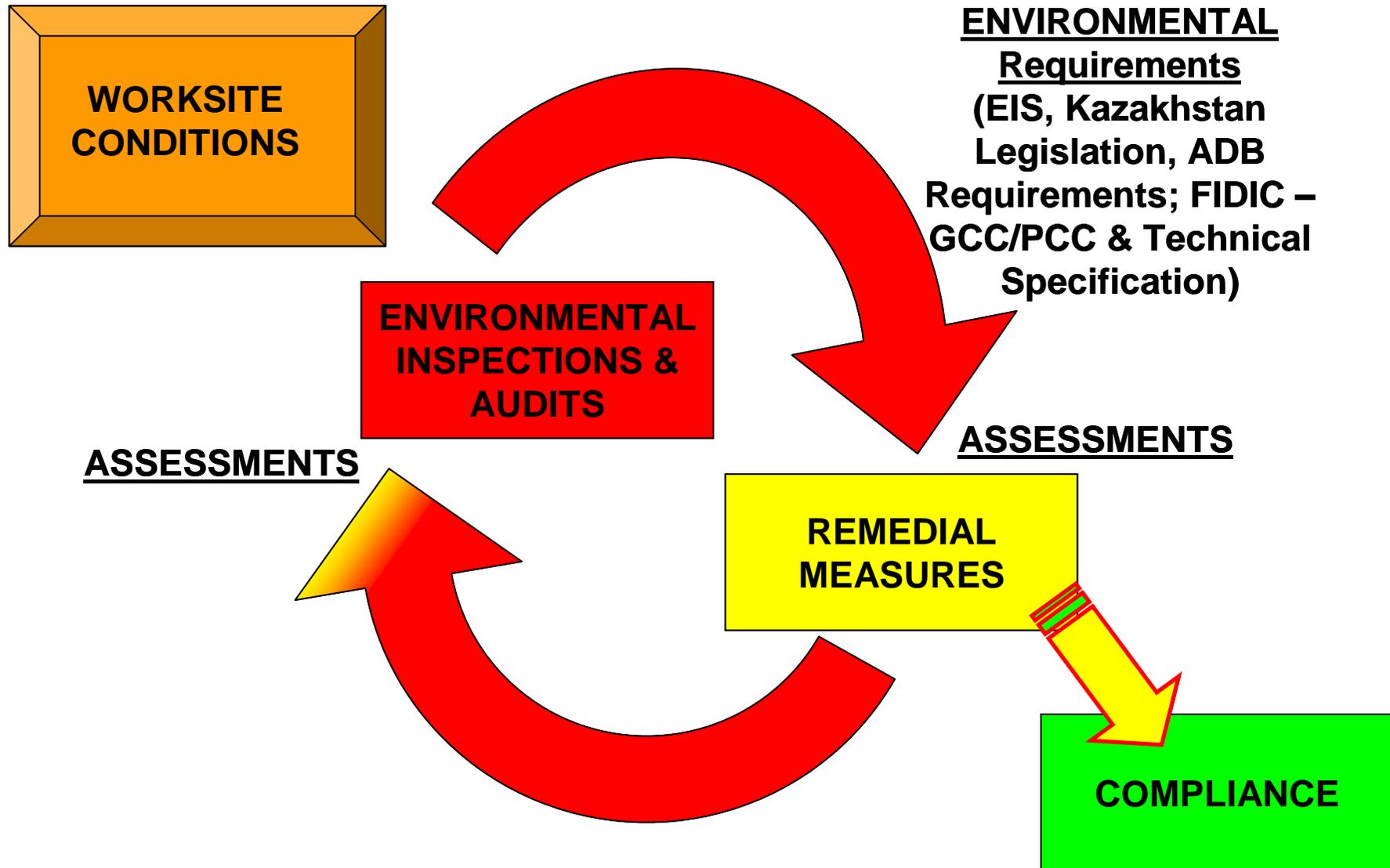


Figure 3: Environmental Monitoring Work Protocol

As stipulated in the Contract for the project, the Contractor will adhere to the requirements of the environmental aspects of the contract document particularly in the General Conditions of Contract (FIDIC) as follows:

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In addition, detailed requirements are found in the **Technical Specifications** particularly the following:

#### **Section 106 – Protection of Environment**

- A. General
- B. Fuel & Chemical Storage,
- C. Water Quality
- D. Air Quality.
- E. Noise, Earthwork,
- F. Preservation of Antiquities,
- G. Preservation of Antiquities
- H. Environmental Enhancement

#### **Section 113 – Diversion and Traffic Control Measures – mainly the B. Traffic Management Plan**

#### **2.3. Contractor's Environmental Monitoring Procedures Health and Safety Management**

As mentioned in the previous Bi-annual Environmental Report, the Contractor started monitoring the physical environment at the vicinity of the project road in April 2012. The parameters being monitored with instrument measurements are (i) noise and vibration, (ii) water quality, (iii) air quality and (iv) flora and fauna monitoring. These indicators form the **Baseline monitoring parameters** for the project road which can be referred to in the course of the construction of the project as well as during its operation. In addition, a number of pertinent sites are also monitored by the Contractor for any impacts of the construction activities such as quarries and borrow areas, bypass roads, bridge sites, contractor camp subcontractors temporary camps, concrete plant, crusher plant, asphalt plant, the villages (along the bypass) and crossing roads. Impacts will be recorded and mitigated in accordance to the EMP.

A staff was designated as health and safety officer for the project with duties to deal with safety on: (i) performance of construction and assembly works; (ii) for fire protection; (iii) work performance of an erecting crane; (iv) gas supply; (v) electricity supply; and (vi) provision special cloths and other facilities for individual protection of workers.

In case of accident, the Contractor is to submit brief summary about the accidents as part of the monitoring activities for the previous month.

## 2.4. Required Environmental Reporting

As mentioned in the Appendix 2 (item **2.3 Reporting Procedures**) of the IEE document, the Contractor's Environmental Action Plan (CEAP) or Contractor's EMP should provide description and explanation communication procedures between construction personnel and environmental protection, safety and traffic control staff, including (i) Communication facilities and Routine communication and reporting systems.

It is also mentioned in 2.3.2 Environmental and Safety Reports of Appendix 2, that Initial Environmental Baseline Report should be submitted in accordance with Section 2.4. Based on this Section, a Baseline monitoring program should be presented consisting of Environmental Baseline Survey (EBS) on (i) air quality; (ii) water quality; and (iii) noise. In addition, Environmental Safety Reports should be submitted which summarizes weekly updates and compiled for monthly reporting to the Engineer. The Engineer should also be notified promptly of any accident and effective communication should be established with all Subcontractors. Summaries of these items should be part of the Contractor's Monthly Progress Reports.

As stated in the Particular Conditions of Contract, the Contractor should also submit a Bi-annual environmental report, which is a compilation of monthly report with appropriate summaries of the issues, activities and measures undertaken within the period.

### 3. PERFORMED ENVIRONMENTAL MONITORING ACTIVITIES

Within the six-month period the Contractor undertook monthly monitoring of air, noise and water quality at specified locations. The Engineer likewise, as part of his tasks, monitors the environmental aspects of the project as well and reviews the environmental monitoring activities of the Contractor. The international environmental specialist of the CS Consultant (Kocks) visited the site in early July 2013 as part of Consultant's periodic monitoring. The places inspected consisted of the project roads, material sources, work camps and concrete batching plants.

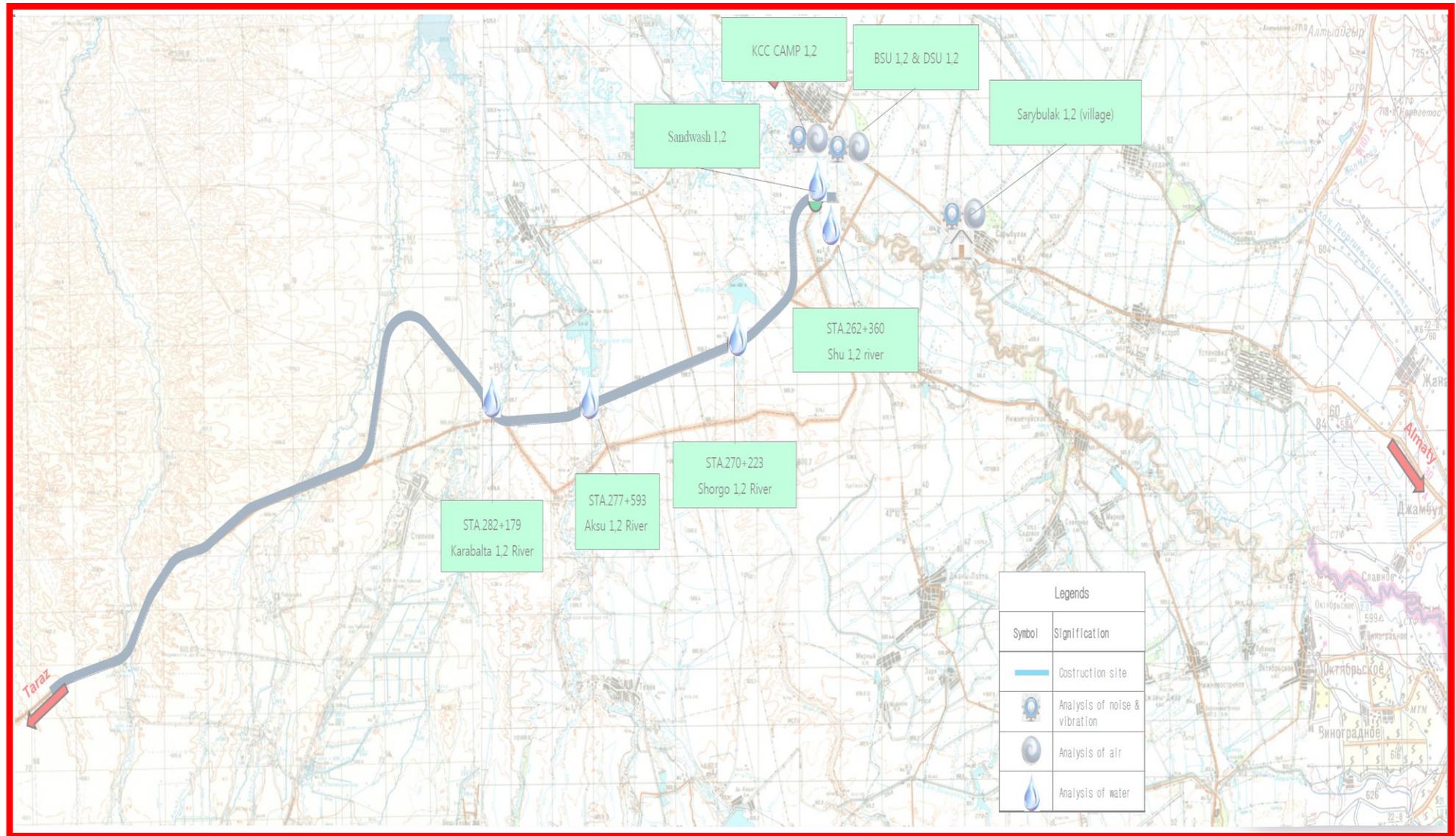
#### 3.1. Environmental Monitoring Procedures of the Contractor

The Contractor started monitoring the physical environment at the vicinity of the project road in April 2012. The parameters being monitored are (i) noise and vibration, (ii) water quality, (iii) air quality and (iv) flora and fauna monitoring. These indicators form the **Baseline monitoring parameters** for the project road which can be referred to in the course of the construction of the project as well as during its operation. Previously, the Contractor was conducting air and noise measurements every 10 km along the project. However, in October 2012, the international environmental specialist advised the Contractor to measure at locations where impacts to people are more appreciable. Hence the measurement locations were changed accordingly. For the measurement for water quality, to monitor the impact of the construction activities at bridge sites, upstream and downstream measurements were done along the rivers. In the previous six month, these were the stations where measurements on the parameters were undertaken. The basic procedures are described below:

- **Noise and vibration** – Measurements for noise and vibration were performed monthly (Jan.-Jun. 2013) at the following locations as shown in the map below: (i) Camp1; (ii) Camp2; (iii) BSU; (iv) DSU; (v) Saryb1; and (vi) Saryb2. The Norms on protection of the environment from noise and vibration are in accordance with the established standards. The industrial sites of general contractor are located far from populated places, therefore additional monitoring for noise and vibration effects in populated places is not necessary. Monthly readings taken on noise and vibration were not exceeding the norms.
- **Water quality** – There four rivers that crosses the road construction site. They are Shu, Shorgo, Aksu, and Karabalta Rivers. Accordingly, bridges are being constructed as required by the project. To monitor the impact of the bridge construction in Jan.-Jun. 2013 upstream and downstream of the bridge sites were measured. In addition, the sand & gravel washing equipment has a retention pond that acts as siltation and sedimentation basin. Water quality was measured prior to and after discharging in the Shu River – hence, there are six (6) monitoring stations for water quality measurements for Jan-Jun. 2013.
- **Air quality** – Air quality is controlled at relevant sites and along the road construction sections by obtaining readings monthly (Jan.-Jun. 2013) at the following locations as shown in the map: (i) Camp1; (ii) Camp2; (iii) BSU1; (iv) BSU2; (v) DSU1; (vi) DSU2; (vii) Sarybulak1; and (viii) Sarybulak2.
- **Monitoring of fauna and flora** – Monitoring of fauna and flora is carried out by direct observation. The habitats of rare animals and birds are not disturbed, as the construction progresses along the project section. Flora along the vicinity of the road is largely affected by dust and traffic emissions.

A map showing these monitoring points for Jan.-Jun. 2013 is shown in the next page.

**CONSTRUCTION SUPERVISION OF THE ASPARA-BLAGOVESHENKA SECTION IN ZHAMBYL OBLAST,  
INVESTMENT PROGRAM PROJECT 4  
Bi-Annual Environmental Monitoring Report for Jan.-Jun 2013**



**Figure 4: Environmental Parameter Sampling Locations (Jan.-Jun. 2013)**

### 3.2. Monitoring Activities of the Contractor

From Jan. – Jun. 2013, the Contractor, JSC “KCC Engineering & Construction Co. Ltd” undertook monthly parameter readings and observation with compiled summary report. The results of the previous monitoring activities are shown below:

**Air Quality:** Measurements were done monthly and at 8 sampling stations. The results show that air quality is below the limit as observed in the Table below. From the results of the air measurements, it shows that the generally air quality was below the prescribed maximum permissible levels in Kazakhstan.

**Table 2: Air Quality Measurements from Jan. to Jun. 2013**

MONTH	Substance	NO2	SO2	CO	Dust
	MPC <sup>4</sup>	0.085	0.5	5	0.3
JANUARY	Camp1	0.001	0.005	0.036	0.003
	Camp2	0.008	0.011	0.075	0.003
	BSU1	0.008	0.005	0.026	0.002
	BSU2	0.01	0.007	0.089	0.011
	DSU1	0.002	0.007	0.031	0.002
	DSU2	0.005	0.009	0.042	0.01
	Sarybulak1	0.004	0.001	0.023	0.003
	Sarybulak2	0.005	0.003	0.007	0.005
FEBRUARY	Camp1	0.001	0.005	0.036	0.003
	Camp2	0.008	0.011	0.075	0.003
	BSU1	0.008	0.005	0.026	0.002
	BSU2	0.01	0.007	0.089	0.011
	DSU1	0.002	0.007	0.031	0.002
	DSU2	0.005	0.009	0.042	0.01
	Sarybulak1	0.004	0.001	0.023	0.003
	Sarybulak2	0.005	0.003	0.007	0.005
MARCH	Camp1	0.003	0.009	0.08	0.001
	Camp2	0.009	0.012	0.085	0.002
	BSU1	0.013	0.011	0.104	0.009
	BSU2	0.015	0.015	0.098	0.013
	DSU1	0.017	0.012	0.121	0.012
	DSU2	0.023	0.017	0.144	0.036
	Sarybulak1	0.003	0.004	0.014	0.003
	Sarybulak2	0.006	0.012	0.071	0.011
APRIL	Camp1	0.002	0.003	0.028	0.003
	Camp2	0.005	0.006	0.042	0.004
	BSU1	0.008	0.014	0.053	0.008
	BSU2	0.011	0.019	0.11	0.013
	DSU1	0.009	0.014	0.042	0.006
	DSU2	0.01	0.017	0.051	0.01

<sup>4</sup> Maximum Permissible Level in Kazakhstan

MONTH	Substance	NO2	SO2	CO	Dust
		<b>MPC<sup>4</sup></b>	<b>0.085</b>	<b>0.5</b>	<b>5</b>
	Sarybulak1	0.001	0.003	0.016	0.005
	Sarybulak2	0.003	0.008	0.062	0.004
MAY	Camp1	0.002	0.006	0.014	0.003
	Camp2	0.003	0.006	0.015	0.006
	BSU1	0.009	0.013	0.037	0.015
	BSU2	0.01	0.017	0.04	0.017
	DSU1	0.01	0.014	0.025	0.011
	DSU2	0.012	0.013	0.041	0.019
	Sarybulak1	0.002	0.004	0.013	0.003
	Sarybulak2	0.006	0.005	0.036	0.015
JUNE	Camp1	0.001	0.002	0.005	0.003
	Camp2	0.011	0.007	0.016	0.012
	BSU1	0.001	0.002	0.005	0.008
	BSU2	0.017	0.01	0.02	0.021
	DSU1	0.002	0.006	0.018	0.002
	DSU2	0.011	0.009	0.026	0.008
	Sarybulak1	0.002	0.001	0.002	0.001
	Sarybulak2	0	0.001	0.001	0.003

**Noise:** Noise measured at the six (6) sites was **under** the maximum allowable value as shown in the Table below. This indicates that noise generating equipment and machinery were adequately controlled during this period such that noise generation was minimized.

**Table 3: Noise Measurements from Jan. to Jun. 2013**

Sampling Point (km)	Camp1	Camp2	BSU	DSU	Saryb1	Saryb2
<b>Max. Allowable value</b>	<b>75</b>	<b>75</b>	<b>75</b>	<b>75</b>	<b>75</b>	<b>75</b>
<b>Jan.</b>	44.1	42.9	47.5	47.8	42.1	42.9
<b>Feb.</b>	46.6	45	50.1	48.8	45.6	46.1
<b>Mar.</b>	45.9	46.1	48.8	51.6	43.4	44.5
<b>Apr.</b>	42.2	43.1	45.5	45.4	40	39.7
<b>May</b>	47.6	46.2	45.6	46.1	49.2	50.7
<b>Jun.</b>	44.1	42.9	47.5	47.8	42.1	42.9

**Water Quality:** Measurements results for water quality were for most of the 22 parameters previously established were generally acceptable. In January and February, only two measurement spots were performed because the Shu River was frozen, there were no water for Shorgo River and the sand washing equipment was not operating.

During the months from January to March, construction works were minimal due to the weather condition. Nevertheless, construction works were on-going although at reduced levels. Water quality testing was done in Shu and Agsu Rivers as part of the requirements.

From April to June, as the weather has improved and flow in these rivers normalized, testing were done as before. Generally, readings do not show any significant water quality issues. In these 3 months, the phosphorous (P) levels were elevated, due perhaps to farming activities upstream. However, since the road and bridge construction does not entail the use of phosphorous bearing substance, the elevated concentrations could not be attributed to the construction activities. Suspended solids were also elevated but seemed within its usual concentrations. Also, oil contaminant level was below limit and seems to be stable. Hence, overall the construction activities are not impacting the water quality of the rivers. Shown below are the monthly results for the water quality testing.

**Table 4: Water Quality Measurements for January 2013**

Water Quality Measurements in January 2013											
Substance	MPC	Karabalta 1	Karabalta 2	Aksu 1	Aksu 2	Shorgo 1	Shorgo 2	Shu 1	Shu 2	Sandwash 1	Sandwash 2
pH	6.5-8.5	(ice)	(ice)	7.9	7.6	(no water)	(no water)	7	8.1	(no operation)	(no operation)
Na+K	200	(ice)	(ice)	47.6	46.5	(no water)	(no water)	142.2	120.1	(no operation)	(no operation)
K		(ice)	(ice)	5.4	5.7	(no water)	(no water)	2.5	3	(no operation)	(no operation)
Ca	180	(ice)	(ice)	121.4	120.8	(no water)	(no water)	116.4	111.4	(no operation)	(no operation)
Mg	50	(ice)	(ice)	33.5	31.5	(no water)	(no water)	55.2	50.1	(no operation)	(no operation)
Cu	1	(ice)	(ice)	0.011	0.011	(no water)	(no water)	0.012	0.015	(no operation)	(no operation)
Zn	5	(ice)	(ice)	0.007	0.007	(no water)	(no water)	0.057	0.028	(no operation)	(no operation)
Pb	0.03	(ice)	(ice)	0	0	(no water)	(no water)	0	0	(no operation)	(no operation)
Mn	0.5	(ice)	(ice)	0.12	0.092	(no water)	(no water)	0.058	0.082	(no operation)	(no operation)
As	0.05	(ice)	(ice)	0	0	(no water)	(no water)	0	0	(no operation)	(no operation)
P	5	(ice)	(ice)	4.4	4.2	(no water)	(no water)	4.6	4.5	(no operation)	(no operation)
Cr	0.05	(ice)	(ice)	0	0	(no water)	(no water)	0	0	(no operation)	(no operation)
Fe	0.3	(ice)	(ice)	0.71	0.57	(no water)	(no water)	1.22	1.18	(no operation)	(no operation)
Cl	350.5	(ice)	(ice)	16.7	16	(no water)	(no water)	12.4	12.2	(no operation)	(no operation)
S	500	(ice)	(ice)	177.8	170.5	(no water)	(no water)	205	203	(no operation)	(no operation)
Ammonia nitrogen	2	(ice)	(ice)	0.31	0.28	(no water)	(no water)	2.42	0.4	(no operation)	(no operation)
Nitrates	45	(ice)	(ice)	2	1.7	(no water)	(no water)	1.24	1.22	(no operation)	(no operation)
F	1.2	(ice)	(ice)	0.55	0.6	(no water)	(no water)	0.48	0.07	(no operation)	(no operation)
Oil	0.1	(ice)	(ice)	0.04	0.05	(no water)	(no water)	0.059	0.1	(no operation)	(no operation)
Suspended solids	0.25	(ice)	(ice)	0.31	0.35	(no water)	(no water)	0.44	0.45	(no operation)	(no operation)
COD	30	(ice)	(ice)	18.4	13.8	(no water)	(no water)	15.5	13.2	(no operation)	(no operation)
BOD	6	(ice)	(ice)	7.9	6	(no water)	(no water)	7.3	6	(no operation)	(no operation)

**Table 5: Water Quality Measurements for February 2013**

Water Quality Measurements in February 2013											
Substance	MPC	Karabalta 1	Karabalta 2	Aksu 1	Aksu 2	Shorgo 1	Shorgo 2	Shu 1	Shu 2	Sandwash 1	Sandwash 2
pH	6.5-8.5	(ice)	(ice)	8	7.7	(no water)	(no water)	7.2	7.8	(no operation)	(no operation)
Na+K	200	(ice)	(ice)	55.7	55	(no water)	(no water)	108.3	105.9	(no operation)	(no operation)
K		(ice)	(ice)	5.5	5.8	(no water)	(no water)	2	2.2	(no operation)	(no operation)
Ca	180	(ice)	(ice)	106.1	102.8	(no water)	(no water)	103.4	101.1	(no operation)	(no operation)
Mg	50	(ice)	(ice)	40.5	42.1	(no water)	(no water)	43.7	41.4	(no operation)	(no operation)
Cu	1	(ice)	(ice)	0.034	0.03	(no water)	(no water)	0.005	0.005	(no operation)	(no operation)
Zn	5	(ice)	(ice)	0.01	0.009	(no water)	(no water)	0.07	0.05	(no operation)	(no operation)
Pb	0.03	(ice)	(ice)	0	0	(no water)	(no water)	0	0	(no operation)	(no operation)
Mn	0.5	(ice)	(ice)	0.014	0.012	(no water)	(no water)	0.11	0.09	(no operation)	(no operation)
As	0.05	(ice)	(ice)	0	0	(no water)	(no water)	0	0	(no operation)	(no operation)
P	5	(ice)	(ice)	5.6	5.6	(no water)	(no water)	5	4.88	(no operation)	(no operation)
Cr	0.05	(ice)	(ice)	0	0	(no water)	(no water)	0	0	(no operation)	(no operation)
Fe	0.3	(ice)	(ice)	0.58	0.6	(no water)	(no water)	0.88	0.8	(no operation)	(no operation)
Cl	350.5	(ice)	(ice)	15.3	15.6	(no water)	(no water)	9.4	9	(no operation)	(no operation)
S	500	(ice)	(ice)	155.8	157.2	(no water)	(no water)	164.3	158.2	(no operation)	(no operation)
Ammonia nitrogen	2	(ice)	(ice)	0	0	(no water)	(no water)	0.11	0.1	(no operation)	(no operation)
Nitrates	45	(ice)	(ice)	0	0	(no water)	(no water)	0.5	0.42	(no operation)	(no operation)
F	1.2	(ice)	(ice)	0.66	0.65	(no water)	(no water)	0.55	0.5	(no operation)	(no operation)
Oil	0.1	(ice)	(ice)	0.07	0.09	(no water)	(no water)	0.07	0.05	(no operation)	(no operation)
Suspended solids	0.25	(ice)	(ice)	0.48	0.55	(no water)	(no water)	0.37	0.32	(no operation)	(no operation)
COD	30	(ice)	(ice)	14.7	14	(no water)	(no water)	11.3	11.5	(no operation)	(no operation)
BOD	6	(ice)	(ice)	6.8	6.9	(no water)	(no water)	5.6	5.7	(no operation)	(no operation)

**Table 6: Water Quality Measurements for March 2013**

Water Quality Measurements in March 2013											
Substance	MPC	Karabalta 1	Karabalta 2	Aksu 1	Aksu 2	Shorgo 1	Shorgo 2	Shu 1	Shu 2	Sandwash 1	Sandwash 2
pH	6.5-8.5	6.8	6.7	6.8	6.9	6.75	6.8	6.8	7	6.7	6.6
Na+K	200	110.2	116.1	46.7	50.1	133.7	142.1	81.66	82.22	82.8	80.9
K		4	3.8	4.3	4.8	3.88	3.52	1.5	1.7	2	1.8
Ca	180	166.7	158.6	166.4	170.2	107.6	111.7	155.3	166.4	162	157.2
Mg	50	43.8	42.9	37.6	39.4	43.7	45	42.5	43	47.6	45.3
Cu	1	0.007	0.007	0.05	0.5	0.07	0.077	0.006	0.006	0.01	0.009
Zn	5	0.008	0.008	0.05	0.05	0.5	0.046	0.05	0.05	0.08	0.06
Pb	0.03	0	0	0	0	0	0	0	0	0	0
Mn	0.5	0.06	0.06	0.06	0.08	0.05	0.057	0.08	0.08	0.1	0.09
As	0.05	0	0	0	0	0	0	0	0	0	0
P	5	4.3	4	2	2.5	3.4	4	3.4	3.8	4.7	4.3
Cr	0.05	0	0	0	0	0	0	0	0	0	0
Fe	0.3	0.207	0.213	0.231	0.244	0.277	0.28	0.244	0.258	0.272	0.255
Cl	350.5	18.9	17.8	14.2	15.4	34.2	35	16.77	17.02	17.02	16.98
S	500	308.1	311.5	208.3	210.2	222.4	234.6	225.3	234.1	241.1	232.5
Ammonia nitrogen	2	0	0	0.33	0.36	0	0	0.35	0.42	0.5	0.45
Nitrates	45	0	0	0	0	0	0	0.77	0.75	1	0.92
F	1.2	0.66	0.6	0.55	0.61	1.2	1.18	0.47	0.5	0.55	0.5
Oil	0.1	0.06	0.07	0.08	0.08	0.06	0.07	0.08	0.08	0.1	0.09
Suspended solids	0.25	0.15	0.17	0.23	0.25	0.23	0.25	0.2	0.2	0.38	0.3
COD	30	10	103.2	11.9	12	10.4	11.2	10.4	10.2	17.3	12.7
BOD	6	4.7	4.9	5.7	5.9	4.9	5.3	4.8	4.7	8.5	6

**Table 7: Water Quality Measurements for April 2013**

Water Quality Measurements in April 2013											
Substance	MPC	Karabalta 1	Karabalta 2	Aksu 1	Aksu 2	Shorgo 1	Shorgo 2	Shu 1	Shu 2	Sandwash 1	Sandwash 2
pH	6.5-8.5	7.12	7	8	8.42	7.16	8.4	6.83	7.5	8.24	8.4
Na+K	200	105.6	99.7	78.7	48.5	157.5	51.2	151.2	65.7	122.3	43.3
K		3.2	2.7	20.3	4.8	7.9	6.08	5.7	2.89	5.7	0
Ca	180	148.5	140.3	125	77.5	74.7	76.3	78.9	172.6	89.8	70.2
Mg	50	16.3	40.8	42.2	49	85.3	47.1	74.7	43.4	68	25.5
Cu	1	0.01	0.01	0.07	0.05	0.05	0.06	0.008	0.007	0.02	0.01
Zn	5	0.03	0.05	0.08	0.05	0.08	0.08	0.1	0.09	0.09	0.08
Pb	0.03	0	0	0	0	0	0	0	0	0	0
Mn	0.5	0.11	0.13	0.12	0.11	0.12	0.12	0.11	0.13	0.13	0.1
As	0.05	0	0	0	0	0	0	0	0	0	0
P	5	12.3	15.2	17.79	26.39	20.43	25.88	13.06	15.8	17.9	19.8
Cr	0.05	0	0	0	0	0	0	0	0	0	0
Fe	0.3	0.49	0.3	0.55	0.34	0.39	0.28	0.209	0.3	0.4	0.29
Cl	350.5	10.45	9.07	12.96	9.05	33.75	10	32.89	26.4	9.42	13.57
S	500	389.3	15.8	86.37	159.5	352.5	172.5	363.6	155.2	374.3	123.3
Ammonia nitrogen	2	0	0	0	0	0	0	0	0	0	0
Nitrates	45	4.89	0	7.27	5.05	0	2.9	0	0	4.13	11.08
F	1.2	0.65	0.63	0.24	0.88	1.04	1.04	1.68	1.15	0.63	0.58
Oil	0.1	0.014	0.02	0.04	0.03	0.025	0.025	0.02	0.03	0.02	0.027
Suspended solids	0.25	1.09	1.1	3.08	3.09	1.87	1.44	2.5	2.2	2.1	2.59
COD	30	12.4	11.8	10.3	10	10	9.5	9.33	10.6	15.2	11.3
BOD	6	5.8	5.3	5.2	4.9	4.8	4.4	4.6	5.3	7.3	5.4

**Table 8: Water Quality Measurements for May 2013**

Water Quality Measurements in May 2013											
Substance	MPC	Karabalta 1	Karabalta 2	Aksu 1	Aksu 2	Shorgo 1	Shorgo 2	Shu 1	Shu 2	Sandwash 1	Sandwash 2
pH	6.5-8.5	8.3	7.1	8.38	8.4	8.4	6.9	6.9	8.3	8.08	6.8
Na+K	200	112.4	118.3	75.4	77.3	147.5	132.4	85.2	70.6	116.8	47.6
K		4	3.8	5.88	5.22	6	5.6	3.2	3	4.8	1.2
Ca	180	155.4	160.1	157.6	160.1	80.6	122.4	155.3	160.2	77.9	69.1
Mg	50	59.3	44.6	47.5	45.2	64.5	38.9	50.7	45.8	50.6	30.4
Cu	1	0.007	0.005	0.05	0.06	0.07	0.09	0.007	0.0077	0.007	0.006
Zn	5	0.07	0.08	0.11	0.14	0.11	0.16	0.16	0.14	0.14	0.11
Pb	0.03	0	0	0	0	0	0	0	0	0	0
Mn	0.5	0.15	0.11	0.144	0.14	0.09	0.11	0.13	0.148	0.103	0.13
As	0.05	0	0	0	0	0	0	0	0	0	0
P	5	10.1	10	22.3	22.5	21.9	21.87	20.1	21.6	15.1	14.6
Cr	0.05	0	0	0	0	0	0	0	0	0	0
Fe	0.3	0.38	0.37	0.26	0.227	0.276	0.289	0.247	0.263	0.35	0.3
Cl	350.5	10.29	11.76	8.37	8.31	25.7	29.7	13.9	12.3	10.5	11
S	500	477.2	490.3	169.3	170.6	283.1	328.5	101.3	99.6	288.3	264.3
Ammonia nitrogen	2	0	0	0	0	0.12	0.14	0	0	0	0
Nitrates	45	0	1.53	1.1	1.2	0	0	6.86	6.19	2.8	2.1
F	1.2	0.22	0.2	0.98	1.06	1.2	1.3	0.7	0.66	0.47	4
Oil	0.1	0.03	0.04	0.05	0.05	0.04	0.05	0.03	0.03	0.04	0.02
Suspended solids	0.25	0.64	0.077	0.47	0.5	0.78	0.96	0.35	0.38	1.4	0.8
COD	30	9.66	10	8.4	9	11.7	10.9	10.2	10.5	11.2	10.1
BOD	6	4.7	4.9	4	4.3	5.4	5.3	4.9	5	5.1	4.8

**Table 9: Water Quality Measurements for June 2013**

Water Quality Measurements in June 2013											
Substance	MPC	Karabalta 1	Karabalta 2	Aksu 1	Aksu 2	Shorgo 1	Shorgo 2	Shu 1	Shu 2	Sandwash 1	Sandwash 2
pH	6.5-8.5	8.36	8.31	7.9	8.1	8.3	8.25	6.92	7.5	6.97	7.1
Na+K	200	115.1	120.1	72.3	75.1	146.8	134.1	82.1	69.4	120.1	45.8
K		3.7	3.4	5.32	5.27	5.8	5.2	3	2.7	4.5	1.31
Ca	180	147.8	157.7	152.4	158.9	83.4	124.5	147.8	156.8	75.2	72.2
Mg	50	48.7	43.8	44.5	44.3	66.2	36.7	49.5	44.7	51.4	31.2
Cu	1	0.0065	0.008	0.043	0.062	0.077	0.083	0.0072	0.0075	0.0069	0.0068
Zn	5	0.062	0.09	0.12	0.12	0.13	0.15	0.18	0.16	0.16	0.13
Pb	0.03	0	0	0	0	0	0	0	0	0	0
Mn	0.5	0.13	0	0.153	0.149	0.087	0.091	0.11	0.13	0.132	0.14
As	0.05	0	0	0	0	0	0	0	0	0	0
P	5	10.7	9.7	22.1	22.8	22.1	22.03	20.7	20.4	16.2	13.9
Cr	0.05	0	0	0	0	0	0	0	0	0	0
Fe	0.3	0.34	0.35	0.273	0.265	0.253	0.277	0.223	0.224	0.297	0.291
Cl	350.5	11.3	12.12	9.42	8.15	27.1	31.2	12.7	12.8	12.3	12.3
S	500	452.8	481.2	171.4	167.8	274.4	317.8	114.1	110.5	266.3	272.3
Ammonia nitrogen	2	0	0	0	0	0.1	0.151	0	0	0	0
Nitrates	45	0	1.67	1.3	1.1	0	0	6.23	6.32	3.3	2.23
F	1.2	0.31	0.35	0.81	1.064	1.23	1.25	0.8	0.62	0.62	0.45
Oil	0.1	0.04	0.041	0.041	0.046	0.042	0.043	0.035	0.034	0.052	0.03
Suspended solids	0.25	0.71	0.68	0.49	0.54	0.62	0.85	0.3	0.34	1.55	0.74
COD	30	11.1	11	7.6	9.7	10.5	10.3	10.8	10.1	10.4	11.2
BOD	6	5.4	5.3	3.7	4.7	5.1	4.9	5.3	4.8	5	5.4

### 3.3. Contractor's Health and Safety Management

In the aspect of health and safety the main Contractor requires all subcontractors to assign personnel to be:

1. "responsible person for performance of construction and assembly works "
2. "responsible person for fire protection"
3. "responsible person for safety work performance of an erecting crane"
4. "responsible person for gas supply"
5. "responsible person for electricity supply"
6. "responsible person for provision special cloths and other facilities for individual protection of workers"

In case of accident, the Contractor is to submit brief summary about the accidents as part of the monitoring activities for the previous month. A listing of the road accident for the previous six months along the project road is shown below:

**Table 10: List of Accidents in Jan. – Jun. 2013**

Occurrence Date/Time	Description
09.03.2013 / 14:30 AM	Road accident along "Blagoveshenka-Aspara" km 271+700, vehicle – Suzuki, plate number A 162 HK driven by Mr. Sheldykbayev A. A. veered off from the road. Traffic police of Shu region was informed upon their arrival at the scene of the accident, after that, the car was removed from the scene. No injuries were reported. As of now, rock fines were scattered at the accident spot on the road and all relevant traffic signs were installed.
07.05.2013 / 9:30 AM	At km 276 of Blagoveshenka-Aspara road, the dump truck "Shakman" plate number A 320 HW driven by driver Mr. Ospankulov A (1987) was traveling on a high speed, lost control and fell into the ditch. No injury was sustained by the driver. This dump truck belongs to the Subcontractor "Arnur-Dastan" LLP. The dump truck was eventually removed from the accident spot.
13.05.2013 / 03:00 AM	At km 303+540 of the Aspara-Blagoveshenka road, Volkswagen car with plate number H 420 UVM was traveling from "Merke-Almaty" and hit the concrete block placed at the edge of LHS shoulder. Second car Audi H 819 TAM also traveling at the same direction saw the accident and stopped on the road to help the first car. In the mean time Mercedes bus traveling from the same direction crashed against both vehicles. Both vehicles veered off into the ditch. Emergency Medical Service and traffic police of Merke region were been informed. Volkswagen driver suffer minor injuries and was taken to regional hospital.
11.06.2013 / 10.30 AM	At 263+500 car Daewoo Nexia plate number A 419 CUP driven by driver Asabayev E. Z. was traveling from Taraz side hit the tipper (dumptruck) HOWO plate number H 817 TVM which belongs to the Subcontractor "Baiterek" LLP. While the driver of the Daewoo was overtaking, he hit the rear wheel of tipper. Driver and three passengers were not injured though. All relevant traffic signs were on place at the time of accident.

Occurrence Date/Time	Description
17.06.2013 / 16:10 AM	At 263+800 a car, Subaru Legacy, with plate number B 7058 AB operated by driver Zhanibekov M. K. lost control, veered off from the road and fell into the ditch. Emergency Medical Service and Road Police of Korday region were informed accordingly. The injured person was taken to Korday regional hospital, where he died of his injuries.

In addition the following safety issues need to be monitored:

- **Use of PPE (including replacement, according to climatic conditions) -** Winter personal protective equipment (PPE) has been provided for the period while replenishment for summer wear were being distributed at the time of inspection. The Contractor was reminded that supervisors must control strictly and observe closely on that the workers were wearing certified special clothes and PPE, which includes the usage, and wear-out date of clothes. Violations on PPE non-usage, alcohol and drug intoxication would result to immediate dismissal of worker.
- **Dust and noise exposure –** As the temperature rose for the summer additional water-carriers were engaged to reduce the dust. Prolonged exposure to harmful conditions should be minimized consisting of poor air quality, mechanical vibrations (noise, vibration, ultra-sound and others) and emissions (ionizing, electromagnetic, laser, ultra-violate and others) on work places.
- **Operations of Equipment and trucks -** All equipment of the site should have necessary copies of documents and testing certificates. Working dump trucks should have their vehicle registration certificate and drivers should have driving license. Every day drivers are to be checked on alcohol drinking and blood pressure levels. The Contractor checks technical status of vehicles that transport people and carries out systematic trainings to drivers for Road traffic regulations and safety road.
- **Construction Hazards (heights, electric shocks, etc.) -** The subcontractor's supervisors should be given instructions or orders on safety compliance. Protection to workers should be provided such as for electrical protection, electric tool, gas protection, harnesses and safety belts.
- **Emergency procedures / Coordination with outside Medical Facilities –** During emergency an action plan for first aid and delivery of injured person to Korday's hospital is to be operationalized. In case of fire the evacuation action plan is to be carried out. Telephone numbers of the Emergency department and ambulance service should be readily available.

### 3.4. Environmental Audit of the Engineer

Environmental Monitoring is among the major tasks of the construction supervision team. Likewise, under the construction contract, the Contractor is obligated to ensure that construction has no or minimal adverse impact to the environment and the communities. The Engineer and the Contractor should have a close collaborative coordination in performing environmental monitoring of activities to be effective in the minimization and avoidance of impacts.

For the purpose of the Bi-annual Environmental Monitoring the CSC Environmental Specialist came to the project site in July 2013 and discovered a number of observable situations where the Contractor can improve in providing added environmental mitigation measures and precautionary measures to improve safety at the workplace.

In addition, these identified issues were presented to the Contractor in a letter<sup>5</sup> (see Annex B). The output of the environmental inspection of the local environmental specialist is included in the Table below entitled “**Observed Issues and Corrective Actions**”.

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<sup>5</sup> Letter to KCC dated 15.07.2013: Ref. No. 130715-741/ Ref: Submission of Information and Performance of necessary measures for environmental protection.

## PART III: ENVIRONMENTAL MANAGEMENT

### 4. ENVIRONMENTAL MANAGEMENT PLAN (EMP)

The main objective of the Environmental Management Plan (EMP) during the implementation and operation of the project to avoid, reduce, or at least minimize the adverse environmental impacts that could result from the activities. Accordingly, the EMP considers all phases of the Project cycle, namely the detailed design, construction and operational phases of the Project. It consists of various mitigation measures needed to be undertaken in the course of the Project cycle

During the construction phase, certain situations can arise which may not have been anticipated by the Contractor. It is for this reason that the project EMP is considered as a dynamic document which need to be revised by the Contractor as the need arises. The EMP will be continuously updated to include issues unforeseen during the formulation of the IEE. In this period, the Contractor was reminded to update their EMP to include Borrow Pit Reinstatement Plan.

### 5. OBSERVED ENVIRONMENTAL IMPACTS

During the periodic field mobilization and inspection of the International Environmental Specialist<sup>6</sup> in July 2013 as part of the CSC (the Engineer) Team, the work scope undertaken in coordination with Contractor (KCC) for the project road consisted of the following:

- Field inspection of the worksites in including facilities and ancillary work areas. Field investigation included worksites along the project road sections, borrow pit area, access roads, bridges and canals, and Contractor's work camp.
- Joint field assessment on the current situation of the material sources activities at the following: (i) Yermek – boulder and gravel source; (ii) Sand borrow pit near km 261 (Left Hand Side); (iii) Grave-Sand Quarry with washing equipment at (km) 262+300; (iv) Embankment Borrow pit at km 269+500 (Right Hand Side).
- Detailed inspection was done on the sand-gravel set-up near bridge no. 1 (Shu River).
- Discussion on the permit for the operation of the borrow pit at km 261.
- Discussion on road safety and updating of the Contractor's Environmental Action Plan (CEAP) or EMP and supplemental plans.

Presented below are the environmental, health and safety issues observed at the vicinity of project worksites during the actual monitoring of the CSC personnel, and field reconnaissance of the CS international environmental specialist.

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<sup>6</sup> Mr. Samuel E. Sapuay, Kocks Consult International Environmental Specialist was at the project site in July 2013 to perform Environmental Monitoring

**Table 11: Observed Issues and Corrective Actions**

No.	Observations <sup>7</sup>	Description of Proposed Corrective Actions or Measures	Responsible Entities	Target Deadlines
1	<p><u>Silt Contamination at the gravel and sand washing equipment</u> – (1) The sand/gravel washing equipment process still produces considerable silt materials [Photo No. 1]. (ii) Due to the need to produce quality materials, containment ponds have to be developed in the areas adjacent to previous containment ponds since these ponds were already filled up [Photo No. 2]; (iii) As a result a number of ponds were already developed into siltation ponds for the operation and as observed grass have already grown in the previous ponds [Photo 3]; (iv) with the elevation proper modification and improvement of the filter berms, water quality of the Shu River was maintained [Photo Nos. 4 &amp; 5]</p>	<p>Ponds should be maintained by de-silting and planned for sequential usage. Hence, the following are necessary: (1) Planned sequence usage for the ponds (2) De-silting operations (3) Reinstatement Plan</p>	Contractor: (1) De-silting of ponds	Contractor: (1) Immediately
			(2) Produce the Plan for the Sequenced Usage of the Ponds	(2) Within one month
			(3) Reinstatement Plan	(3) Within 3 months
			CS Consultant: - monitor activities	Regular Inspection Days
2	<p><u>Contamination and solid waste issues at Subcontractor (MO-1) Camp</u> – During inspection, the following were observed: (1) Petroleum Contamination on the ground; (2) Uncollected garbage and dirty work camp. [Photo No. 6]</p>	<p>Sanitary conditions should be maintained at the work camps at all times.  Re-instatement of the work camps should be done by the Subcontractor prior to demobilization</p>	Contractor should ensure that camp grounds are always in sanitary conditions	Daily Monitoring
			Reinstatement should be monitored by Contractor	During and after demobilization

<sup>7</sup> Observed Issues on July 13, 2012

CONSTRUCTION SUPERVISION OF THE ASPARA-BLAGOVESHENKA SECTION IN ZHAMBYL OBLAST,  
INVESTMENT PROGRAM PROJECT 4  
Bi-Annual Environmental Monitoring Report for Jan.-Jun 2013

No.	Observations <sup>7</sup>	Description of Proposed Corrective Actions or Measures	Responsible Entities	Target Deadlines
	Accordingly, the Contractor instructed the Subcontractor to clean-up the area and the Subcontractor complied [Photo No. 7].		CS Consultant – to monitor	Weekly Monitoring
3	<u>Improper Solid Waste Management at the Subcontractor's Site</u> – Rubbish scattered at the Campsite of the Subcontractor (Almanty Instroi) [Photo No. 7].	The Contractor should regularly inspect sites of subcontractors and instruct them to comply with EMP and all prevailing regulations, particularly on solid waste management	Contractor to inspect Subcontractor to Comply	Daily Monitoring
			CS Consultant – to monitor	Weekly Monitoring
4	<u>Spilled diesel from truck at Almanty Instroi's Camp</u> – Lubricant barrels exposed without covering or not under any shed [Photo No. 9]	Sub-contractor should scrap contaminated soil and dispose them appropriately.	For compliance by the Sub-contractor and supervised by the Contractor.	Immediately
		The Contractor should instruct the subcontractor to avoid or minimize spills of petroleum liquids in the work camp.	Letter of violation as a warning should be issued by Contractor to his Subcontractor	Immediately
	<u>Exposed barrels causing contamination</u> – Traces of oil spill were found near the truck which could most probably occurred during truck maintenance [Photo No. 10]	Sub-contractor should scrap contaminated soil and dispose them appropriately.	For compliance by the Sub-contractor and supervised by the Contractor.	Immediately
		The Contractor should instruct the subcontractor to place barrels under shed and provide concrete pad underneath them	Letter of violation as a warning should be issued by Contractor to his Subcontractor	Immediately

CONSTRUCTION SUPERVISION OF THE ASPARA-BLAGOVESHENKA SECTION IN ZHAMBYL OBLAST,  
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No.	Observations <sup>7</sup>	Description of Proposed Corrective Actions or Measures	Responsible Entities	Target Deadlines
	<u>Clean-up work performed by Almaty Instroi's Camp at their camp</u> – performance of Clean-up were done by the Sub-contractor after instruction by the Contractor [Photo No. 11]	Measures undertaken and instruction complied with	Sub-contractor complied Contractor instructed	Complied
		Such situations should be maintained	Sub-contractor to comply Contractor to instruct	Always
			CS Consultant – to monitor	Weekly Monitoring
5	<u>Dust generation at the un-watered part of the road</u> – Due to dry period in summer, unpaved road segments becomes dusty quickly and easily [Photo No. 12]  Well-watered segment of the road [Photo No. 13]	Contractor should increase frequency of watering the road	For compliance by the Contractor	Always
			CS Consultant – to monitor	Daily Monitoring
6	<u>Construction waste being thrown into the river at Karabalta River Bridge</u> – Workers of bridge Sub-contractor were disposing construction debris into the river. [Photo No. 14]	Contractor should instruct Sub-contractors not to dispose debris materials into the river.	For compliance by the Sub-contractor	Immediately
		Contractor should come up with ways to dispose construction waste in accordance with EMP	Contractor should produce a reasonable way	Immediately
7	<u>Construction debris dumped into the Karabalta River and affecting flow direction</u> – Rubbles from demolished structures were dumped on the bed of the river; because of this, the flow of the river was modified and resulted in erosion of some un-protected stretch of the river bank [Photo No. 15]	The Contractor should remove the dumped rubble and rearrange the water path to prevent erosion of the river bank	For compliance by the Contractor	Immediately

CONSTRUCTION SUPERVISION OF THE ASPARA-BLAGOVESHENKA SECTION IN ZHAMBYL OBLAST,  
INVESTMENT PROGRAM PROJECT 4  
Bi-Annual Environmental Monitoring Report for Jan.-Jun 2013

No.	Observations <sup>7</sup>	Description of Proposed Corrective Actions or Measures	Responsible Entities	Target Deadlines
8	<u>Demolition debris should be hauled away to approved places</u> – Debris from demolition were found along side the road. [Photo No. 16]	The Contractor should decide with the Employer the final disposal sites for these materials	For compliance by the Contractor to decide with Employer	Within the next Quarter
	<u>Removed old infrastructure should be placed in approved location</u> – Old structures removed during construction were put alongside the road [Photo No. 17]		CS Consultant to facilitate with Employer	
9	<u>Borrow Pit being operated by Contractor near km 261</u> – Borrow pit is being operated by the Contractor, extracting sand and gravel materials and transporting them to the washing equipment (See Annex C for permit). [Photo No. 18]	The basic requirement for opening and operating borrow pit is the obtaining of the permit. The Contractor said that permit is being processed	Contractor to present the permit once obtained	As soon as possible
		Reinstatement plan should be drafted by the Contractor	CS Consultant to review the reinstatement plan	After submission by Contractor
10	<u>Periodic watering activities at the cement concrete batching plant</u> – To suppress dust, the Contractor was spraying water on the grounds of the batching plant. [Photo No. 19]	Water spraying should be done regularly	For compliance by the Contractor	Daily
11	<u>Diesel spills at the fuel refilling area</u> – Spillage of diesel were found at the area where the diesel supply truck was stationed. [Photo No. 20]	Refilling equipment should be maintained to avoid spillage	Contractor to implement	Immediately
		Personnel should be instructed to avoid/ prevent spills when filling	CS Consultant – to monitor	Weekly Monitoring

CONSTRUCTION SUPERVISION OF THE ASPARA-BLAGOVESHENKA SECTION IN ZHAMBYL OBLAST,  
 INVESTMENT PROGRAM PROJECT 4  
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No.	Observations <sup>7</sup>	Description of Proposed Corrective Actions or Measures	Responsible Entities	Target Deadlines
		tanks of vehicles Place concrete pad to prevent soil contamination		
	<u>Fuel refilling area being protected from contamination by lean concrete</u> – To minimize soil contamination, lean concrete was applied to the area where the diesel supply truck is being stationed. [Photo 21]	The effectiveness of lean concrete to prevent soil contamination should be monitored	Contractor to conduct inspection	Regularly
CS Consultant – to monitor			Weekly Monitoring	

## 6. NOTICES AND LETTERS

During the six-month period, the CS Consultant had been actively monitoring the Contractor's performance in the environmental and social aspects. Issues were identified and communicated formally to the Contractor in the form of official letters. A listing of such letters on the environmental aspects and their status is shown below:

**Table 12: Letters on Environmental Issues and Concerns (Jan.-Jun. 2013)**

Letter No.	Dated	Ref.	Content	To/From
1	07.01.2013	130107-PD-417	Traffic Accident	to KCC
2	23.01.2013	130120-PD-439	Notice of Accidents 23 January 2013 – Road Accident	to SAI
3	15.02.2013	130215-PD-458	Accident Report on 14th February 2013	to KCC
4	07.03.2013	130307-PD-503	Ecological report - January 2013 – Asking the contractor to verify water quality readings	to KCC
5	15.03.2013	130315-PD-529	Dust – Generation of dust at asphalt patching section	to KCC
6	08.01.2013	130108-PD-419	Accident in the Crusher Plant	to KCC
7	10.01.2013	KOCKS/248/2013	Response to letter No. 130108-PD-419 – report on emergency event on the crusher	from KCC
8	24.01.2013	KOCKS/259/2013	Response to letter No. 130123-PD-440 – traffic accident report	from KCC

## 7. CORRECTIVE ACTION PLANS

Within January - June 2013 environmental monitoring was performed on the road under construction contract of Kocks Consult GmbH, namely the **Aspara-Blagoveshenka Section in Zhambyl Oblast: Investment Program Project 4**. This yielded a number of observable issues which the Contractor had to mitigate. This report also presents recommended mitigation measures which can be implemented by the Contractor to mitigate the observed situation and should be inspected by CSC Inspectors.

Most of the issues encountered in this periodic inspection were in the aspect of safety, environmental documentary, borrow pit management, dust control, and campsite solid waste management and oil contamination. The measures to mitigate impacts were recommended accordingly and discussed within this report. Intensive inspection was undertaken by the International Environmental Specialist in the early part of July and the result of which was presented in a letter (130715-PD-741) dated July 15, 2013. A follow-through inspection was done on July 18, 2013 (Photos in Annex A) with the following results:

- (i) Clearing up of the Sub-Contractor's (MO-1) camp grounds;
- (ii) Clean-up at Almaty Instroi's Camp;
- (iii) Provision of lean concrete at fuel refilling area.

With regards to the borrow pit being operated by KCC at km 261, a permit was embodied in the Contract between Upravlenie Prisoednyh Resursov Regularoniy Prirodopolzovaniya Akimata Zhambylskoi Oblasti (Division for the Management and Development of Natural Resources of the Local Government of Zhambyl Oblast) and KCC Engineering and Construction Co. A copy of the permit these documents are shown in Annex C.

The Descriptions of Proposed Measures included in "Table 11: Observed Issues " has to be complied with by the Contractor at the specified deadline (Column 5). A follow-up of these issues shall be done in the regular inspection and monitoring of the Engineer.

# **ANNEXES**

## **Annex A: Environmental Monitoring PHOTOS**



**Photo No. 1 : Gravel and sand washing equipment**



**Photo No. 2 : Current washing water containment pond**



Photo No. 3 : A number of ponds were developed into siltation ponds



Photo No. 4 : Filter berm level was increased to function properly



Photo No. 5 : Threat of silt contamination to Shu River was eliminated



Photo No. 6 : Contamination and solid waste issues at Subcontractor's (MO-1) camp



Photo No. 7 : Clearing up of camp grounds prior to Sub-Contractor's (MO-1) demobilization



Photo No. 8 : Improper solid waste management at Almanty Instroi's Camp



Photo No. 9 : Spilled diesel from truck at Almanty Instroi's Camp



Photo No. 10 : Exposed barrels causing contamination



Photo No. 11 : After clean-up at Almaty Instroi's Camp

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Photo No. 12 : Dust generation at the un-watered part of the road



Photo No. 13 : Watered roadway



Photo No. 14 : Construction waste being thrown into the river at Karabalta River Bridge



Photo No. 15 : Construction debris dumped into the Karabalta River and affecting flow direction



Photo No. 16 : Demolition debris should be hauled away to approved places



Photo No. 17 : Removed old infrastructure should be placed in approved location



Photo No. 18 : Borrow Pit being operated by Contractor near km 261



Photo No. 19 : Watering to suppress dust at the cement batching plant near the camp



Photo No. 20 : Diesel spills at the fuel refilling area



Photo No. 21 : Fuel refilling area being protected from contamination by lean concrete



Photo No. 22 : Parametric measurements in January 2013



Photo No. 23 : Parametric measurements in February 2013



Photo No. 24 : Parametric measurements in March 2013



Photo No. 25 : Parametric measurements in April 2013



Photo No. 26 : Parametric measurements in May 2013



Photo No. 27 : Parametric measurements in June 2013

**Annex B:  
Copy of Letter to KCC on Environmental  
Protection**

CONSTRUCTION SUPERVISION CONSULTANT (CSP-7) - JOINT VENTURE

<b>Head Office Koblenz</b>  Kocks Consult GmbH, P.O.Box 200963 D-56068 Koblenz Phone: +49 261 1302-0, Fax.: +492611302400	<b>Republic of Kazakhstan Office</b>  Kocks Consult Almaty Branch, P.O.Box 200963 050022 Almaty, Kurmangasi Str.84 A Tax ID: 600700671999 BIN: 12141011853	<b>Site Office</b>  Km 56 Shu-Kordai road Shu region Zhambyl Oblast Tel. +7 7263 629 224	

**KCC Engineering & Construction Company**  
Site Office Kordai District  
To The Project Manager  
Kordai District  
Kordai-Shu Road Km 65 км

Attention Mr. Kim Woo Keun

**Distribution:**  
MoTC: one (+) copy  
ZOD: one (+) copy  
Contractor: one (+) original  
RE: one (+) copy  
PMC: one (+) copy  
PD: one (+) copy

**Your Ref.:**                      **Our Ref.:** 130715-PD-741                      **E-Mail:** Hewage@kocks-ing.de                      **Contact:** Upali Hewage                      **Date:** 15.07.2013

**Subject:** Contract L2735-KAZ: MFF CAREC Transport Corridor I Investment Programme, Project 4 (Aspara – Blagoveshenka)  
**Ref.** Submission of information and performance of necessary measures for environmental protection  
Представление информации и выполнение необходимых мер по охране окружающей среды

<p>Dear Sirs,</p> <p>From the site inspection result of our International Environmental Specialist you are herewith instructed to submit and/or undertake the following:</p> <ol style="list-style-type: none"> <li><b>Additional traffic signs</b> – since the Blagoveshenka bound traffic will have to merge to the outer lane at Km 310+500, traffic sign for this purpose would have to be provided. The Contractor would have to coordinate with the Contractor of Project 2 for installation of such signs.</li> <li><b>Necessary Documentation for Stockpiles</b> – The Contractor should provide all the necessary documentations of all permanent soil stockpile areas being used by the project.</li> <li><b>Documentation of borrow pit</b> – the Contractor should provide copies of all documents submitted to authorities for the processing of permit. In addition, technical description of the burrow area should also be presented such as coordinates of boundaries, layout maps, depth of excavation and volume of materials to be extracted.</li> </ol>	<p>Уважаемые господа,</p> <p>В результате проверки участка нашим Международным Специалистом по охране окружающей среды настоящим Вам поручается представить и/или предпринять следующее:</p> <p><b>А) Дополнительные дорожные знаки</b> – Так как движение по п. Благовещенка будет сопряжено с крайней полосой движения на км 310+500, необходимо обеспечить наличие дорожных знаков в данной связи. Подрядчику необходимо согласовать с Подрядчиком Проекта 2 установку данных знаков.</p> <p><b>Б) Необходимые документы на штабеля</b> – Подрядчику необходимо представить все необходимые документы на все постоянные склады грунта, которые используется в Проекте.</p> <p><b>В) Документация на карьеры</b> – Подрядчику необходимо представить копии всех документов, которые были представлены в инстанции для получения разрешения. Кроме того, должны быть представлены технические описания площади карьеров, такие как координаты границ, топологические карты, глубина выемки и объем добываемых</p>
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Sparkasse Koblenz, Swift MALADES1KOB  
IBAN DE98 5705 0120 0001 0243 89, Acc. 1 024 389  
Deutsche Bank AG, Koblenz, Swift DEUTDE33HAN  
IBAN DE91 5707 0045 0024 0101 00, Acc. 0 240 101

Inferior Court, Koblenz HR B 13 10  
Tax No. 22/650/0527/1  
VAT Reg. No. DE148722247  
Certification DIN EN ISO 9001 : 2000

Board of Directors  
Dipl. Geol. Dr. Henning Kocks MBA  
Dipl.-Ing. Michael Lemhos  
Dipl.-Ing. Ulrich Sprick

CONSTRUCTION SUPERVISION CONSULTANT (CSP-7) - JOINT VENTURE

			
<b>Head Office Koblenz</b>  Kocks Consult GmbH, P.O.Box 200963 D-56068 Koblenz Phone: +49 261 1302-0, Fax.: +492611302400	<b>Republic of Kazakhstan Office</b>  Kocks Consult Almaty Branch, P.O.Box 200963 050022 Almaty, Kurmangasi Str.84 A Tax ID: 600700671999 BIN: 12141011853	<b>Site Office</b>  Km 56 Shu-Kordai road Shu region Zhambyl Oblast Tel. +7 7263 629 224	

<p>4. <b>Unsanitary area and presence of contamination</b> – During the spot inspection at the Subcontractors' camp (for Almaty Inztroy and MO-1) unsanitary conditions and presence of contamination were evident. The Contractor should ensure that the Subcontractors follow the requirements on proper camp maintenance as per the EMP.</p> <p>5. <b>Proper disposal of demolished debris</b> – the Contractor should decide with the Employer the disposal sites for demolished debris or proposed dumping areas of such materials. The disposal sites should be submitted to the Engineer.</p> <p>6. <b>Spreading or hauling of soil stockpile</b> – the mounds of soil found along the road should be spread out or hauled away by the Contractor as part of their construction activities.</p> <p>7. <b>Prevention of diesel spill and provision of concrete pavement at fuel refilling truck area</b> – fuel spills were found at the refilling truck area; the Contractor is hereby instructed to be strict with personnel operating the equipment for refilling and to cast concrete pavement at the refilling area to prevent soil contamination in the area.</p>	<p>материалов.</p> <p>Г) <b>Антисанитарная зона и загрязнение</b> – В ходе обследования лагерей Субподрядных организаций (АИС и ТОО «МО-1») были выявлены антисанитарные условия и наличие загрязнений. Подрядчик должен обеспечить следование Субподрядчиками требований по содержанию лагерей согласно ПУОС.</p> <p>Д) <b>Надлежащая утилизация сносимого мусора</b> – Подрядчик совместно с Работодателем должен принять решение по пунктам утилизации сносимого мусора либо пункты отсыпки такого рода материалов. Пункты утилизации должны быть сообщены Инженеру.</p> <p>Е) <b>Распределение или перевозка грунта</b> – кучки грунта вдоль дороги должны быть вывезены Подрядчиком как часть их строительных работ.</p> <p>Ж) <b>Предотвращение разлива дизельного топлива и наличие бетонного покрытия на участках заправки топливом</b> – были обнаружены разливы топлива на участках заправки транспортных средств; Подрядчику настоящим поручается быть более требовательным по отношению к персоналу по эксплуатации оборудованием для заправки и обеспечить наличие бетонного покрытия в зоне заправки для предупреждения загрязнения грунта на данной территории.</p>
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Yours Sincerely



Upali Hewage  
Team Leader/ Resident Engineer  
KOCKS CONSULT GMBH  
Consulting Engineers



Page 2 of 2/ Cmp 2 us 2

Your Ref.:

Our Ref.:  
130715-PD-741

E-Mail:  
Hewage@kocks-ing.de

Contact:  
Upali Hewage

Date:  
15.07.2013

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Certification DIN EN ISO 9001 : 2000

Board of Directors  
Dipl. Geol. Dr. Henning Kocks MBA  
Dipl.-Ing. Michael Leinhos  
Dipl.-Ing. Ulrich Sprick

## **Annex C: Permit for KCC's Borrow Pit Operation**

УПРАВЛЕНИЕ ПРИРОДНЫХ РЕСУРСОВ И РЕГУЛИРОВАНИЯ  
ПРИРОДОПОЛЬЗОВАНИЯ АКИМАТА ЖАМБЫЛСКОЙ ОБЛАСТИ



**А К Т**

**государственной регистрации Контракта  
на проведение операций по недропользованию**

город Тараз

21 декабря 2012 года

Настоящим Актом регистрируется Контракт, заключенный от 20 декабря 2012 года на основании протокола № 15 от 18 октября 2012 года заседания Рабочей группы по проведению прямых переговоров на получение права недропользования на разведку, добычу общераспространенных полезных ископаемых

между

Управлением природных ресурсов и регулирования  
природопользования акимата Жамбылской области  
(Компетентный орган)

и

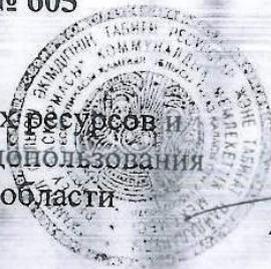
Филиалом акционерного общества «КСС «Engineering &  
Construction Co., Ltd» (КСС Проектирование и строительство) в  
Жамбылской области по Шускому району  
(Подрядчик)

на проведение добычи песка на месторождении Шу-Қордай  
в Шуском, Қордайском районах Жамбылской области.

Полезное ископаемое: песок

Регистрационный № 605

Начальник  
управления природных ресурсов и  
регулирования природопользования  
акимата Жамбылской области



Б. Амиргалиев

Приложение к Контракту

ЮЖНО-КАЗАХСТАНСКИЙ МЕЖРЕГИОНАЛЬНЫЙ ДЕПАРТАМЕНТ  
ГЕОЛОГИИ И НЕДРОПОЛЬЗОВАНИЯ  
МД "ЮЖКАЗНЕДРА"

ГОРНЫЙ ОТВОД

Ю-09-1584

г.Алматы

01 ноября 2012г.

Выдан Акционерному обществу  
«KCC Engineering & Construction Co., Ltd»  
(наименование организации)

на право пользования недрами для добычи песка

на месторождении «Шу-Кордай»

Горный отвод расположен в Кордайском районе  
Жамбылской области  
(административная привязка)

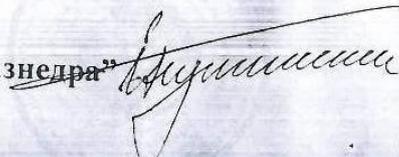
и обозначено на топографическом плане угловыми точками участки №1,2,3 с №1  
по №4; участок №4 с №1 по №5; участок №5 с №1 по №10;  
(перечень угловых точек)

а также на вертикальных разрезах до глубины подсчета запасов

Координаты угловых точек приведены в приложении №1

Картограмма расположения Горного отвода приведена в приложении №2

Площадь Горного отвода составляет 6,9 га  
(шесть целых девять десятых) га

Руководитель МД "Южказнедра"  **Б.Т. Нугманов**

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