Bi-annual Environmental Monitoring Report

Project Number: 46145-001
Bi-annual Report
May 2015

Kazakhstan: CAREC Transport Corridor 3 (Shymkent-Tashkent Road) Rehabilitation Project (Road Section Km 705-742)

Prepared by D. Davies Resident Engineer SMEC International Pty Ltd / Zhol Sapa JV

Bi-annual Environmental Monitoring Report

Loan: 2916 – Kaz

PERIOD COVERED : JULY – DECEMBER 2014

Kazakhstan: CAREC Transport Corridor 3 (Shymkent – Tashkent Road) Rehabilitation Project (Road Section Km 705 – 742)

Benching of batter slopes in Kazygurt Pass

Contract Number : 001 – ADB / CW – 2013

Contractor : JV Todini – Impreglio - Accord

Prepared by : D Davies Resident Engineer SMEC International Pty Ltd / Zhol Sapa JV

Reviewed By : R Mcintyre Social Environmental Specialist. (March 2015)

Monitoring data provided by : Limited Liability Partnership «Eco-Test» Laboratory

Employer: Ministry of Investment and Development Committee for Roads, Astan, Kazakhstan

Financed by : Asian Development Bank

December 2014 (Rev 1.1 May 2015)

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Definitions and Abbreviations

Maximum permissible concentration (MPC) - the maximum amount - per unit of volume or mass that is allowable under the Kazakhstan Legislation for environmental requirements.

Sanitary protection zone (SPZ) - specially dedicated area between the industry and the nearby residential or public buildings. SPZ is created to protect the public from the effects of harmful factors (noise, dust, gases and other harmful emissions containing industrial pollution).

Environmental monitoring- systematic observation and assessment of the environmental conditions to measure the impact that the construction project is having on components including noise levels, water quality, soil quality and air quality.

EMP : Environmetal Management plan.

CSC : Construction Supervision Consultant.

PMC : Project Management Consultant.

EXECUTIVE SUMMARY

- This Environmetal monitoring report covers the period 1st July 2014 – 31st December 2014.
- The Contractor has conducted monthly environmental monitoring of the worksite using licenced laboratory LLP "Eco – Test" to monitor air, soils, water, radiation and noise emissions. He is submitting monthly reports.
- All results are within the Maximum Permitted Concentration levels specified under Kazakhstan Legislation.
- The Contractor is generally following the requirements of the project specific EMP however some areas have been identified as requiring improvement, such as fuel storage and spill protection. These issues have been discussed and agreed as requiring improvement by the Foreign Environmental Specialist and Contractor's Management. They will be implemented by the end of January 2015.
- The Contractor's Monthly reports only covers the testing and not other environmental management measures conducted in accordance with Site Specific EMP
- The Consultant has integrated the Site Specific EMP and ADB EMP, with definitions of sources that would be used in deteriming contractor compliance. This will be used as the key approach and criteria during auditing of 2014 Environmental management practices by the contractor and further environmental amangement practices conducted on 2015.

D Davies
Resident Engineer

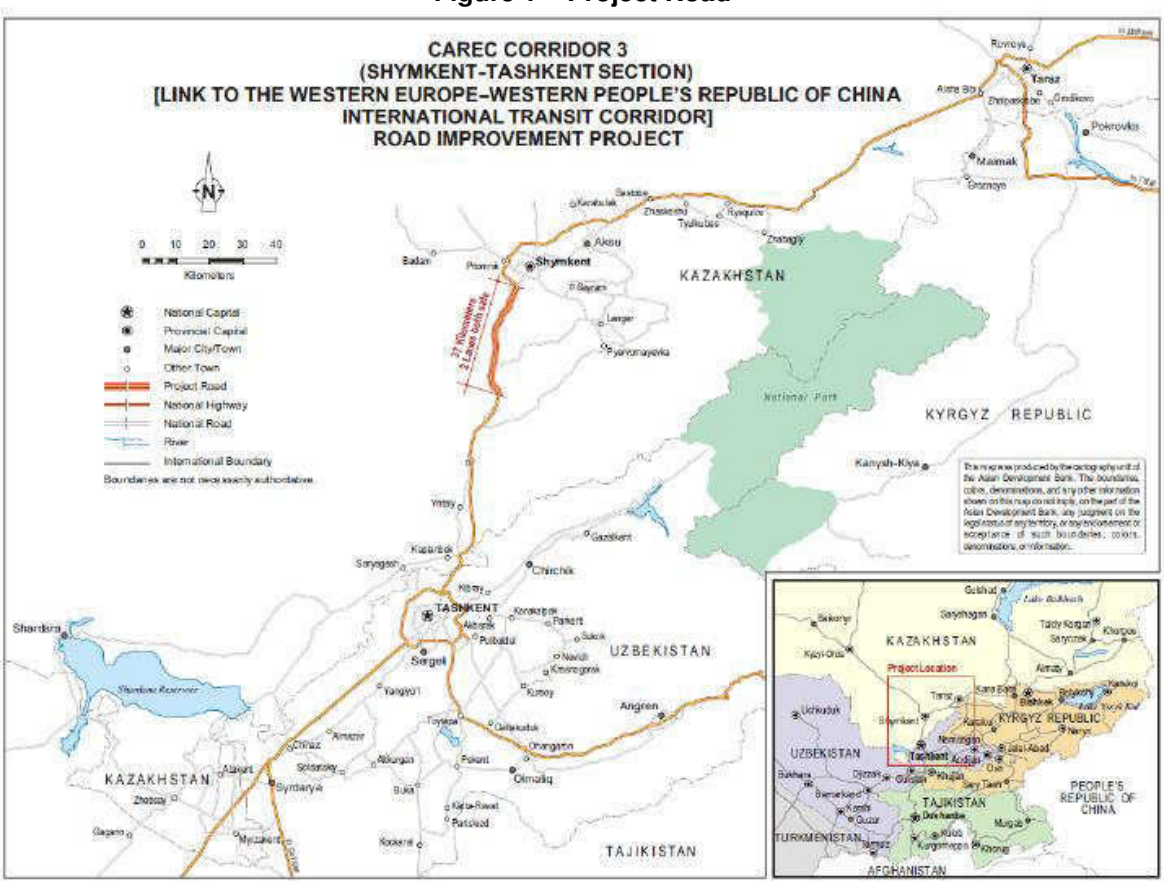
1 Introduction

1.1 Background

The CAREC Corridor 3 is just one of 6 transport and infrastructure networks currently in development in Central Asia. It has 6,900 km of roads and 4,800km of railways, running from west and south of Siberian region of the Russian Federation through Kazakhstan, the Kyrgyz Republic, Tajikistan, Uzbekistan, Turkmenistan and Afghanistan to the Middle East and South Asia (Figure 1).

The Ministry of Investment and Development of the Republic of Kazakhstan has obtained a loan from the Asian Development Bank for procurement of the works for Rehabilitation of Almaty-Korday-Blagoveshenka-Merke-Tashkent-Termez Road Section km 705 to 742 (37.5 km).

Figure 1 – Project Road



1.2 Project Description

The overall impact expected under the project is the development of an efficient transport network in Southern Kazakhstan section of CAREC 3; and the enhancement of closer regional cooperation and increased trade along the CAREC 3.

The scope of work is to rehabilitate a 37.5-km four-lane asphalt-paved section of the road connecting Tashkent, the capital of Uzbekistan, and Shymkent the administrative centre of the South-Kazakhstan Oblast - one of the major industrial cities in Kazakhstan.

The road will be rehabilitated to a Category I road with a 27cm thick cement concrete wearing / riding course placed over a 20cm thick cement treated base-course layer.

The Project road section starts at km 705+621 at the end point of the Shymkent city bypass and ends at km 742+361.

The Civil Construction Contract for the work has been awarded with the Notice to Commence, commencement date being the 18th February 2014. The project was to be completed within 510 days being the 13th July 2015, however the Contractor has been garnted an Extension of Time until the 15th November 2015.

The Contract of construction work has been awarded to the Joint Venture Company of Todini – Impreglio – Akkord. The contracts scope of works are summarised in **Table 1**

Table 1 : Summary of Scope of Works

Scope of Works Item	Construction Contract
	Contract 001
Road Construction Length (km)	37+500m
Culverts (No)	32
Interchange (No)	1
Underpasses (machinery / animals)	7
Earthworks (cutting - excavation) (m3)	1,381,000m^3
Earthworks (embankments) (m3)	524,575m^3
Sub-Base (m3)	527,840
Crushed stone base course (m3)	35,089
Base course (cement treated) (m3)	191,350
Lighting installation (m)	720 m (interchange)
Asphalt base-course (m3)	11,325
Asphalt wearing course (m3)	6,345
Cement concrete pavement (27cm) (m3)	218,184

Project Management (PMC) and Construction Supervision (CSC) is being implemented by the Joint Venture of SMEC International PTY Ltd / Zhol Sapa. The CSC commencement date was the 15th June 2014 and the Resident Engineer commenced duties on the 31st August 2014.

1.3 Objectives of this report

This is the first Semi-annual Environmental Report that has been prepared to meet the requirements of the Contract Provisions of Construction Supervision consulting services provided to the Ministry of Transport and Communication, Committee for Roads of the Republic of Kazakhstan for the CAREC Corridor 3 (Shymkent to Tashkent Section) Road Improvement Project under the ADB Loan 2916 – KAZ. More specifically its purpose is to fulfill the requirements of the Government of Kazakhstan and report to the Asian Development Bank (ADB) on the environment safeguards requirements as written into the Loan Agreement, Project Administration Manual and associated documents and as agreed between the ADB and the Government of the Republic of Kazakhstan.

This report assesses the environmental performance of the construction contractor in relation to Environmental Management and Monitoring on work sites. It cover the Period of July 2014 – 31st December 2014. Work in December 2014 is limited due to freezing conditions and snow / rain events. It is mostly based on review of Monthly Monitoring Reports from the Contractor submitted to the CSC and Environmental Agencies in Kazakhstan – these reports included monitoring data and laboratory analysis of the selected parametres recommended by the EMP.

2 Environmental Management Structure

The Executing agency is the Ministry of Investment and Development, Government of the Republic of Kazakhstan and is responsible for ensuring all environmental ans social safeguards are fully complied within the laws of Kazakhstan and agreements made by ADB.

2.1 Contractor Environmental Management

The contractor has a Health, Safety and Environmental Department of 6 persons dedicated to environmental safeguards, social safeguards and health and safety issues. The head of this Department is Mr Bekbauov Nurasil Asanhanovich. He has qualifications in civil and mechanical engineering with significant construction experience, including his previous position as safety supervisor for 3 years (2011-2013).

The Contractor has been required to employ a qualified Environmental Specialist to develop and implement a Site Specific or Contractor's Environmental Management Plan (CEMP) for the Project Site. Samanov Berik Myrzabekovich is the contractor' Environmental Specialist, with previous experience as environmental engineer on road construction projects and has an Environmental and an Economic University qualification.

The Contractor's Environmental Maagement Chart is included as Annex Two.

2.2 Construction Supervision Consultant (CSC)

The CSC is monitoring the worksite for compliance with the EMP and general sound environmental practice on the worksite.

The CSC's foreign Social / Environmental specialist was on site from the 28th November 2014 until the 16th December 2014. His focus during this visit was to review the Contractor's EMP compliance and to make recommendations for improvement, as well as social issues and PPMS documentation. However, the key focus was placed on resolving urgent social safeguards issues. He will return in February to continue this work, focusing on the social safeguards compliance related issues. From February to June 2015 the International and National Specialist will conduct a full audit review of the project compliance against the EMP, review mitigations required and report through the CSC January to June 2015 Environmental Monsitoring Report to be submitted in July 2015.

No changes to project organization are known to have occurred during the reporting period.

There were no changes to CSC Project Organisation team. The Engineer is awaiting approval of the local Environmental Specialist.

The Environmental Management Plan describes the actions that the Contractor will implement to minimize the impact of his work on the surrounding Environment. To supplement the Management Plan and provide actual evidence about the impact of the construction work the Contractor is required to carry out environmental monitoring on a monthly basis for noise, air quality and water quality at key construction locations.

3 Construction Activities and Progress for work (Period : July – December 2014)

Construction activities and progress for the reporting period July to November 2014 are summarised in Table 2 below and original Project Site Plan presented in Figure 2.

Table 2– Summary of Construction Activities and Progress

Item	Plan to 31st December	Actual to 31st December	% Progress against plan	Comment
Milling old asphalt (km)	37	40,64	109.8%	Ahead
Earthworks (compacted) Km	36	21+900	60.8%	behind
Sub-base (km)	34	19	55.9%	behind
Cement treated Aggregate base (km)	33	14.6	44.2%	behind
Asphalt layer	0	0		not started
Cement Concrete Pavement	33	13.5	40.9%	behind
Culverts (no)	24	22	91.7%	behind
Underpasses (no)	4	2	50%	behind

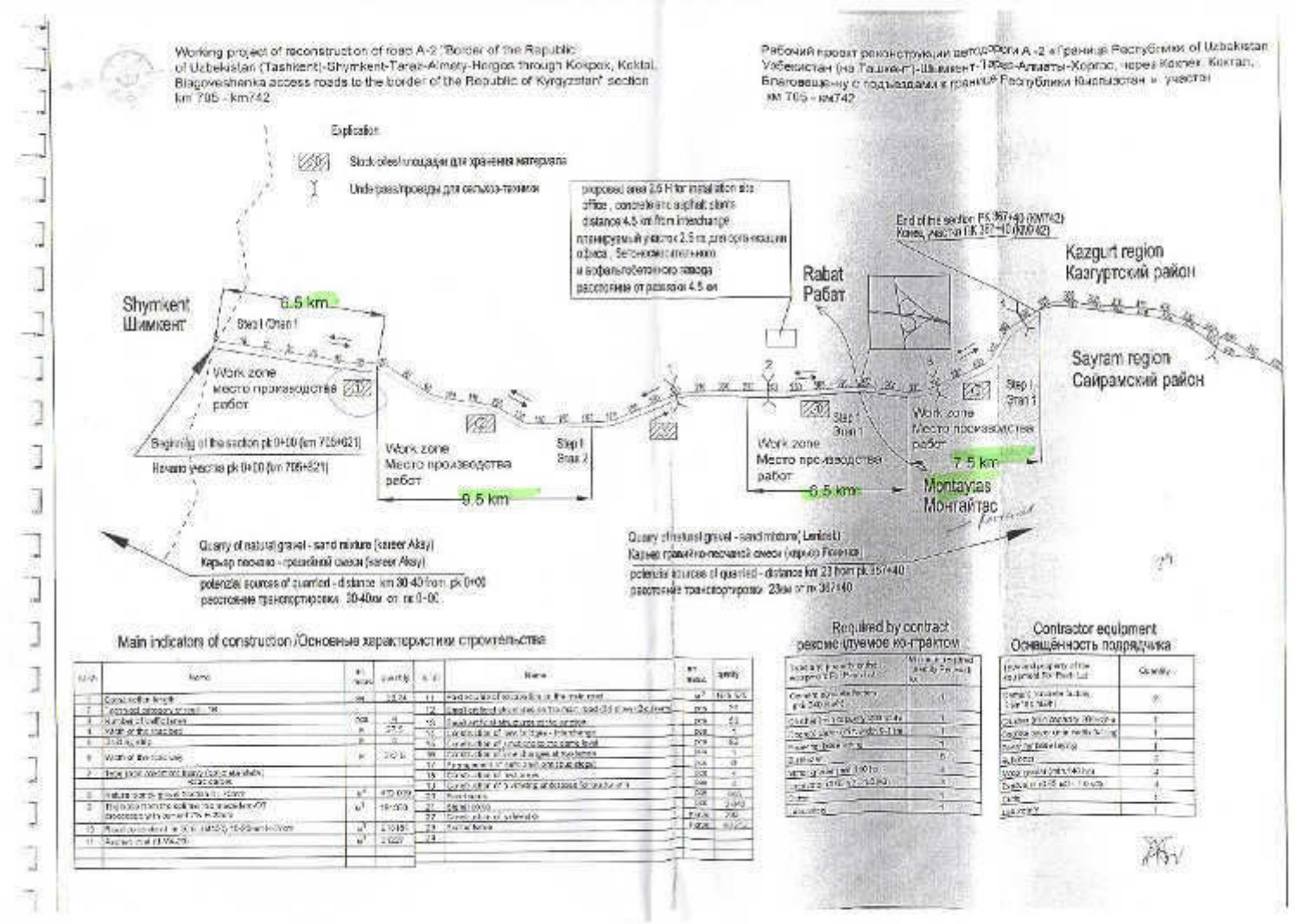
The Contractor has been slow in mobilizing and implementing works. In the period July – December 2014 he managed to implement 13.5km of cement concrete pavement (one direction of dual carriageway) and earthworks excavations in Kazygurt pass.

The concrete batching plant comprises of two separate mixes with rated capacity of 100m3 / hr. The first mixer was commissioned in September 2014 and suffered many commissioning problems with breakdowns and blockages and mix quality problems. The second mixer became operational

in October however it also suffered similar issues and it was not until November that both mixers were working “normally”.

In November and December however work was slowed due to rain / snow events and some delays in cement supply. Eartherworks continued with excavations in Kazygurt Pass throughout the November/December winter period.

Figure 2 – OriginalProject site plan



4 Geography

The project is situated within the South Kazahkstan region. This region is one of the major regions of the country, its territory is 117.3 thousand square meters or 4.3% of the territory of the Republic of Kazakhstan with a population of approximately 2.5 million persons.

The region has 11 districts, 8 towns and 170 rural villages. Shymkent is the capital with a population of approximately 682,565 persons[1]. The Project road is located in three of these Districts (Sairam, Kazygurt and Tolbei) and within Shymkent City limits.

In the west, the area is bordered by Kyzyl-Orda, in the north-Karaganda, East - Zhambyl region and the Kyrgyz Republic and in the south - the Republic of Uzbekistan.

The Region is located within the eastern part of the Turan lowland and western spurs of the Tien Shan. Most of the area is flat, with the hilly-ridge sands Kyzyl Kum steppe Shardara (in the southwest, along the left bank of the Syr Darya) and Moinkum (in the north, along the left bank of Shu).

The northern part is occupied by desert Betpak Dala, in the extreme south - Hungry Steppe (Myrzashol). Central part of the region occupies Tau ridge (mountain Bessaz - 2176 m), the PA-Western southeastern outskirts Talas Alatau ridges Karzhaptau (height up to 2824 m) and Ugamskiy (highest point - Sairam peak - 4238 m.)

The project road extends east from the fringe of Shymkent City (Km 705) and crosses low undulating hills and dry small streams that are only active during snow melt or periods of heavy rainfall. From Km 731 – Km 734 the road climbs at a 7% gradient to cross Kazygurt Pass.

There is a large volume of earthworks (cutting) in this section to reduce the vertical gradient to 5.5% and to improve traffic safety. From Km 734 the road inclines downward exiting Kazygurt pass back onto low undulating terrain.

5 Climatic Conditions

The region is located in a zone of moderate continental climate. According to the zoning of the territory of the Republic of Kazakhstan determined by the Kazakh Research Hydrometeorological Institute, on the potential of atmospheric pollution (1I3A) the area belongs to the zone of high IIZA IV. The average annual temperature is + 11,90C. Temperature minimum and maximum points are -34C in winter (January / February) and + 44C in summer (July – August).

Maximum precipitation occurs in the autumn - winter-spring time. The average annual rainfall is approximately 300mm.

At 44 degree latitude there are approximately 8 hours daylight in winter and 16 hours in summer.

Due to the climatic conditions the working season for road construction works is limited to the period April and December each year. Low temperatures and snow / rainy conditions between December and March make planned construction works impractical.

[1] Source: Statistics Agency of the Southern Kazakhstan Region – estimated population.


Same location Km 33+700 Kazygurt Pass in Autumn (left) and Winter (right)

6 Flora and Fauna

The undulating foothills-rolling plains are cover with short grasses of different types (Poa bulbosa, sedge); ephemera, Japanese brome, Aegilops and lentoostnik, and also meadow grasses (wheat grass, yarrow, licorice).

Sections along the road are cultivated with winter cereal crops (wheat, barley), alfalfa, safflower, corn, cotton and melons.

There are shelter belts of trees growing along each side of the existing carriageways. These are important as they provide a habit for birds and small animals. The land outside these “shelter Belts” is essentially barren of trees.


Typical Roadside vegetation Km 705 – Km 730

The most common weeds ox-tongue, bindweed, Cynodon.

Common rodents such as squirrels, jerboa and field mice are to be found. Other animals found include hedgehogs, shrews and reptiles – (lizards, snakes).

Herds of cattle, sheep, horses and goats graze on the grasses found on the undulating terrain.

Cattle grazing on grasses Kazygurt Pass area Km 35

7 Environmental Monitoring

In accordance with the Contract requirements:

- the Contractor has provided a monthly environmental monitoring report to the Supervision Consultant.
- The Contractor has appointed a qualified Environmental specialist to oversee the environmental management on the project.

7.1 Site Measurement of Key Environmental Parameters

The measurement of environmental parameters is implemented on a monthly basis by the Kazakhstan licensed laboratory LLP “Eco-Test”. This is in accordance with Kazakhstan requirement that such monitoring must be implemented by a properly licensed establishment.

Measurements for air, soil and water indices plus noise measurement is conducted at key locations along the project road by staff of the laboratory.

Table 3 : Laboratory License

S. №	Name of accredited testing laboratory	Passport number and expiration testing laboratory accreditation	The scope of accreditation of testing laboratory
1	**2**	**3**	**4**
1	Sanitary and industrial laboratory LLP "ECO-TEST"	By number KZ .I.16.0654 from 28.12.2009 valid until 28.12.2014	Emissions of pollutants into the air from stationary sources Air in the buffer zone Water / soil Radiological tests

Table 4 : List of Laboratory Staff:

Position	NAME
Head of laboratory LLP "Eco-Test"	Abdiyeva A.P
Engineer-laboratory assistant LLP "Eco-Test"	Shirikova I.P.
Engineer-laboratory assistant LLP "Eco-Test"	Kotova L.N.
Engineer-laboratory assistant LLP "Eco-Test"	Isabayeva G
Laboratory assistant LLP "Eco-Test"	Adilbekov

On the basis of the agreement with the Contractor “Accord” to conduct environmental monitoring, environmental specialists LLP "Eco-Test" have conducted laboratory analytical tests at the site of reconstruction of the A-2 "Khorgos-Almaty-Shymkent border of the Republic of Uzbekistan" (705-742 km.) Testing has been implemented on a monthly basis for the period July – November 2014.

Monitoring of environmental parameters for works implemented by enterprises, organizations and other business entities is in accordance with Article 132 of the Environmental Code of the RK of 9 January 2007 №212-111. According to Article 128 of the Environmental Code of the Republic of Kazakhstan, natural and legal persons engaged in civil works are obliged to monitor environmental impacts of the production.

7.2 Methodology

Sampling, storage, transport and preparation of samples for analysis is carried out in accordance with the approved regulations.

For atmospheric air:

RD 52.04.186-89 "Guidelines for the Control of air pollution."

Water resources:
ST RK GOST R 51592-2003 "Water. General requirements for sampling. "

Soil:
GOST 17.4.402-84 "The Nature Conservancy. Soil. Methods of sampling and sample preparation for chemical, bacteriological and helminthological analysis "

Radiation monitoring:
Manual radiometer-dosimeter "RCC-01-Solo"
(fac. № 19-12).

Sampling points were chosen basis :

Key production points for precast concrete elements (Saule community) and concrete production plant (Km 708 RHS)

From the start of the project at Km 705, and then at regularly spaced intervals along the project road at Km 710, Km 713 (Aktas creek) for water, Km 715 (near aktas village), Km 720, Km 725, Km 730, Km 735 and Km 742.

7.3 Air Quality

Sampling of Air Quality was conducted at regular intervals along the project road (5km intervals) and the concrete batching plant. Air monitoring was conducted on the corresponding resolutions of the Government of the Republic of Kazakhstan dated 25.01.2012, № 168 - "Sanitary - epidemiological requirements for air quality in urban and rural settlements, soil and their security, content areas of urban and rural settlements, the conditions of work with sources of physical factors affecting the person."

The following parameters were determined Inorganic dust, nitrogen dioxide, sulfur dioxide, carbon monoxide, (Carbon black:soot), hydrocarbons & lead. Results are shown in Tables 1a to 1j.

The Concrete Plant air quality measurements are missing some month's of data (Oct to December. The contractor, asked to explain this has reasond that "…until October 2014 permission for environmental emission had not been given by authorities (Permission was eventually granted, dated from 04.09.14). Therefore until October they made measurements. …according to the Environmental assessment, a measurement of dust at the concrete batching plant is not enough. As well, on the concrete batching plant there is loaded materials and there are emissions from equipment. (Nitric oxide, nitrogen dioxide, carbon monoxide, sulfur dioxide, kerosene). Also in the concrete batching plant territory there is a tank for fuel. (hydrogen sulfide, C12-C19 saturated hydrocarbons)…"

The Contractor has introduced regular monitoring points along the project road. All measurements are within the Maximum Permitted Concentration level required by Kazakhstan law. The contractor will be instructed to make appropriate monthly monitoring, regardless of activity at the Concrete batching plant.

Air Sampling at ConcretePlant

TABLE 1a - AIR QUALITY MONTH 2014 (CONCENTRATE AS MEASURED) Km 705								
Item Measured	**July**	**August**	**September**	**October**	**November**	**December**	**Normal MPC mg / m3**	**Comment**
Inorganic Dust	0,22	0,12	0,1	0,15	0,12	0,1	0,3	below allowable maximum
Carbon Monoxide	3	2	2,5	3	2,5	1,5	5	below allowable maximum
Nitrogen Dioxide	0,092	0,09	0,088	0,09	0,088	0,08	0,2	below allowable maximum
Sulphur Dioxide	0	0	0	0	0	0		not specified
Carbon Black	0	0	0	0	0	0	5	below allowable maximum
Hydrocarbons	0	0	0	0	0	0	1	below allowable maximum
Lead	0,00036	0,00034	0,00036	0,00038	0,00036	0,0003	0,001	below allowable maximum

TABLE 1b - AIR QUALITY MONTH 2014 (CONCENTRATE AS MEASURED) Km 710								
Item Measured	**July**	**August**	**September**	**October**	**November**	**December**	**Normal MPC mg / m3**	**Comment**
Inorganic Dust	0,29	0,25	0,2	0,25	0,2	0,09	0,3	below allowable maximum
Carbon Monoxide	4	4	3,5	2,5	3	1,0	5	below allowable maximum
Nitrogen Dioxide	0,095	0,092	0,09	0,082	0,084	0,078	0,2	below allowable maximum
Sulphur Dioxide	0	0	0	0	0	0		not specified
Carbon Black	2	2,5	2	1,2	1	0	5	below allowable maximum
Hydrocarbons	0	0	0	0	0	0	1	below allowable maximum
Lead	0,00038	0,00036	0,00034	0,00028	0,00032	0,0003	0,001	below allowable maximum

	TABLE 1c - AIR QUALITY							
	MONTH 2014 (CONCENTRATE AS MEASURED) Km 715							
Item Measured	**July**	**August**	**September**	**October**	**November**	**December**	**Normal MPC mg / m3**	**Comment**
Inorganic Dust	0,28	0,26	0,24	0,22	0,15	0.15	0,3	below allowable maximum
Carbon Monoxide	4	4,5	4	3,5	3	1,0	5	below allowable maximum
Nitrogen Dioxide	0,093	0,092	0,089	0,087	0,085	0,085	0,2	below allowable maximum
Sulphur Dioxide	0	0	0	0	0	0		not specified
Carbon Black	1,35	2	1,5	1,4	1,5	1,0	5	below allowable maximum
Hydrocarbons	0	0	0	0	0	0	1	below allowable maximum
Lead	0,0004	0,00042	0,0004	0,00034	0,00036	0,00032	0,001	below allowable maximum

	TABLE 1d - AIR QUALITY							
	MONTH 2014 (CONCENTRATE AS MEASURED) Km 720							
Item Measured	**July**	**August**	**September**	**October**	**November**	**December**	**Normal MPC mg / m3**	**Comment**
Inorganic Dust	0,1	0,1	0,25	0,2	0,2	0,12	0,3	below allowable maximum
Carbon Monoxide	1,5	2	2,5	2	2,5	1,5	5	below allowable maximum
Nitrogen Dioxide	0,083	0,084	0,086	0,082	0,084	0,08	0,2	below allowable maximum
Sulphur Dioxide	0	0	0	0	0	0		not specified
Carbon Black	0	0	0	0	0	0	5	below allowable maximum
Hydrocarbons	0	0	0	0	0	0	1	below allowable maximum
Lead	0	0	0	0	0	0	0,001	below allowable maximum

TABLE 1e - AIR QUALITY MONTH 2014 (CONCENTRATE AS MEASURED) Km 725								
Item Measured	**July**	**August**	**September**	**October**	**November**	**December**	**Normal MPC mg / m3**	**Comment**
Inorganic Dust	0,1	0,1	0,12	0,15	0,15	0,11	0,3	below allowable maximum
Carbon Monoxide	2	2	2,5	3	2,5	1,5	5	below allowable maximum
Nitrogen Dioxide	0,085	0,085	0,086	0,09	0,083	0,083	0,2	below allowable maximum
Sulphur Dioxide	0	0	0	0	0	0		not specified
Carbon Black	0	0	0	0	0	0	5	below allowable maximum
Hydrocarbons	0	0	0	0	0	0	1	below allowable maximum
Lead	0	0	0	0	0	0	0,001	below allowable maximum

TABLE 1f- AIR QUALITY MONTH 2014 (CONCENTRATE AS MEASURED) Km 730								
Item Measured	**July**	**August**	**September**	**October**	**November**	**December**	**Normal MPC mg / m3**	**Comment**
Inorganic Dust	0,09	0,09	0,088	0,086	0,09	0,09	0,3	below allowable maximum
Carbon Monoxide	2	2	3	2,5	3,5	1,5	5	below allowable maximum
Nitrogen Dioxide	0,082	0,083	0,09	0,088	0,09	0,09	0,2	below allowable maximum
Sulphur Dioxide	0	0	0	0	0	0		not specified
Carbon Black (soot)	0	0	0	0	0	0	5	below allowable maximum
Hydrocarbons	0	0	0	0	0	0	1	below allowable maximum
Lead	0	0	0	0	0	0	0,001	below allowable maximum

TABLE 1g - AIR QUALITY MONTH 2014 (CONCENTRATE AS MEASURED) Km 735								
Item Measured	**July**	**August**	**September**	**October**	**November**	**December**	**Normal MPC mg / m3**	**Comment**
Inorganic Dust	0,26	0,27	0,2	0,12	0,15	0,12	0,3	below allowable maximum
Carbon Monoxide	4,5	4,5	3,5	3,8	3,5	1,5	5	below allowable maximum
Nitrogen Dioxide	0,092	0,094	0,09	0,084	0,088	0,088	0,2	below allowable maximum
Sulphur Dioxide	0	0	0	0	0	0		not specified
Carbon Black	2	2,8	2,5	2	1,5	1,0	5	below allowable maximum
Hydrocarbons	0	0	0	0	0	0	1	below allowable maximum
Lead	0,00038	0,0004	0,00038	0,0004	0,00036	0,00033	0,001	below allowable maximum

TABLE 1h - AIR QUALITY MONTH 2014 (CONCENTRATE AS MEASURED) Km 742- at end project								
Item Measured	**July**	**August**	**September**	**October**	**November**	**December**	**Normal MPC mg / m3**	**Comment**
Inorganic Dust	0,28	0,29	0,25	0,2	0,18	0,11	0,3	below allowable maximum
Carbon Monoxide	4	4	4,5	4	3,5	1,5	5	below allowable maximum
Nitrogen Dioxide	0,092	0,093	0,089	0,084	0,082	0,082	0,2	below allowable maximum
Sulphur Dioxide	0	0	0	0	0	0		not specified
Carbon Black	1,5	2,2	2	1,5	1,2	1,2	5	below allowable maximum
Hydrocarbons	0	0	0	0	0	0	1	below allowable maximum
Lead	0,0004	0,00042	0,00036	0,00032	0,00034	0,00034	0,001	below allowable maximum

	TABLE 1i- AIR QUALITY							
	MONTHS 2014 (CONCENTRATE AS MEASURED) Concrete batching Plant KN 708 RHS							
Item Measured	**July**	**August**	**September**	**October**	**November**	**December**	**Normal MPC mg / m3**	**Comment**
Inorganic Dust	0,23	0,22	0,2				0,3	below allowable maximum
Carbon Monoxide	1	2	3				5	below allowable maximum
Nitrogen Dioxide	0,085	0,087	0,088				0,2	below allowable maximum
Sulphur Dioxide	0	0	0					not specified
Carbon Black	0	1,5	2,5				5	below allowable maximum
Hydrocarbons	0	0	0				1	below allowable maximum
Lead	0,001	0.00036	0,0004				0,001	below allowable maximum

7.4 Water Quality

Water monitoring conducted in accordance with the environmental monitoring program. Measurements were carried out according to the requirements
- Sanitary Rules "Sanitary requirements for water sources, water intake sites for drinking purposes, drinking water supply and places of cultural and household water security and water bodies." Decree № 104 of the Government of the Republic of Kazakhstan dated 18.01.2012.

There are no permanent flowing streams or water sources on the project road. There is a dry / intermittent stream at Km 709 called Aktas River at Km 709 that has a low intermittent flow after snow melts or heavy rainfall events. There are small pools of water.

Drinking water for the site is obtained from the town / main supply.

Water Sampling Km 9

The Contractor is monitoring water quality at Km 709. Test results are given in Table 2a.

Water from the reservoir at Akzhar and Badam river is not used on the project site.

All measurements are within the Maximum Permitted Concentration level required by Kazakhstan law.

TABLE 2a - WATER QUALITY

MONTH 2014 (CONCENTRATE AS MEASURED) Km 709 (Aktas dry stream)								
Item Measured	**July**	**August**	**September**	**October**	**November**	**December**	**Normal MPC mg / m3**	**Comment**
pH	7,9	8	8,17	8,3	7,91	8,11	6 to 9	within tolerences
Sodium mg/dm3	164,81	160,52	119,4	123	118	109,0	200	below allowable maximum
Potassium mg/dm3	4,5	4,3	1,92	1,87	1,42	1,37		not specified
Calcium mg/dm3	24	23,7	20	21	23	18,0		not specified
Magnesium mg/dm3	10,2	10,7	8,4	9	11	10,0		not specified
Copper mg/dm3	0	0	0	0	0	0	1	below allowable maximum
Zinc mg/dm3	0	0	0	0	0	0	0,001	below allowable maximum
Lead mg/dm3	0	0	0	0	0	0		not specified
Manganese mg/dm3	0	0	0	0	0	0		not specified
Arsenic mg/dm3	0	0	0	0	0	0	0,05	below allowable maximum
Phosphates mg/dm3	0,013	0,013	0,015	0,021	0,027	0,031	3,5	below allowable maximum
Chromium mg/dm3	0	0	0	0	0	0	0,5	below allowable maximum
Iron mg/dm3	0,097	0,104	0,08	0,06	0,071	0,084	0,3	below allowable maximum
Chlorides mg/dm3	176,78	177,9	189,7	193	187	193,0	350	below allowable maximum
Sulphates mg/dm3	497,5	493,2	461	486	426	327,0	500	below allowable maximum
Ammonia mg/dm3	0,07	0,08	0,06	0,087	0,091	0,11	2	below allowable maximum
Nitrates mg/dm3	7	8,2	6,1	9,3	11,4	9,86	45	below allowable maximum
Flouride mg/dm3	0,55	0,57	0	0	0	0	1,2	below allowable maximum

7.5 Soil Quality

Soil monitoring conducted on relevant regulations, "Standards of - the permissible concentration of harmful substances, harmful microorganisms and other biological pollutants in the soil." Approved by Order of the Minister of Health from number 99 from 27.01. 2004 and the Order of the Minister of Environmental Protection, № 21-p of 30.01. 2004. Results are give in the following Tables 3a – 3j.

Soil Sampling

The Contractor has introduced regular monitoring points along the project road plus at the Concrete batching plant.

All measurements are within the Maximum Permitted Concentration level required by Kazakhstan law.

TABLE 3a - SOIL QUALITY								
MONTH 2014 (CONCENTRATE AS MEASURED) BATCHING PLANT Km 708								
Item Measured	**July**	**August**	**September**	**October**	**November**	**December**	**Normal MPC mg / m3**	**Comment**
pH	8,45	8,51	8,02	7,84	7,93	7,89	7,89	
solid residue	0,073	0,082	0,14	0,036	0,036	0,086	0,11	
Petroleum Products	0	0	0	0	0	0	0	

TABLE 3b - SOIL QUALITY								
MONTH 2014 (CONCENTRATE AS MEASURED) KM 705								
Item Measured	**July**	**August**	**September**	**October**	**November**	**December**	**Normal MPC mg / Kg**	**Comment**
pH			7,85	7,78	7,71	7,74	7,89	exceedance not detected
solid residue			0,14	0,11	0,036	0,079	0,11	
Petroleum Products			0	0	0	0	N/A	

TABLE 3c - SOIL QUALITY								
MONTH 2014 (CONCENTRATE AS MEASURED) Km 710								
Item Measured	**July**	**August**	**September**	**October**	**November**	**December**	**Normal MPC mg / Kg**	**Comment**
pH	8,10	8,12	7,77	8,05	7,98	7,67	7,89	exceedance not detected
solid residue	0,044	0,047	0,18	0,12	0,075	0,062	0,11	
Petroleum Products	0	0	0	0	0	0	N/A	

TABLE 3e- SOIL QUALITY MONTH 2014 (CONCENTRATE AS MEASURED) Km 715								
Item Measured	**July**	**August**	**September**	**October**	**November**	**December**	**Normal MPC mg / Kg**	**Comment**
pH	7,82	7,79	7,92	7,99	8,01	7,83	7,89	exceedance not detected
solid residue	0,051	0,055	0,15	0,11	0,064	0,091	0,11	
Petroleum Products	0	0	0	0	0	0	N/A	

TABLE 3f- SOIL QUALITY MONTH 2014 (CONCENTRATE AS MEASURED) Km 720								
Item Measured	**July**	**August**	**September**	**October**	**November**	**December**	**Normal MPC mg / Kg**	**Comment**
pH			8,01	8,02	7,76	7,86	7,89	exceedance not detected
solid residue			0,16	0,13	0,027	0,098	0,11	
Petroleum Products			0	0	0	0	N/A	

TABLE 3g - SOIL QUALITY								
MONTH 2014 (CONCENTRATE AS MEASURED) KM 725								
Item Measured	**July**	**August**	**September**	**October**	**November**	**December**	**Normal MPC mg / Kg**	**Comment**
pH			7,97	8,11	7,72	7,72	7,89	exceedance not detected
solid residue			0,13	0,14	0,084	0,076	0,11	
Petroleum Products			0	0	0	0	N/A	

TABLE 3h - SOIL QUALITY								
MONTH 2014 (CONCENTRATE AS MEASURED) Km 730								
Item Measured	**July**	**August**	**September**	**October**	**November**	**December**	**Normal MPC mg / Kg**	**Comment**
pH			7,89	8,11	8,04	7,56	7,89	exceedance not detected
solid residue			0,15	0,14	0,046	0,049	0,11	
Petroleum Products			0	0	0	0	N/A	

TABLE 3i- SOIL QUALITY								
MONTH 2014 (CONCENTRATE AS MEASURED) Km 735								
Item Measured	**July**	**August**	**September**	**October**	**November**	**December**	**Normal MPC mg / Kg**	**Comment**
pH			7,87	8,11	8,06	7,68	7,89	exceedance not detected
solid residue			0,17	0,14	0,071	0,07	0,11	
Petroleum Products			0	0	0	0	N/A	

	TABLE 3j- SOIL QUALITY							
	MONTH 2014 (CONCENTRATE AS MEASURED) Km 742							
Item Measured	**July**	**August**	**September**	**October**	**November**	**December**	**Normal MPC mg / Kg**	**Comment**
pH			7,93	8,11	7,93	7,83	7,89	exceedance not detected
solid residue			0,16	0,14	0,036	0,079	0,11	
Petroleum Products			0	0	0	0	N/A	

7.6 Radiation Monitoring

Radiological measurements conducted for compliance with hygiene standards, approved by the Decree of the Government of the Republic of Kazakhstan Number 201ot 03.02.2012, the "Sanitary requirements for radiation safety."

Monitoring was conducted at 4 points (north, south, east and west) located around the concrete batching plant. Results are given below in Table 4a.

All measurements are within the Maximum Permitted Concentration level required by Kazakhstan law.

7.7 Noise Monitoring

Monitoring of the impact of construction machinery on the environment for noise “pollution” was conducted at the Concrete Batching Plant, Engineer’s – Contractor’s materials Testing Laboratory, and at construction activity at Km 710, Km 715 and Km 742 (end of project).

Tests were conducted in compliance with GOST 12.1.003-83 and GOST 12.1012-2004. Results are shown in the following Tables 5a – 5e. However, it is noted that Noise monitoring was not conducted in December, for which the contractor reasoned no construction work. The Contractor has since been advised that they should monitor in all areas throughout the duration of the Project period to enable understanding as to what environmental impacts are caused by construction, what during operation. All measurements are within the Maximum Permitted Db level required by Kazakhstan law.

7.8 Summary

The Contractor via licensed laboratory LLP "Eco-Test" is implementing a monthly environmental montoring program of the work-site.
The test results for air, soil, water, radiation and noise intensity are all within allowable tolerences under Kazakhstan law.

TABLE 4a - RADIATION MONITORING								
MONTH 2014 (CONCENTRATE AS MEASURED) Km 708 BATCHING PLANT								
Item Measured	**July**	**August (4 directions)**	**September (4 directions)**	**October**	**November**	**December**	**Normal MPC mg / m3**	**Comment**
Flux Gamma Rays	0,1	0,1	0,10 - 0,12	0,09 - 0,11	0,1-0,12	0,09-0,11	0,2 + background	below allowable maximum

TABLE 5a - SOUND INTENSITY								
MONTH 2014 (CONCENTRATE AS MEASURED) BATCHING PLANT								
Item Measured	**July**	**August**	**September**	**October**	**November**	**December**	**Allowable Max Db**	**Comment**
noise levev Db	53	52	53	52	51		80	below allowable maximum

TABLE 5b - SOUND INTENSITY								
MONTH 2014 (CONCENTRATE AS MEASURED) - LABORATORY								
Item Measured	**July**	**August**	**September**	**October**	**November**	**December**	**Allowable Max Db**	**Comment**
noise levev Db	49	50	51	47	49		60	below allowable maximum

TABLE 5C - SOUND INTENSITY								
MONTH 2014 (CONCENTRATE AS MEASURED) Km 710								
Item Measured	**July**	**August**	**September**	**October**	**November**	**December**	**Allowable Max Db**	**Comment**
noise levev Db	59	57	57	53	58		75	below allowable maximum

TABLE 5d - SOUND INTENSITY								
MONTH 2014 (CONCENTRATE AS MEASURED) - 715								
Item Measured	**July**	**August**	**September**	**October**	**November**	**December**	**Allowable Max Db**	**Comment**
noise levev Db	51	52	52	48	51		75	below allowable maximum

TABLE 5e - SOUND INTENSITY								
MONTH 2014 (CONCENTRATE AS MEASURED) Km 742								
Item Measured	**July**	**August**	**September**	**October**	**November**	**December**	**Allowable Max Db**	**Comment**
noise levev Db	66	68	66	82	69		75	below allowable maximum

7.9 Site Specific (Contractor') Environmental Management Plan Review of Actions

Environmental elements	Basic design elements and associated roads and their location	Types of intended impact	Time for completion	Measures to mitigate the impact on the environment	Responsible for carrying out the work	Current actions / Status
Land resources	Highways "Khorgos - Almaty - Shymkent - border of the Republic of Uzbekistan" Plot 705-742 km	Exclusion of land from agricultural use	Before construction	Making land rights, Article 31,43,44 Land Code of RK. Act on the right of permanent use	Employer SKRB JSC "NC "KazAvtoZhol"	
	Objects temporary use: - construction site - Shift camp: CH335+35 left 2 km - Asphalt plant site, Batching plant CH 335+35 - Intake site:	Temporary occupation of land	Before construction	The Contractor shall ensure receipt of all necessary approvals and obtain all necessary permits, registration rights to temporary use of Article 32, 36, 43 of the Land Code of the Republic of Kazakhstan (the Act) and the Technical Specifications P 100, p104. Contract of lease camp Construction of access road to the site surface, Lease Agreement	Contractor Environmental Engineer	Contractor has agreements for Batching Plant and temporary stockpiles of materials. Main offices / laboratory are rented in Shymkent. Contractor has agreement with landowner for extraction of materials for embankment works.
	Borrow area was established Km 708 (RHS)	Temporary occupation of land				
Earth (topsoil)	The geological structure of the strip road trails lie alluvial deposits represented proluvial sandy loam , loam , gravel , rocky ground . Silty	Destruction, damage and contamination of soil and food production work	During the construction	Removal of topsoil CAP (topsoil) storage and preservation in piles for later use in reclamation. r.100 , p.400 , 500 , " Technical Specifications ." Strengthening land slopes .web and existing gullies in order to prevent	Contractor EnvironmentalEngineer	Top soil removed to depth of 15cm and stockpiled for re-use.

Environmental elements	Basic design elements and associated roads and their location	Types of intended impact	Time for completion	Measures to mitigate the impact on the environment	Responsible for carrying out the work	Current actions / Status
	loam lightweight , conformable between the profile , light brown , macro , solid, semisolid konsistentsii.Mezhdu lower section loam - dark brown color , lumpy, semi-solid consistency to tugoplastichnoy inclusion of gravel and pebbles up to 25% . Sandy loam to silty gravel and pebbles lies at the end of the road in the form of individual layers and lenses ,color sandy brownish- gray . In flood plains and river valleys within and also the foothills of pebble and sandy soil with loam filler in an amount of up - to 40%. Detrital material well and sredneokatanny and consists mainly of	waste production.		soil erosion. Exception flooding of areas adjacent to the highway , land degradation from traffic pollution . Monitoring the quality of soils under terms of environmental monitoring and the conclusion of the agreement to hold it with a specialized organization . Exception Strait oil and waste oils on soil . Park road construction equipment only in designated areas. Performing revegetation . Cleaning areas of debris and waste .		

Environmental elements	Basic design elements and associated roads and their location	Types of intended impact	Time for completion	Measures to mitigate the impact on the environment	Responsible for carrying out the work	Current actions / Status
	sedimentary rocks. Grussy soil - eluvium occurs in a mountain valley bottom and composing its slopes , the soil serves as a placeholder grussy - loam . Rocky soils composing the massif consists of interbedded : silicified shale , silicified sandstones and conglomerates of calcareous cement. Rocky soils durable, slabovyvetrelye . Groundwater workings depth 1 -15m is not opened . Highways "Khorgos - Almaty - Shymkent - border of the Republic of Uzbekistan" Plot 705-742 km bypass road , the construction site .					

Environmental elements	Basic design elements and associated roads and their location	Types of intended impact	Time for completion	Measures to mitigate the impact on the environment	Responsible for carrying out the work	Current actions / Status
Air	Highways "Khorgos - Almaty - Shymkent - border of the Republic of Uzbekistan" Plot 705-742 km, construction sites, field camp. LocationCH24+55-335+35 rightside.	Dust-laden air pollution and exhaust emissions: CO, NO2, SO2, hydrocarbons, soot	During the construction	Conduct systematic dedusting water. Transport of the material to produce a closed canopy vehicles. Installation of signs , speed limits . Application of high-quality fuel. Conduct environmental monitoring under the Agreements with sanitary epidemiology surveillance authorities or by independent accredited laboratories , according to the environmental monitoring plan . Develop EIA , obtain the opinion of public examinations , to get permission to release emissions at all work areas in accordance with Article 69 Environmental Code RK. Whenlaying asphalt mixtures containing toxic hydrocarbons, should ensure that the work area uniform rhythm of technological tools and transport. Unloading asphalt mixtures produced only in receiving	Contractor	Watering of embankment / access roads is implemented in dry periods. Road signs installed. Regular inspections by road police, employer and Engineer. Contractor purchased good quality fuels. Contractor via Licensed laboratory “ LLP "Eco-Test" is monitoring air quality on a monthly Basis. No Asphalt placed to date.

Environmental elements	Basic design elements and associated roads and their location	Types of intended impact	Time for completion	Measures to mitigate the impact on the environment	Responsible for carrying out the work	Current actions / Status
				hoppers asphalt . Compliance with repair of machines . Traffic control . Strict observance of sanitary norms SanPin number 3076 from 18.09.2004g "Requirements to the atmospheric air of populated areas" SanPin "Content the exposure zone No. 841 dated 03.2004		
	Cities and towns along the reconstructed road:. Distance to property from 100 meters	Noise, vibration and air pollution	During the construction	Monitor the status of roads and perform " requirements to air localities" SanPin 3076 from 18.09.2004 "Content the exposure zone number from 841 03.2004g . " According to the Plan of environmental monitoring before construction to perform air monitoring to determine baseline air , noise and vibration according to P100 , P.106 " Specifications" in the areas where settlements at a distance of less than 200 m from the work area to carry out work only daytime (8-18 h). Accommodation units to produce sound absorbing sites or in tents (compressor) , use with the road-building machinery housings and hoods. The operating personnel must be provided with noise protection facilities in areas with a noise level of 85 dBA. Speed limits of freight transport in settlements.	Contractor	Contractor via Licensed laboratory “ LLP "Eco-Test" is monitoring noise emissions on a monthly Basis. Village areas are tested. No work after “dark” near settlements. Road Equipment is fitted with hoods, housings and air conditioning. Equipment is inspected by Engineer to ensure in good condition.(safe). Operators are provide

Environmental elements	Basic design elements and associated roads and their location	Types of intended impact	Time for completion	Measures to mitigate the impact on the environment	Responsible for carrying out the work	Current actions / Status
				Control of the optimal mode of construction machinery. Controlling the level of noise (not to exceed health standards dBA established for settlements and working area MOH RK , order number 139 dated 24.03.2005 .		with PPE including ear protection. Noise is controlled.
Water environment	Water bodies in the vicinity, and crossing the road construction site: - Reservoir Akzhar. - Reservoir with. Rabat -p. Badam intake site: Shift camps and work areas for drinking water supply: Highway, Batching plant, Asphalt plant.	Water pollution in the construction of roads, bridges, culverts, water intake for technical purposes	During construction	Water quality monitoring of surface sources to spend on contracts with agencies or sanitary epidemiology supervision by independent accredited laboratories according to the environmental monitoring plan . Quality of surface water sources must match " Sanitary requirements for water sources , drinking water supply , places of cultural and household water security and water bodies " from July 28, 2010 № 554 Making water use permit . The apparatus of water treatment facilities in the discharge of water from the roads and bridges. In the case of petroleum products in wastewater and rainwater to clean the oil wells. Water for technical needs only be equipped on the intake sites in locations agreed with the supervisory authorities for water sources. Accommodation building sites for construction of bridges , parking and road equipment vehicles within the coastal bands of water protection zones are not allowed. Doing work	Contractor	Contractor via Licensed laboratory “ LLP "Eco-Test" is monitoring water quality on a monthly basis. Water near reservoir Akzhar is monitored (Km 9). There are no “flowing” water courses on the project road.

Environmental elements	Basic design elements and associated roads and their location	Types of intended impact	Time for completion	Measures to mitigate the impact on the environment	Responsible for carrying out the work	Current actions / Status
				in floodplains allowed only with the permission of water protection , and sanitary authorities. Washing vehicles and road-building equipment must only be installed in areas equipped with wastewater treatment facilities. Pollution of watercourses and domestic productionwaste is not allowed. To prevent water erosion must be done to strengthen the bottom of the slopes and channels culverts. Water used for drinking , should have sanitary -epidemiologic conclusion .		Workers are supplied with bottled drinking water (purchased). Main offices / laboratory / workshops are on Shymkent town supply.
Flora and fauna	Road and all work areas	Damage, destruction, pollution, trees and shrubs and animal habitats	During construction	Permit for felling of trees and shrubs in the bodies of the Customer State Forestry.	Contractor	Contractor has permit for tree removal. Employer / Engineer / Contractor are

Environmental elements	Basic design elements and associated roads and their location	Types of intended impact	Time for completion	Measures to mitigate the impact on the environment	Responsible for carrying out the work	Current actions / Status
				Revegetation by biological remediation. To reduce the impact on the flora of the territory must be carried dedusting work areas. To skip the cattle need a device underpasses and installation of road signs warning about the likelihood of collisions with animals. Moving road equipment must be made no closer than 5 meters from the trees.		minimising tree removal as much as possible. Watering is carried out in dry periods. 7 underpasses will be provided (3 extra). At km 8+146, 9+154 and 34+600. Operators instructed to be careful not to damage trees.
Earth, air, water, soil cover	Construction site, Batching plant, Asphalt plant.	Dusting, levels of air pollution, soil pollution, noise pollution impact water sources	During construction	Obtaining permits : Act on the right to use land , the subsoil use contract / Environmental Passport Enterprise Resolution ResolutionGostehnadzorasanepidnadzora ensure the development of the EIA , and MPE project emission permit Art. 69 of the Environmental Code of Kazakhstan. Resolution on the use of water reclamation project . Environmental monitoring of emissions.	Contractor	Asphalt Plant not established. Concrete plant is established with licenses Montly monitoring is implemented for air, noise and soil quality.

Environmental elements	Basic design elements and associated roads and their location	Types of intended impact	Time for completion	Measures to mitigate the impact on the environment	Responsible for carrying out the work	Current actions / Status
				Toxic gases , dust levels , noise and vibration in the use of equipment , as well as soil contamination conducted in accordance with the environmental monitoring plan . Process control of the enterprise, systematic monitoring of the bitumen and storage of building materials. Debris and waste products stored in designated areas , followed by removal to a landfill. Water for drinking is stored in airtight containers in a strictly designated area no closer than 75 m from the working area, has a quality certificate . Contractor is responsible for sanitary living conditions in the workplace. Cement silo for concrete plant shall be equipped with necessary filters that must be cleaned regularly or updated .		Office rubbish collected by city contractor and disposed at licensed tip. Rubbish from concrete plant stored in designated area and transported to licensed tip by Contractor. Drop toilet established on the work site. Water available for washing hands etc. Offices have septic tanks, ceramic toilets and running mains water.

Environmental elements	Basic design elements and associated roads and their location	Types of intended impact	Time for completion	Measures to mitigate the impact on the environment	Responsible for carrying out the work	Current actions / Status
				In the process of crushing rubble being permanent water irrigation.		Contractor is purchasing materials from licensed local suppliers.
Fuelstorageand chemicals	Production base on the CH 660 + 500 RHS	Soil, air, fireprobability	During construction	Storage of all fuels and lubricants produced in sealed containers with fencing and fire-fighting equipment. Refilling road construction machinery made fueler "mobile gas station", which has a certificate of conformity and approval for transport of dangerous goods. Not allowed spilling fuel and lubricants. Regular monitoring on the use of fuel. In case of spillage of petroleum products strait place is filled with sand, collected in a special container and transported to the designated place. All-purpose machines shall be equipped with a container with sand, tray, shovel. Collected in a special container and transported	Contractor	The contractor has a designated fuel storage site at the concrete batching plant. This has concrete base but need improvement. Contractor has licensed re-fueler, however Contractor must improve equipment for treatment of spliiages. Contractor is aware and is taking actions.

Environmental elements	Basic design elements and associated roads and their location	Types of intended impact	Time for completion	Measures to mitigate the impact on the environment	Responsible for carrying out the work	Current actions / Status
				to the designated place. All-purpose machines shall be equipped with a container with sand, tray, shovel.		
waste production	Working areas	Pollution and littering the construction site camps, work area	During construction	Building and household waste, industrial waste stored in strictly designated areas. Disposal of garbage and waste production at landfill according to the agreement and permission Akimat. Conclude a treaty with the organization for the export of sewage from septic tanks tarmac.	Contractor	Agreement concluded. Designeted areas allocated.
Social environment and public relations	"Khorgos - Almaty - Shymkent - border of the Republic of Uzbekistan" Plot 705-742 km settlements along the reconstructed road	Gaseous pollution, dust, noise, vibration, violation of social conditions	Before / During construction	Before construction contractor in conjunction with the customer and local government conducts public hearings on the construction project to assess the impact on the environment and socio-economic status of the population. Ensure the optimal operation of motor vehicles and road-building machinery. Regular dust removal in settlements to ensure the safety of residents of settlements of roadworks set traffic signs regulating the speed and direction of movement of vehicles. Installed fencing work area and settle pedestrian crossings. Set of visual-information boards, which specifies the name of the organization, leading the work office location	Contractor	Implemented Equipment is in good condition. Watering and traffic signs implemented. Boards constructed at

Environmental elements	Basic design elements and associated roads and their location	Types of intended impact	Time for completion	Measures to mitigate the impact on the environment	Responsible for carrying out the work	Current actions / Status
				and contact numbers. Conduct environmental monitoring of air, water sources, soil, noise exposure (according to the schedule of monitoring). All the complaints and suggestions of the population are registered and their implementation shall be communicated to the public. In localities to carry out work only in the daytime.		start and end of project. Implemented.
Natural, historical and architectural monuments	"Khorgos - Almaty - Shymkent - border of the Republic of Uzbekistan" Plot 705-742 km	Destruction and damage	During construction	The Contractor shall conduct a full research papers (R & D) on the monuments of archeology and historical and cultural heritage, located in the territory. Compiling a scientific report on the results of research. Coordination of research results into local authorities. Conducting historical and cultural examination Monuments investigated for their withdrawal from the State list of historical and cultural heritage.	Contractor	Not applicable

Environmental elements	Basic design elements and associated roads and their location	Types of intended impact	Time for completion	Measures to mitigate the impact on the environment	Responsible for carrying out the work	Current actions / Status
Reporting on the implementation of the Plan for the protection of the environment and environmental monitoring		Ensuring compliance with environmental legislation To minimize the impact of production processes on a nature environment and human health	During construction	The contractor should be fully reporting requirements IEE and TEM indicating areas and measures taken. The monthly report shall include the results of the IEE and environmental monitoring, as well as the results of the site visits. Promptly report appears in pollution of the environment and the planned mitigation measures. The Contractor shall establish and maintain procedures to identify the responsibility and authority with respect to identifying and exploring, taking measures to mitigate the impacts caused by the environment.	Contractor	Monthly Monitoring and reporting implemented. Procedures are established.

8 OTHER ISSUES

8.1 Recycling of Materials

i) Asphalt

The contractor is removing the old asphalt pavement and transporting to temporary stockpiles. This material will become the property of the Employer on project completion, however some material will be utilized for road shoulder construction and access roads sheeting to local villages. This is seen as positive as it a recycling of the existing material.

ii) Cement Treated Pavement

The contractor is removing a 10 – 18cm thick layer of cement treated base material that is located under the old asphalt. He is placing this into stockpiles.

He has submitted a proposal to recycle some of this material through a portable crusher unit and to mix with new materials (20% - 80%) to create the new sub-base pavement for the project road.

8.2 Health and Safety

A Health and Safety check was conducted by the Deputy Resident Engineer at the commencement of the Engineer Contract in August 2014. The purpose of this check was to ensure the contractor was aware of health and safety standards to be maintained on the Project in such areas as:

- Construction labor and public safety on the construction site and various material processing plants (concrete, crushing etc)
- Kitchen, mess hall and dormitory areas were to required or better than minimum standard according to Kazakhstan laws and FIDIC requirements
- Workshops and offices had access to safety equipment.
- A Clinic has been established.

The Environmental and Community Liaison Specialist has conducted an audit (more detailed monitoring) of Health and Safety on the Project during the Consultants input in February- March 2015.

The OH & S audit report of the Foreign Specialist conducted in March 2015 is forwarded as a separate document.

8.3 Foreign Environmental Specialist

The Foreign Environmental specialist mobilized in December 2014, for 2-weeks but most of his works was directed towards Social Safeguards compliance issues, as per ADB instructions.

However, during the input, he has met with the Contractor and discussed the environmental management and monitoring expectations. He will in the first half of 2015, review the Contractor's EMP and environmental monitoring in detail as well as the Contractors environmental management practices on the Project. Some of the issues he has observed during his 2-weeks input on the Project include (but not limited to):

- Tree cutting – the tree cutting has been conducted with permits. The Right-Hand-Side of the road tree cutting practices, already done, will be audited for environmental compliance, including replanting programs, will be examined in first hald of 2015
- Stockpile areas – minimal compliance observed. Therefore, environmental and land acquisition permits rehabilitation (post-project) and will be checked.
- Hazardous materials, fuels, liquids – appropriate storage needs to be examined for compliance.
- Waste disposal – although there is significant recycling of materials, hazardous and non-hazardous materials. Those not being recycles will be further examined.
- Water Courses – The EMP requires that water courses remain open during construction and restrictive use of hazardous materials in these areas. The Contractor has been requested to comply with this issue, especially areas where culverts and underpasses are being installed or rehabilitated.

The specialist will return in February 2015 to review progress and commence an environmental audit of the work-site to be reported in January to June Environmental report. The audit will be based on the "Expanded EMP", as presented in Annex 1.

8.4 Grievance Redress Mechanism

The grievance mechanism was established by the Foreign Specialist in December 2014. Community complaints are registered in a electronic register maintained by the Engineer. (Annex 4)

8.5 Expanded (Updated) EMP

The Consulting firm was mobilized after construction had commenced on the Project, with the Foreign Speicialist mobilized almost 9 months after the Contractor mobilization and seven months after construction commenced. Over 30 kilometres (half road width) had commenced construction, with 7.5 kilometres of this almost ready for opening by the time the Specialist was mobilized.

Given this time lapse, and construction activities already on-going, the more conventional updating of the EMP did not seem relevant. However, to ensure that envirmental safeguards are being met, both in retrospect and for the remaider of the project, EMP updating has entailed combining the EMP (2012), formulated during the PPTA, and the Contactor's Site Specific EMP, into one and expanding this with an additional columns. The additional column that is most relevant, "Definition of indicator for compliance / How CSC will verify compliance/sources of information", provides more detail in recommending possible sources and types of information/documents/data that would lead to the CSC determining full/partial/non-comliance of environmental management during, and at completion of, the Project construction period.

Annex 1 sets out this Expanded EMP framework. The next stage is to discuss the compliance definitions with the employer and contractor and if necessary insert alternative or better compliance definitions/indicators. Furthermore, this framework will be used in conducting an audit on 2014 activities and first half 2015 activities followed by findings reported in the January-June 2015 bi-annual Environmental Monitoring Report. Gaps identified will be discussed iwht contractor and employer to ensure compliance with ADB SPS 2009, Loan Agreement, IEE with EMP (2012) and the Project Administration Manual.

ANNEX 1 – EXPANDED (UPDATED) EMP

No.	Monitoring Aspect	Mitigation Measure	EMP (2012)	CESMP	Monitoring indicator	Definition of indicator for compliance / How CSC will verify compliance/sources of information	compliance or remedial action s required
1,0	**Pre-Construction Phase**						
1,1	No provision for translation of IEE and related documents for use by Oblast Inspectors and in Bid documents	Confirm that Kazakh/Russian version of IEE and EMP are with Oblast Inspectors; Confirm that bid documents contain environmental clauses tailored to the project conditions as well as a copy of the precautionalry measures outlined in EMP.	X		availability of IEE/EMP in Russian, English and Kazakh languages	Document in hard copy (at minimum) and soft copy availabile and easily accessible in English and Russian in the CSC office. Is also viewed in Oblast Inspectors office and contractors office. Should be made available for public to view is they choose.	**Mostly Complied:** English and Russian language versions are confirmed available. Kazakh language document availability is unkown
1,2	Failure of deisgners to include design measrures which lach later prevent impacts such as: livestock crossing management, poor traffic management and excessive removal of trees	Confirm by reviewing design documents and discussions with design team that: 1. livestock crossings in Section 3 have been addressed; 2. a plan to protect trees is as much as possible has been prepared; 3. there is step-by-step protocol for traffic management during construction (as opposed to the ad-hoc, hap-hazard existing system); and 4. An aenvironmental friendly bridge and culvert replacement guide has been prepared.	X		1. Change of the width of underpass, additional underpasses and culverts in the design; 2. skectchmap of number, location, spiecies of trees, tree vegetation replacement plan; 3.traffic management plan fr project prepared and effectively operating; 4. Environmental mitigatin measures required during culvet and bridge construction are identified and implemnted.	1. The results of informal meetings with local residents views on construction of new underpasses and rehabilitated. 2. The engineer will require the Contractor to develop a number of the skectchmap, location and species of trees, which he intends to remove and then according to this map will control the cutting and planting new plants. The contractor will develop a plan for the replacement of trees removed. Supervision and control of cutting down of trees. Cutting down only necessary trees. 3. Traffic Management Plan(s) are approved by the engineer and effectively running without impact on community or motorists. 4. Site Specific EMP and/or Monitoring reports of the contractor must provide information on environmental measures taken and to be undertaken during the culvert/bridge replacemnts activities each month; inspection to ensure construction uses good environmental management practices in construction such as silt/erosion control, maintaining drainage, hazardous materials not used withing the excavated area, particularly watercourses; design and implementation documentation of rehabilitation measures on embankments to ensure potential erosion and scouring in	**Partial Compliance:** The contractor has not yet provided all the documents (only some), but had to develop them prior to the cutting of the trees. Fencing for underpass and trees replacement is absent as line items costed in the BoQ.
1,3	Lack of capacity to understand and implement environmental mitigation measures, in particular the compliance montroing proceedure	Collect and review written material and expertise indicating that MOTC has provided instructions for the contractors to better use the IEE output. Prepare environmental compliance forms together with Contractor and Subcntractors to secure acceptance.	X		Compliance with ADB Loan agreement, SPS 2009 and PAM with relation to Environmental Issues. Compliance with all required Kazakhstan environmental related laws.	Consultant and Contractor to work with employer representative in Shymkent, and as required the employer in Astana, to understand all environmental compliance/non-compliance issues.	**Partial Compliance:** The Consultant has been working with the employer to ensure Social safeguards are back to ADB required compliance; providing copies of all reports and Intruction letters (environmental and social safeguards related, to the employer representative in Shymkent and to CoR

1,4	Exclusion of land from agricultural use	Shymkent - border of the Republic of Uzbekistan" Plot 705-742 km		X	Making land rights, Article 31,43,44 Land Code of RK. Act on the right of permanent use. Ensuring ADB SPS 2009 and LARF is complied	Due diligence studies by consultant and contractor with Akimat to identify areas along the roadsides that will need permanent acquisition for the road.	**Complied:** No private landuser certified areas are affected. Additional Land for access roads (particularly kazygurt) is an Akimat to GoK transfer.
1,5	Temporary occupation of land	Objects temporary use: - construction site - Shift camp: CH335+35 left 2 km - Asphalt plant site, Batching plant CH 335+35 - Intake site - Borrow area was established Km 708 (RHS)		X	The Contractor shall ensure receipt of all necessary approvals and obtain all necessary permits, registration rights to temporary use of Article 32, 36, 43 of the Land Code of the Republic of Kazakhstan (the Act) and the Technical Specifications P 100, p104. Contract of lease camp Construction of access road to the site surface, Lease Agreement. In comliance also with LARF and ADB SPS 2009.	Copies of Lease agreements and environmental permits to be provided as part of monthly reporting from Contractor to CSC. Any additional documentation proving complainace with ADB safeguards under the Loan Agreement will be requested as necessary	**Partial Compliance:** some agreemnts for Kazygurt site have been provided to the CSC, but more docuemntation is requested/required to ensure full compliance
2,0	**Construction Phase**						
2,1	Availability of ecological expertise to prepare the SS EMP and to implement all mitigation and monitoring measures with contractor'	Confirm ecological expertise is with contractor at start of construction period: check CV and license certificates. Discuss with contractors/subcontractors the management implications of all included in the EMP	X		Report on environmental monitoring. Results of analyses within MPC normative documents of the RK	Environmental impact assessment of the site was carried out prior to construction. Levels of pollution of soil, air, water, prior to construction were included and is a base for the analysis of contamination of the environment during construction. Contractor conducts monthly environmental monitoring of air, soil , radiation and vibration in pre-selected locations including "plants" sites and every 5 kilometres along the project road. Contractor monitoing report showing monitoing data submitted to the Engineer monthly. The engineer checks analyses for absence of MPC	**Partial compliance**: A report submitted monthly by contractor documenting only the environmental monitoring results carried out by accredited laboratory. No exceedence of MPC, but no further reporting against the CESMP.

2,2	Lack of good housekeeping practices at both camp sites and work sites, including solid and sanitary waste management - Pollution and littering in any of the construction site camps, work area	Using agreed monitoring checklists, confirm that the items listed in the SS EMP and in the Technical Specifications are fully implemented.	X	X	The presence of labeled containers and the absence of illegal dumps . The contract for waste disposal . Journal of waste formation and waste transportation Obtaining permits : Act on the right to use land , the subsoil use contract / Environmental Passport Enterprise Resolution ResolutionGostehnadzorasanepidnadzora ensure the development of the EIA , and MPE project emission permit Art. 69 of the Environmental Code of Kazakhstan. Resolution on the use of water reclamation project . Environmental monitoring of emissions. Toxic gases , dust levels , noise and vibration in the use of equipment , as well as soil contamination conducted in accordance with the environmental monitoring plan . Process control of the enterprise, systematic monitoring of the bitumen and storage of building materials. Debris and waste products stored in designated areas , followed by removal to a landfill.	Installation of containers for collecting waste in working camp. Evidence of instructions to workers for promotion of an ecological behavior. Periodic check of timely cleaning of garbage containers. Check by the Engineer of a sanitary condition of camp. Copies of all permits obtained for actions on-site and at workshops/plants etc are obtained. Solid waste management plans/proposals and implementation to within Kazakhstan environmental standards. Environmental assessments prepared for materials processing Plants, stockpile and spoil dump sites and other solid waste management. Emmission levels along the road and at Plants are within standard safe levels per Kazakhstan environmental standards, as reported in monthly Environment reports from constractor. Weekly observations on site regarding disposal of waste, spoil, materials stockpile, use of hazardous materials, water courses and issigation channels remaining open, and waste management (adequate site selection, recycle, reuse where possible.	**Partial compliance:** The contractor was given the task to develop and coordinate a waste passport, journal of waste transportation and to conclude an agreement on the export of industrial waste. The contract for SMW is available. On industrial waste has not yet been concluded. Further compliance assessments to be conducted
2,3	Tree removal program damaging the old trees and shelter belt plantings along roadsides - kept to absolute minimum	Inspection of cutting plan and confirmation of consultation with CFH, then review and record re-planting / revegetation efforts.	X		skectchmap of trees intended to cut; programme	Check by engineers of documents confirming the right for trees cutting along the road. Felling permit and permission from the FHC present. The engineer will require the Contractor to develop a number of the skectchmap, location and species of trees, which he intends to remove and then according to this map will control the cutting and planting new plants. Also, the Contractor will be instructed to develop a plan for the replacement of trees removed. Supervision and control of cutting down of trees. Cutting down only necessary trees. Removal of flora and habitats for fauna will be minimised, through obtaining necessary permits, identification and reporting of all fauna observed in the area to where construction is to occur, inclusive of impact mitigation and minimisation measures and rehabilitation plans for after construction	**<u>Non-Compliance:</u>** The plan is not provided by the Contractor
2,4	Flora and Fauna - Damage, destruction, pollution, trees and shrubs and animal habitats along the road.			X	Identified flora/fauna and habitats along the road that will be within the construction zone/footprint, including stockpile and borrow pit sites; sketchmap of destruction areas; program to minimise and plan to rehabilitate. Permit for felling of trees and shrubs in the bodies of the Customer State Forestry. Revegetation by biological remediation. To reduce the impact on the flora of the territory must be carried dedusting work areas. To skip the cattle need a device underpasses and installation of road signs warning about the likelihood of collisions with animals. Moving road equipment must be made no closer than 5 meters from the trees.		**Non-Compliance:** No information provided regarding nests destroyed during tree-cutting along the road; damage to vegetation or animal habitat potential in stockpile sites; or other destruction due to culvert developments / emergency ramp development or roadside bays along length of road.

2,5	Side borrow operations leading to erosion, landslide and destruction of landscape	Undertake inspections to determine the type of borrow operations the contractor is applying and ensure that roadside borrowing is not taking place and is always out of the visual field from the road.	X		Management plan for the side borrow , The absence of borrow pits in the field of view on the road	Control of soil excavation only from the authorized borrow pits; permits or documents authorising use of borrow pits and rental of stockpile sites; environmental assessment (as required by Kazakhstan law) for use of sites; plans for management of sites; rehabilitation plan of borrow pits (as necessary) and of ALL stockpile sites. Ad-hoc plans for rehabilitation of ad-hoc or unauthorised stockpile/borrow pit sites.	**Non-Compliance:** Plan and information has been requested from Contractor
2,6	Earthworks - transport and storage; managing of dust and noise	Undertake, as part of the construction inspection, regular confirmation that earthworks are handled in an environmentally acceptable manner and dust control is taken at all time, including the use of tarpaulins by trucks carrying fine materials, as well as watering along the haul road sections passing near/thru villages that speed has to be decreased. Haulage through roadside villages and settlement is restricted.	X		Tarpaulins on trucks , watering cars on the road , topsoil covered from rain and wind.	Results of air-quality monitoring by the contractor, each month. Sufficient is dust suppression during excavation, using water carts and hoses; the presence of tarpaulins on trucks transporting dusty materials; monitor the reduction of the speed of trucks near settlements (30 km / h); evidence of community consultation/awareness in which residents are provided information on dust supression actions in the home; dust supression and impact prevention/reduction on materials processing (concrete/asphale/crushing plants).	**Partial compliance:** During the construction of the road high levels of dust has been produced and a small number of complaints from public was recieved. Dust supression has been requested by the engineer and is being followed, as is measurement of air quality. The speed of the trucks is reduced near the settlements . Vehicles not covered by a tarpaulin.

2,7	Earth (Topsoil) - Destruction, damage and contamination of soil and food production work waste production.	The geological structure of the strip road trails lie alluvial deposits represented proluvial sandy loam , loam , gravel , rocky ground . Silty loam lightweight , conformable between the profile , light brown , macro , solid, semisolid konsistentsii.Mezhdu lower section loam - dark brown color , lumpy, semi-solid consistency to tugoplastichnoy inclusion of gravel and pebbles up to 25% . Sandy loam to silty gravel and pebbles lies at the end of the road in the form of individual layers and lenses ,color sandy brownish- gray . In flood plains and river valleys within and also the foothills of pebble and sandy soil with loam filler in an amount of up - to 40%. Detrital material well and sredneokatanny and consists mainly of sedimentary rocks. Grussy soil - eluvium occurs in a mountain valley bottom and composing its slopes , the soil serves as a placeholder grussy - loam . Rocky soils composing the massif consists of interbedded : silicified shale , silicified sandstones and conglomerates of calcareous cement. Rocky soils durable, slabovyvetrelye. Groundwater workings depth 1 -15m is not opened .		X	Removal of topsoil CAP (topsoil) storage and preservation in piles for later use in reclamation. r.100 , p.400 , 500 , " Technical Specifications ." Strengthening land slopes .web and existing gullies in order to prevent soil erosion. Exception flooding of areas adjacent to the highway , land degradation from traffic pollution . Monitoring the quality of soils under terms of environmental monitoring and the conclusion of the agreement to hold it with a specialized organization . Exception Strait oil and waste oils on soil . Park road construction equipment only in designated areas. Performing revegetation . Cleaning areas of debris and waste .	Plans, reports and observation of top-soil stockpiles, including care and management from time of removal to stockpile to re-instatement. Slope rehabilitation and stabilisation plans/documentation and satisfactory completion in identified areas, both on the road and where used as borrow pits. scietific testing of soil quality, air quality, water, noise, radiation. Weekly observation to ensure water courses are kept open, as per contract and constuctions sites are well-drained. On site parking areas for machines, workshops and materials processing plants, appropriate spill containment areas, PPE and other reasonable steps are planned and implemented to maintain prevention of hazardouse materials leaking into envirnment, impacting on workers or public and hazardous and non-hazardous wastemanagement planning is conducted and implemented. Rehabilitation plans ate material processing plants, workshops and along the project are prepared and implemented. Waste Management Plans are approved by Engineer, employer and environmental authorities and are appropriately imlemented.	
2,8	Potential bitumen / asphalt and concrete production spills and pollution.	Confirm that sighting specifications for both asphalt and concrete plants are according to norms and codes but also that are at least as far away from settlement areas as defined in mitigation table. Bitumen storage and handling is done without spillage.	X		Lack of bituminous works in the winter and in rainy or windy weather , the lack of irruption of bitumen and asphalt	The engineer will check dust suppression during excavation , the presence of tarpaulins on trucks , as well as to monitor the reduction of the speed of trucks near settlements (30 km / h) Avoid contact of hot bitumen with water and dust. Spill containment must be installed . If spillage immediately remove the products of the leak. Check for special PPE at work (gloves and boots). Ban on bituminous works in rainy or windy weather and winter. Storage and protection of bitumen and emtpy bitumen drums. Inspection of Asphale Plants to ensure spill containment, PPE and other health and safety is maintained. Pollution emmission levels recorded in monthly reports.	

2,9	Management of petroleum products such as fuels, lubricants and bitumen, without spills and contamination being practiced by the contractor and all Subcontractors. Soil, air, fire probablility - Fuel storage and chemicals	Using a monitoring checklist the eight specifi spill mitigation table will be assessed and reported on. Unannounced (spot) inspections at worksites, work camps, deisel generators, technical workshops, maintenance yards and fuel storage facilities. Any non-compliance to be rectified immediately.	X	X	Lack of spots from fuels and lubricants on the ground and construction sites. Storage of all fuels and lubricants produced in sealed containers with fencing and fire-fighting equipment. Refilling road construction machinery made fueler "mobile gas station", which has a certificate of conformity and approval for transport of dangerous goods. Not allowed spilling fuel and lubricants. Regular monitoring on the use of fuel. In case of spillage of petroleum products strait place is filled with sand, collected in a special container and transported to the	Inspections of contractor-run sites to observe and ensure ppropriate storage conditions for the specific products, including spill containment areas, fire equipment, first aid kits and emergency management procedures. Appropriate hazardous waste containment structures and spill containment plans must be in place and effectively operating. Engineer will periodically inspect construction sites also to ensure appropriate management of spills of fuel , lubricants and bitumen on the jobsite. In case of spills and stains the Conultant will provide written notice recommending its removal. In case of spill, the engineer will be informed and will inspect for appropriate waste management method and that the spill is cleaned, in consultation with authorities, as required. Observations on-sites and materials processing plants for containers to control oil, fuel and bitumen	
2,10	Earth, air, water, soil cover: Construction site, Batching plant, Asphalt plant. Dust, levels of air pollution, soil pollution, noise pollution impact water sources			X	Gaining permits : Act on the right to use land , the subsoil use contract / Environmental Passport Enterprise Resolution ResolutionGostehnadzorasanepidnadzora ensure the development of the EIA , and MPE project emission permit Art. 69 of the Environmental Code of Kazakhstan. Resolution on the use of water reclamation project . Environmental monitoring of emissions. Toxic gases , dust levels , noise and vibration in the use of equipment , as well as soil contamination conducted in accordance with the environmental monitoring plan . Process control of the enterprise, systematic monitoring of the bitumen and storage of building materials. Debris and waste products stored in designated areas ,	Copies of permits, agreements and environmental assessments (as required by law) for each specific site. Monthly environmental monitoring report showing environmental emmissionss test results along the road and at the materials processing sites. Management Plans of contractor reports on measures to mitigate through recycle and reuse of materials prior to landfill. Permits and minutes of discussions/approvals by authorities for landfill and waste disposal of various types of waste materials from the project processes, including prior approvals from engineer. Hrealth and safety monitoring/audit, conducted bi-annually and "ad-hoc check" by engineer regarding waste management, dirinking water supply, sanitation, office/dormitory/other workplace condition to Kazakhstan or better standards (and as per FIDIC - construction contract -requirement)	
2,11	Potential deficiencies in surface water drainage at construction areas	The PMU will inspect and verify that adequate consideration and drainae works and protection have been provided	X		Site must be well-drained to enable rapid return to works after prcipitation, minimise water run-off contamination and ensure culverts/underpass construction do not blocak drainage - Contract requires that ALL watercourses remain open. They must be free of contaminants as much as possible, or mitigation measures imposed.	Field inspections by engineers and specialist of CSC, observing site left well-drained in case of weather. Ensuring all water courses and drainage remains open (as required by contract) in all areas along the road, including culverts and underpasses being constructed. Monthly Environmental reports will show plans on how cunstruction areas will maintain drainage.	
2,12	Construction related air pollution	The PMU will inspect and verify that adequate consideration and drainae works and protection have been provided	X		finding of level of air pollution within the standards established in RK	Monthly air quality monitoring results and within Kazakhstan standards. Supervision of regular dust supression on construction sites; existence of tents/covers on trucks, storage of top soil protected from rain and wind; trucks diving within speed limit	The contractor has to get tarpaulin for cars

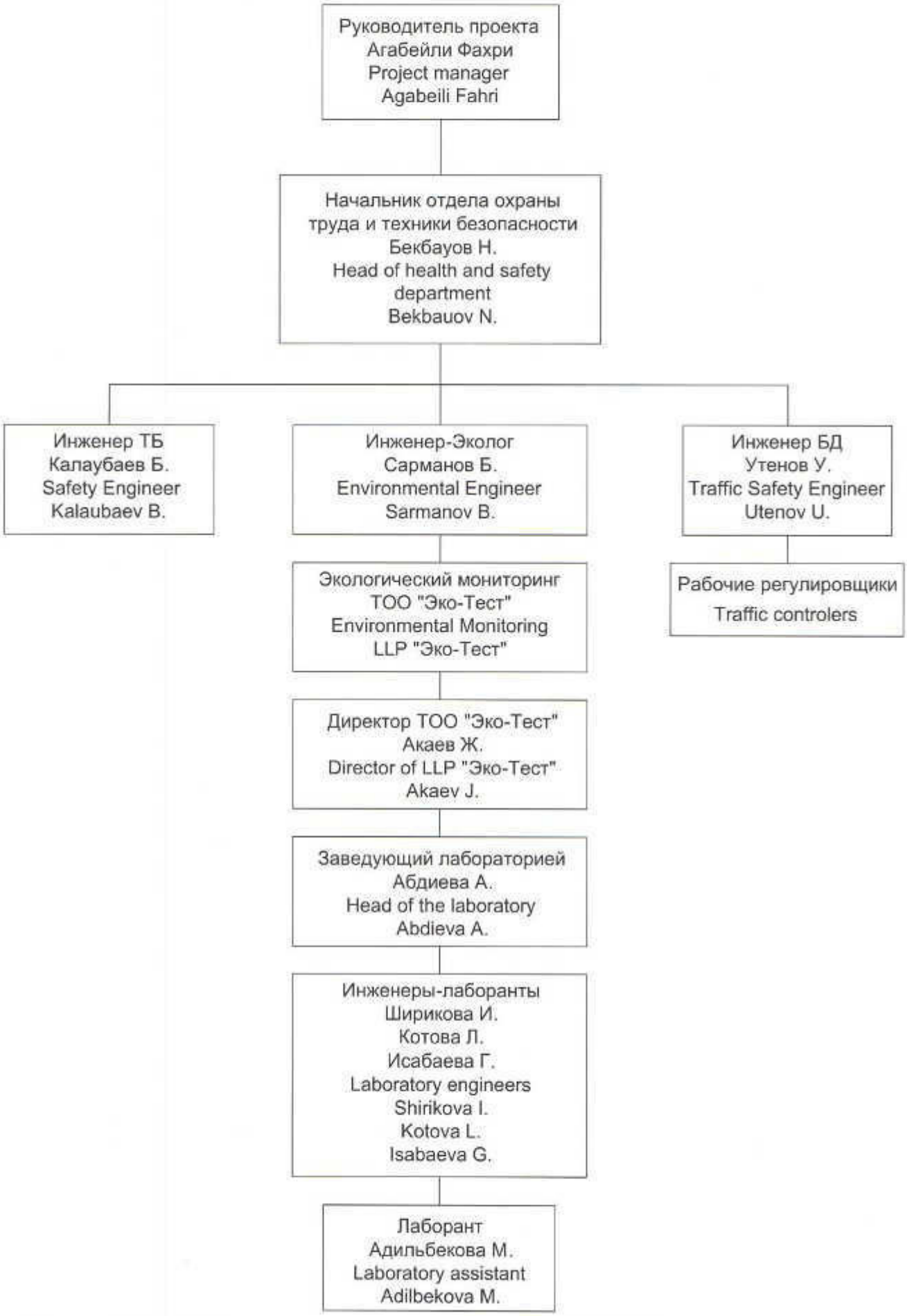
2,13	Highways "Khorgos - Almaty - Shymkent - border of the Republic of Uzbekistan" Plot 705-742 km, construction sites, field camp. LocationCH24+55-335+35 rightside. Dust-laden air pollution and exhaust emissions: CO, NO2, SO2, hydrocarbons, soot.	Highways "Khorgos - Almaty - Shymkent - border of the Republic of Uzbekistan" Plot 705-742 km, construction sites, field camp. LocationCH24+55-335+35 rightside. Dust-laden air pollution and exhaust emissions: CO, NO2, SO2, hydrocarbons, soot		X	Conduct systematic dedusting water. Transport of the material to produce a closed canopy vehicles. Installation of signs , speed limits . Application of high-quality fuel. Conduct environmental monitoring under the Agreements with sanitary epidemiology surveillance authorities or by independent accredited laboratories , according to the environmental monitoring plan . Develop EIA , obtain the opinion of public examinations , to get permission to release emissions at all work areas in accordance with Article 69 Environmental Code RK. Whenlaying asphalt mixtures containing toxic hydrocarbons, should ensure that the work area uniform rhythm of technological tools and transport. Unloading asphalt mixtures produced only in receiving hoppers asphalt . Compliance with repair of machines . Traffic control . Strict observance of sanitary norms SanPin number 3076 from 18.09.2004g "Requirements to the	Copies of emmission permits from environmental authorities. Monthly air quality measurements within acceptable levels, as per Kazakhstan standards and laws, along the road in Contractor environmental reports. Weekly (minimum) inspection of construction with working water carts and dust surpressing methods and trucks with covers. Speed limits of 30-50km per hour during construction, depending on location and according to police requirements. Workshop inspections, during health and safety audits and air quality measures reported in Contractor monthly reports at workshops. measurements to also be conducted at Asphalt Plant, even if Plant is sourced from Shymkent (and not set up by contractor).	
2,14	Noise, vibration and air pollution	Cities and towns along the reconstructed road:. Distance to property from 100 meters		X	Monitor the status of roads and perform " requirements to air localities" SanPin 3076 from 18.09.2004 "Content the exposure zone number from 841 03.2004g . " According to the Plan of environmental monitoring before construction to perform air monitoring to determine baseline air , noise and vibration according to P100 , P.106 " Specifications" in the areas where settlements at a distance of less than 200 m from the work area to carry out work only daytime (8-18 h). Accommodation units to produce sound absorbing sites or in tents (compressor) , use with the road-building machinery housings and hoods. The operating personnel must be provided with noise protection facilities in areas with a noise level of 85 dBA. Speed limits of freight transport in settlements. Control of the optimal mode of construction machinery. Controlling the level of noise (not to exceed health	Monthly noise and air quality measurements within acceptable levels, as per Kazakhstan standards and laws, along the road in Contractor environmental reports. Noise and emmissions permits. No nigth work in community areas, unless specifically approved by engineer after full consultation with affected community. Health and Safety Checks show ear/dust protection as appropriate to the activity taking place in a location. Minutes of meeting consulting with communities about noise and vibration potential impacts also indicating contractors methods to minimise impact and what community can additionally do if they choose. Traffic management plan, indicating control of speeds and traffic movement through a site during construction. Copies of thrid party insurance, which covers damage from vibration and/or funds to compensate for damage.	

2,15	Water Environment - Water pollution in the construction of roads, bridges, culverts, water intake for technical purposes	Water bodies in the vicinity, and crossing the road construction site: - Reservoir Akzhar. - Reservoir with. Rabat -p. Badam intake site: Shift camps and work areas for drinking water supply: Highway, Batching plant, Asphalt plant.		X	Water quality monitoring of surface sources to spend on contracts with agencies or sanitary epidemiology supervision by independent accredited laboratories according to the environmental monitoring plan . Quality of surface water sources must match " Sanitary requirements for water sources , drinking water supply , places of cultural and household water security and water bodies " from July 28, 2010 № 554 Making water use permit . The apparatus of water treatment facilities in the discharge of water from the roads and bridges. In the case of petroleum products in wastewater and rainwater to clean the oil wells. Water for technical needs only be equipped on the intake sites in locations agreed with the supervisory authorities for water sources. Accommodation building sites for construction of bridges , parking and road equipment vehicles within the coastal bands of water protection zones are not allowed. Doing work in floodplains allowed only with the permission of water protection , and sanitary authorities. Washing vehicles and road-building equipment must only be installed in areas equipped with wastewater treatment facilities. Pollution of watercourses and domestic productionwaste is not allowed. To prevent	Permits from Government authorities; Water quality testing results in Monthly environmental reports from Contractor. Full spill containment proceedures around fuels/oil/bitument/cement and other hazardous wastes. Machines parked 50-100m away from water courses when not used. Inspections to ensure siltation devices to catch siltation flow into water from construction in watercourses. test results of water supply in all locations where there is long-term staff such as materials processing plants, kazygurt contractors site and Constactors Shymkent site etc - in Monthly environmental reports. Permits for emission of wastewater and wastewater treatment facilities inpspected and approved as apporiate by engineer and environmental authorities. Soil stability and erosion control plans on all sites and culverts submitted to engineer for approvals.	
2,16	Social environment and public relations Gaseous pollution, dust, noise, vibration, violation of social conditions along the project road			X	Before construction contractor in conjunction with the employerand local government conducts public hearings on the construction project to assess the impact on the environment and socio-economic status of the population. Ensure the optimal operation of motor vehicles and road-building machinery.	Minutes of consultations and pulic hearings. During construction, any misuderstandings of design of operations triggering additional consultations/public meetings and awareness - minutes of meetings, photographs, lists of attendees included in environmental monthly reports. Vehicle maintenance records inspected biannually for consultants reports; statistics on break-downs of major equipment preventing construction activities to remain on schedule.	
2,17	Natural, historical and architectural monuments Natural, historical and architectural monuments damage and/or destruction			X	The Contractor shall conduct a full research papers (R & D) on the monuments of archeology and historical and cultural heritage, located in the territory. Compiling a scientific report on the results of research. Coordination of research results into local authorities. Conducting historical and cultural examination Monuments investigated for their withdrawal from the State list of historical and cultural heritage.	Photographs and inventory database of all sites which have local, national and international significance, t be updated if new sites are discvered. Access to be maintained throughout the project and proved by appropriate traffic management plan updates, observations and numbers of complaints regarding accessibility.	**Compliant:** Actively allowing accesses now, but documentation is minimal
2,18	Reporting on the implementation of the Plan for the protection of the environment and environmental monitoring - Ensuring compliance with environmental legislation To minimize the impact of production processes on a nature environment and human health			X	The contractor should be fully reporting requirements IEE and TEM indicating areas and measures taken. The monthly report shall include the results of the IEE and environmental monitoring, as well as the results of the site visits. Promptly report appears in pollution of the environment and the planned mitigation measures. The Contractor shall establish and maintain procedures to identify the responsibility and authority with respect to identifying and exploring, taking measures to mitigate the impacts caused by the environment.	Full Monthly reporting of laboratory results and compliances with EMP/CESMP, permits, plans updates, incidents for the month etc. Evidence of capacity building by the CSC in preparing compliant monitoring and reporting	**Mostly Comliant:** Monthly reports being submitted, although only presents laboratory testing results

3,0	**Operations Phase**						
3,1	Post construction operational audit, 1-year after road completeion	The owner of the road shall organise and undertake a complete environmental audit of the project. This audit is to be undertaken by Obleast-level DOEP. Findings must be reported within 15 days of completion of the field inspection and actions to repair any non-compliance conditions started within 5 days of noification by the Inpection Department. All Actions must be completed within 30 days	X		Lack of irreversible changes in environment. Pollution indicators within norm. All areas must be rehabilitated back to orignal pre-project state or to which has been agreed with owner of specific site.	Control of pollution by road after its entry into operation is engaged by the environmental department in SKR. Rehabilitation Plans and Final reports approvals from contractor and engioneers.	
3,2	Management of traffic generated air pollution	As traffic growh is projected o reach 7% per year, a site specific monitoring at roadside settlemetns will be required. Parametres to be monitored are in line with the norms and codes of the national envronmental legislation Monitroing Report	X		Pollution of the atmosphere within the MPE which will be established for operation of this road.	Control of air pollution after the introduction of the road in operation will lead the Department of Ecology in SKR. Traffic police will control the stream of cars, reducing the cycles of decrease and increase of speed and the engine at idle. These measures have to lead to the general decrease in level of emissions, despite the predicted increase in total amount of traffic.	
3,3	Management of Traffic - genrated noise	Noise impacts are expected are expected to marginally affect human settlements due to the remoteness, Near or at settleemnts (bypasses) noise levels need to be tested to confirm or modify the measures taken. Parameters to be monitored are in line with the norms and codes of national environmental legislation. Monitoring Report.	X		Data of monitoring. Finding of noise level within admissible values.	Control of the environment after its commissioning will be provided by the Department of Ecology in SKR. Road committee, in collaboration with environmental authorities will determine the feasible and effective measures to enforce the speed limit. On the territory of the settlements will be reviewed establishment of the natural noise barriers (fences) on the basis of a special monitoring program.	
3,4	Risk of Road accidents with pedestrians and domestic animals due to improved roads and faster speeds and greate traffic volumes	Report on the effectiveness of proposed measures for pedestrian and animal crossing structures, and make further recommendations to improve road safety with respect to these aspects. Modify as applicable, speed limit signage, pedestrian use zones, and provide more cross walk lighting. Reconsider, as necessary, strengthening and extension of animal fences along road. Accident monitoring repot.	X		Statistical data on the low accident rate on this section of road	For a data control, road committee, in cooperation with traffic police will put into operation restriction of speed by means of increase of radar supervision, better and more frequent signs and increased penalties for speeding. In villages the owner will improve designation and will include yellow fires where it is possible. measures include - traffic counts and accident statistics.	
3,5	Risk of Hazardous materials spills due to increased Traffic	Elaboration of a contingency plan in case of major emergencies, and plan responsibilities for different scenarios.	X		Plan of action in emergency situations	road committee, in cooperation with committee of emergency situations will prepare an emergency management plan, in line with national, regional and Oblast Emergency management plans and and facilities. Emeegency Management Plans include tyopes of potential emergencies, procedures and responsibilities for preparedness/response/recovery/mitigation of emergencies.	

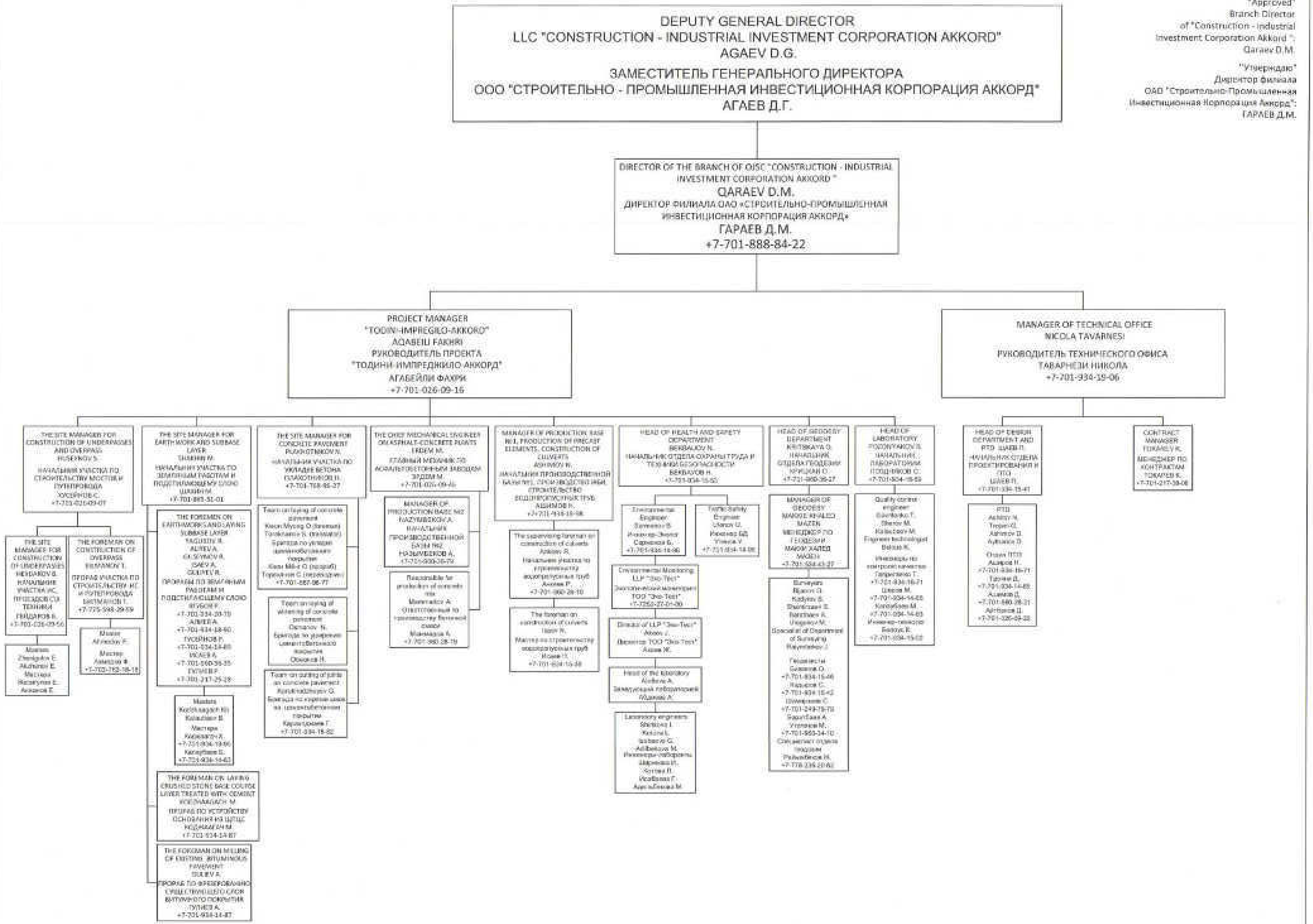
ANNEX 2 – CONTRACTORS ENVIRONMENTAL MANAGEMENT STRUCTURE

Структура экологического контроля
Environmental management structure



"Approved"
Branch Director
of "Construction - Industrial
Investment Corporation Akkord ":
Qaraev D.M.

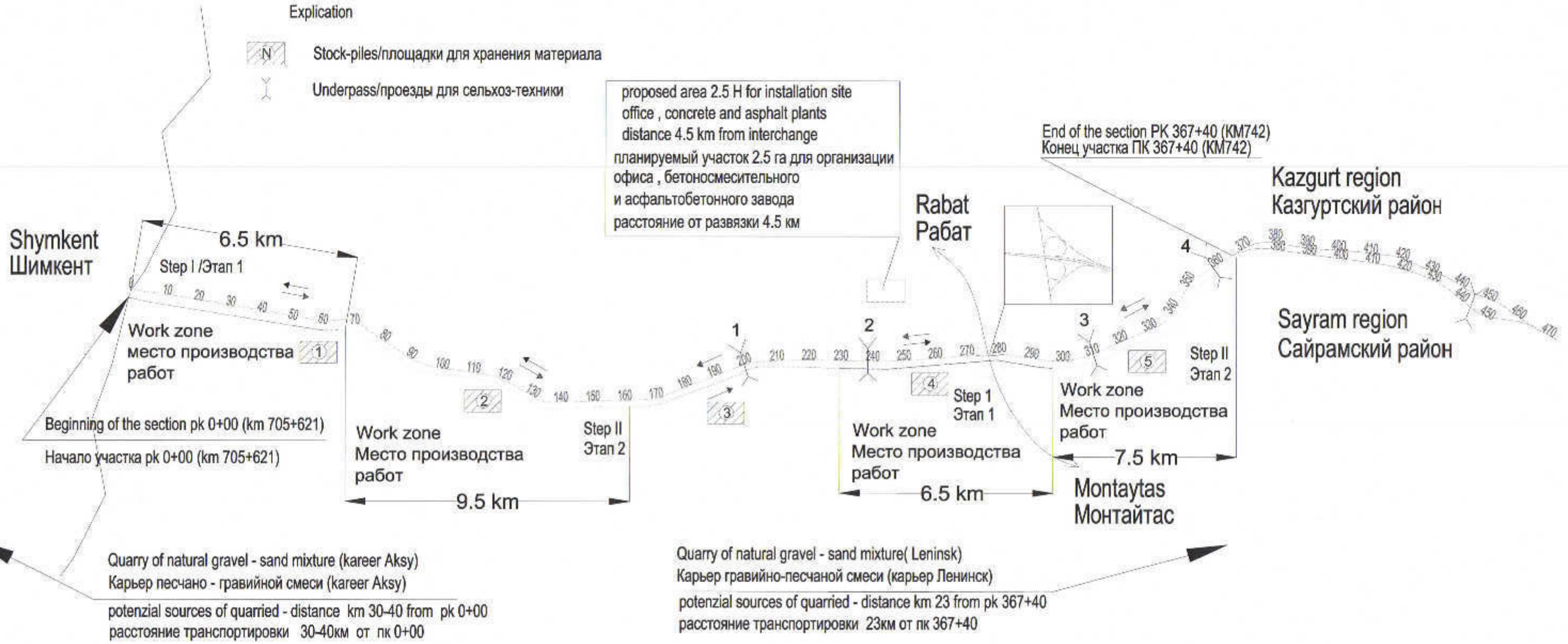
"Утверждаю"
Директор филиала
ОАО "Строительно-Промышленная
Инвестиционная Корпорация Аккорд":
ГАРАЕВ Д.М.



ANNEX 3– ENVIRONMENTAL MEASURING SAMPLING POINTS

Working project of reconstruction of road A-2 "Border of the Republic of Uzbekistan (Tashkent)-Shymkent-Taraz-Almaty-Horgos through Kokpek, Koktal, Blagoveshenka access roads to the border of the Republic of Kyrgyzstan" section km 705 - km742

Рабочий проект реконструкции автодороги А-2 «Граница Республики of Uzbekistan Узбекистан (на Ташкент)-Шымкент-Тараз-Алматы-Хоргос, через Кокпек, Коктал, Благовещенку с подъездами к границе Республики Кыргызстан» участок км 705 - км742



Main indicators of construction /Основные характеристики строительства

N n/n	Name	un. meas.	quantity	N n/n	Name	un. meas.	quantity
1	Construction length	км	36.74	11	Paid volume of excavation on the main road	$м^3$	625 520
2	Technical category of road - 1B			12	Small artificial structures on the main road (34 pipes+2 culverts)	pcs	36
3	Number of traffic lanes	pcs	4	13	Small artificial structures at the junction	pcs	53
4	Width of the road bed	м	27.5	14	Construction of new bridges - interchange	pcs	1
5	Dividing strip	м	5	15	Construction of junctions to the same level	pcs	82
6	Width of the road way	м	2x7.5	16	Construction of interchanges at two levels	pcs	1
7	Type road pavement-heavy (concrete slabs) Road carpet			17	Arrangement of auto pavilions (bus stops)	pcs	6
				18	Construction of rest areas	pcs	4
8	Natural sandy gravel fraction 0 - 70mm	$м^3$	462 039	19	Construction of a viewing underpass for trucks a/m	pcs	4
9	The base from the optimal mix macadam-C6 processed with cement 7% H-20cm	$м^3$	191350	20	Road signs	pcs	545
				21	Signal poles	pcs	2 640
10	Road concrete cl. In-30 fr. (M400) 10-20mm H-27cm	$м^3$	218184	22	Construction of sidewalks	пог.м	792
11	Asphalt coat (ШМА-20)	$м^3$	31227	23	Barrier fence	пог.м	49 212
				24			

Required by contract рекомендуемое контрактом

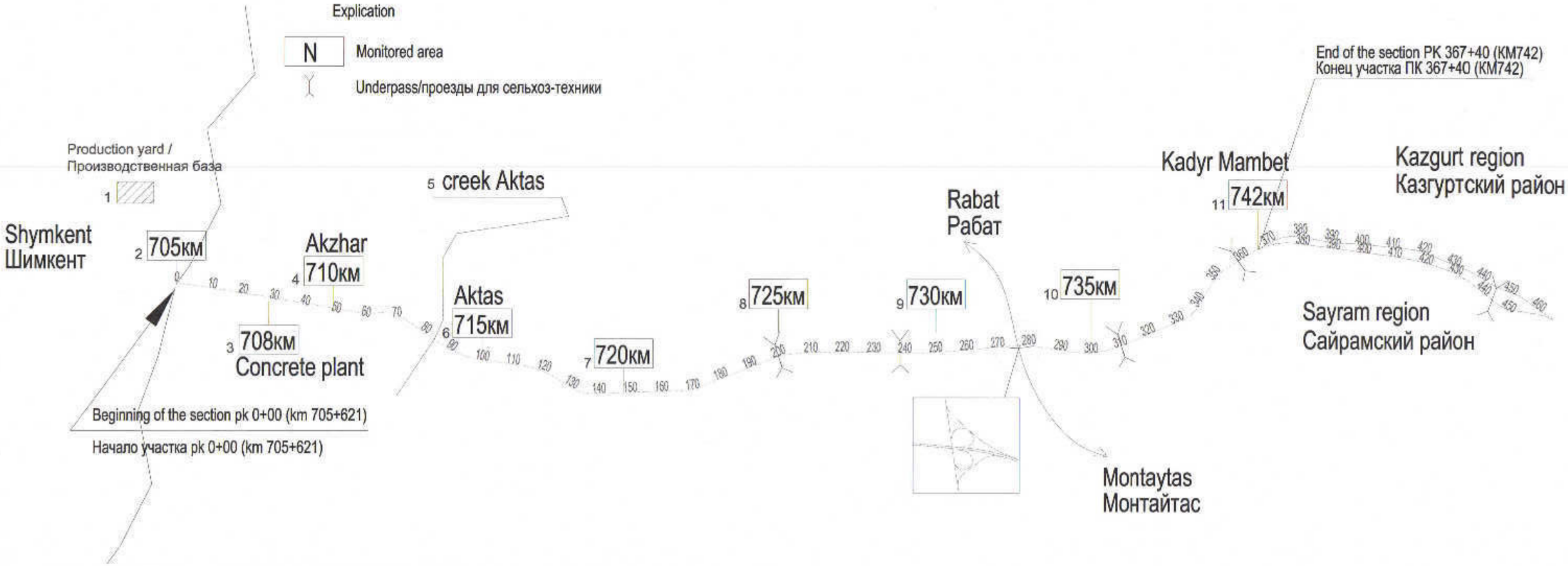
Type and property of the equipment For Each Lot	Minimum required quantity Per Each lot
Cement concrete factory (min240 m3/h)	1
Crusher (min.capacity 200m3/h)	1
Cocrete paver (min.width 9-11m)	1
Paver for base laying	1
Bulldozer	6
Motor grader (min.140 hp)	4
Excavator (0.65 м3 - 1.0 м3)	4
Cutter	1
Laboratory	1

Contractor equipment Оснащённость подрядчика

Type and property of the equipment For Each Lot	Quantity
Cement concrete factory (min180 m3/h)	2
Crusher (min.capacity 200m3/h)	1
Cocrete paver (min.width 9-11m)	1
Paver for base laying	1
Bulldozer	6
Motor grader (min.140 hp)	4
Excavator (0.65 м3 - 1.0 м3)	4
Cutter	1
Laboratory	1

Working project of reconstruction of road A-2 "Border of the Republic of Uzbekistan (Tashkent)-Shymkent-Taraz-Almaty-Horgos through Kokpek, Koktal, Blagoveshenka access roads to the border of the Republic of Kyrgyzstan" section km 705 - km742

Рабочий проект реконструкции автодороги А-2 «Граница Республики of Uzbekistan Узбекистан (на Ташкент)-Шымкент-Тараз-Алматы-Хоргос, через Кокпек, Коктал, Благовещенку с подъездами к границе Республики Кыргызстан» участок км 705 - км742



№	Sampling locations	Monitored parameters	Distance to facilities
1	Production yard	Air,physical parameters(noise,vibration)	Production yard in the Saule community
2	km 705	Air,soil,physical parameters(noise,vibration)	5-10 meters from the road
3	Concrete plant	Air,soil,radiation,physical parameters(noise,vibration)	Production yard 200 meters from the road
4	km 710	Air,soil,physical parameters(noise,vibration)	near the village Akzhar 10 m. from the road
5	km 713	water	Aktas creek , 300 m. from the road
6	km 715	Air,soil,physical parameters(noise,vibration)	near the village Aktas 10 m. from the road
7	km 720	Air,soil	10m. from the road
8	km 725	Air,soil	10m. from the road
9	km 730	Air,soil	10m. from the road
10	km 735	Air,soil	10m. from the road
11	km 742	Air,soil,physical parameters(noise,vibration)	10m. from the road, near Kudyr Mambet village

ANNEX 4– GRIEVANCE REGISTER

Grievance Register - Construction Supervision Consultant and Contractor Record

Grievance registration No.	Date	Name	Address	Contact number	Gender	Description of Grievance	Name of person who took grievance	Type of Grievance (A,B,C)	Directed to...?	Status of resolution	If resolved, state resolution
1	17.07.2014	SE Military Service 35746 (Resort)	South Kazakhstan, Shymkent	87252539390		Ensure crossing of the project road by military vehicles because of military training (Ref: 14 07 17 - 34-5-4-1014 - Rus Kaz Military Transport)	JSC "NC "KazAvtoZhol"		Engineer	**Resolved**	Instruction to provide access for military service were given (Engineer's Letter No 18 dated 18.07.2014)
2	17.07.2014	SE Military Service 35746 (Resort)	South Kazakhstan, Shymkent	87252539390		Provide underpass at Km 5 for military vehicles (Ref: 14 07 17 - 34-5-4-1017 - Rus Kaz Military Transport (decision)	JSC "NC "KazAvtoZhol"		Engineer	**Resolved**	KazAvtoZhol and CoR have dealt with this directly through letter (not available to CSC). Understanding is that the underpass is refused on the basis of no space for this to be possible.
3	02.09.2014	Secondary school named after D. Kopaev (Resort)	South Kazakhstan, Kazygurt Region, Kydyr Mambet village, Kunaeva St.	87253944439		Ensure traffic safety near school (Ref: 14 09 02 - 27-03-10-1320 - Rus Kaz Resort of Local Residents (K. Mambet Traffic Safety near School))	JSC "NC "KazAvtoZhol"		Engineer	**Resolved**	Actions to ensure traffic safety were taken (Engineer's Letter No 104/01 dated 04.09.2014) letter sent
4	02.09.2014	Akimat of Karakozy Abdaliev District (Resort)	South Kazakhstan, Kazygurt Region, Karakozy Abdaliev district			Reconstruction of water pipe (Ref: 14 09 02 - 27-03-10-1321 - Rus Kaz Resort of Local Residents (K. Abdaliev Reconstruction of Water Pipeline))	JSC "NC "KazAvtoZhol"		Engineer	**Resolved**	Contractor was informed the water pipe is repaired, after breackage.
5	03.11.2014	Residents of Enbekshi village (Resort)	South Kazakhstan, Kazygurt Region, Karakozy Abdaliev district, Enbekshi village			Allocate concrete slabs to ensure traffic safety (Ref: 14 11 03 - 04-09-250 - Rus Kaz Resort of Local Residents - Kazygurt)	Ontustykzhollaboratory		Engineer	**Resolved**	Engineer agreed on allocation of slabs (Engineer's Letter No 249/01 dated 06.11.2014)
6	15.11.2014	Ermentay Sultanmurat	South Kazakhstan, Kazygurt Region, Kydyr Mambet village, Turan-1, 160301	87253975734	M	Access road (gravel) to Turan. (Ref: 14 10 07 - 23-23-05-158 - Eng Rus Access Road to Turan)	COR (Abdaliev, Begmanov)		Ontustykzhollaborat ory / Engineer	**Resolved**	Engineer's Letter No 295/01 dated 09.12.14 Access road has been provided
7	12.12.2014	Ermentay Sultanmurat	South Kazakhstan, Kazygurt Region, Kydyr Mambet village, Turan-1, 160301	87253975734	M	Access road (gravel) to Turan; Dust; Noise; Property Damages; Communication cables problems. (Ref: 14 12 12 (Turan) - Rus Eng Letter of Complaint)	Contractor / Engineer		Contractor	**Resolved**	Investigations show that Access road provided, environmental levels did not exceed EMP standards and claims for compensation land encrachment and damage not caused by contractor. Noise and dust levels were to the to EMP accepted levels, according to Constractors environmental reports (independent testing conducted). This will be monitored for 2015 construction season and the contractor has been asked to be careful in next construction periods.
8	12.12.2014	Ermentay Sultanmurat	South Kazakhstan, Kazygurt Region, Kydyr Mambet village, Turan-1, 160301	87253975734	M	Utilities (gas, water, communication cables) installation (Ref: 14 12 12 - 27-03-10-1778 - Rus Eng Turan Letter of Complaint (Cable Relocation))	JSC "NC "KazAvtoZhol"		Contractor / Engineer	**Resolved**	Engineer's Letter No 302/01 dated 12.12.14
9	30.12.2014	Ermentay Sultanmurat	South Kazakhstan, Kazygurt Region, Kydyr Mambet village, Turan-1, 160301	87253975734	M	Access road (gravel) to Turan. Poor work progress. Land acquisition issues. (Ref: 14 12 30 (Turan) - Rus Eng Access Road)	Ontustykzhollaboratory / Engineer / Contractor		Contractor / Engineer	**Resolved**	Engineer's Letter No 332/01, 334/01, 340/01 Land is not part of the Turan. Design of road has been moved to akimat land, and not private land. Investigations idicate Turan Land not unacceptably encroached by project.
10	20.01.2015	Ermentay Sultanmurat	South Kazakhstan, Kazygurt Region, Kydyr Mambet village, Turan-1, 160301	87253975734	M	Urgent repair of power cable (fell down), Subcontractor did not pay for power (Ref: 15 01 20 (Turan)- Rus Eng Power Cable Repair)	Contractor JV Todini-Impregilo-Akkord		Contractor	**Resolved**	repairs done. Not paying for power is not proven
11	29.01.2015	Ermentay Sultanmurat	South Kazakhstan, Kazygurt Region, Kydyr Mambet village, Turan-1, 160301	87253975734	M	Poor progress of works at Turan access road (Ref: 15 01 29 (Turan) - Rus Eng Access Road to Turan)	Ontustykzhollaboratory / Contractor JV Todini-Impregilo-Akkord		Contractor		Access road was built and will be maintained (to be enforced by engineer); stealing electricity cannot be proven and illegal connection would have been stopped by power authorities when on inspection in December 2014; and power cuts to Turan were not by contractor, but by the utility authority when working on moving the services
12	01.02.2015	Ermentay Sultanmurat	South Kazakhstan, Kazygurt Region, Kydyr Mambet village, Turan-1, 160301	87253975734	M	Recommendations on installation of utilities (gas, water, communication cables) (Ref: 15 02 01 (Turan) - Rus Eng Utilities Location)	Ontustykzhollaboratory / KazAvtoZhol / Contractor JV Todini-Impregilo-Akkord		Contractor	**Resolved (engineer and Contractor defers to utilitiy companies/owners**	This is a letter recommending location. Suggestion and cable location referred to the dicision of the utility owners (Gas/power/water etc. companies).

13	11.02.2015	Residents of K. Mambet village (Resort)	South Kazakhstan, Kazygurt Region, Kydyr Mambet village	87058686017		Access road to the village. Lightning. Relocation of planned underpass (Ref: 15 02 11 - 04-09-77 - Rus Eng Kaz Resort of Local Residents (K. Mambet))	Ontustykzhollaboratory		Contractor / Engineer	**Resolved**	Decision to relocate underpass has been made (Engineer's Letters No 15 02 12 376/01; 15 02 13 378/01; 15 02 24 411/01)
14	12.02.2015	SE Shymkent Department of Housing and Utility Service (Resort)	South Kazakhstan, Shymkent	87252433027		Pedestrian crossing for school in order to ensure traffic safety (Ref: 15 02 12 - 27-03-10-151 - Rus Eng Pedestrian Crossing in Aktas (Resort))	JSC "NC "KazAvtoZhol"		Engineer	**Resolved**	Decision to use underpass instead of crossing has been made (Engineer's Letter No 396/01 dated 17.02.2015)
15	16.02.2015	Akimat of Abai District of Shymkent (Resort)	South Kazakhstan, Shymkent, Republic St. 6	87252242092		Request for technical conditions for access road to proposed residential area Akzhar (Ref: 15 02 16 - 27-02-14-164 - Rus Eng Access Road to Akzhar (Resort))	JSC "NC "KazAvtoZhol"		Engineer	**Awaiting decision on construction from CoR and MID**	Engineer considers that construction of junction is possible (Engineer's Letter No 390/01 dated 17.02.2015)
16	02.03.2015	Akimat of Shanak village (Resort)	South Kazakhstan, Kazygurt Region, Shanak village	87253934660		Repair of water pipe at bypass road KH-11 (Ref: 15 03 02 - 04-09-110 - Rus Eng Resort of Shanak Village Residents (Water pipe))	JSC "NC "KazAvtoZhol"		Ontustykzhollaboratory / Engineer	**Resolved**	Phone discussion with Akim Ergan Zhorabaev fund water service had resumed. No evidence has been found to indicate contractor/project caused interruption. Response on resolution sent back to Ontustykzhollaboratory .
17	13.05.2015	Knyazov B. (Owner of Petrol Station at km 739)	South Kazakhstan, Kazygurt Region, Sharaphana village		M	Compensation for damages and road closure (Ref: 15 05 13 04-09-248 - Rus Eng Grievance from Petrol Station Owner)	JSC "NC "KazAvtoZhol"		Ontustykzhollaboratory / Engineer		