

Bi-Annual Environmental Monitoring Report

2nd Bi-Annual Report (January–June 2014)
July 2014

KAZ: CAREC Corridor 1 (Taraz Bypass Section)

Prepared by Kocks Consult GmbH for the Committee for Roads, Republic of Kazakhstan and the Asian Development Bank.



REPUBLIC of KAZAKHSTAN
MINISTRY OF TRANSPORT AND COMMUNICATIONS
COMMITTEE OF ROADS



CONSTRUCTION SUPERVISION OF THE TARAZ BYPASS SECTION IN
ZHAMBYL OBLAST, INVESTMENT PROGRAM PROJECT 5
(ADB Loan # L2824-KAZ, MFF CAREC Transport Corridor I)

BI-ANNUAL ENVIRONMENTAL MONITORING REPORT - July 2014



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Bi-annual Environmental Monitoring Report

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KAZAKHSTAN: MFF CAREC Transport Corridor 1 (Zhambyl Oblast Section) [Western Europe- Western People's Republic of China International Transit Corridor] Investment Program - Project 5

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

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

TABLE OF CONTENTS

EXECUTIVE SUMMARY	1
PART I: INTRODUCTION.....	2
1. PRELIMINARY INFORMATION.....	2
1.1. Project Background and Objective of the Environmental Monitoring	2
1.2. The Project Area.....	2
2. PROJECT DESCRIPTION	4
3. PREVIOUS CONSTRUCTION ACTIVITIES AND PROJECT PROGRESS.....	5
PART II: ENVIRONMENTAL MONITORING.....	6
4. ENVIRONMENTAL MONITORING FRAMEWORK	6
4.1. Methodology for Environmental Monitoring in Construction Supervision	6
4.2. Environmental Monitoring Procedures of the Contractor	8
4.3. Contractor's Health and Safety Management	12
5. PERFORMED ENVIRONMENTAL MONITORING ACTIVITIES.....	13
5.1. Monitoring Activities of the Contractor	13
5.2. Environmental Audit of the Engineer	19
PART III: ENVIRONMENTAL MANAGEMENT	20
6. ENVIRONMENTAL MANAGEMENT PLAN (EMP).....	20
7. OBSERVED ENVIRONMENTAL IMPACTS	20
7.1. Environmental Issues Relevant to Construction	20
7.2. Resolution Process for Dumpsite at Pk110	21
8. ENVIRONMENTAL NOTICES AND LETTERS.....	21
9. CORRECTIVE ACTION PLANS	22
ANNEXES.....	24
ANNEX A: PowerPoint Presentation for Seminar Workshop on 07 February 2014.....	24
ANNEX B: Photos of Environmental, Health and Safety Issues.....	32
ANNEX C: SUPPLEMENTAL ENVIRONMENTAL ASSESSMENT REPORT to Bi-annual EMR - July 2014 Dumpsite at Km 110 - Taraz Bypass.....	37

List of Figures

List of Tables

Table 1: General Project Description	2
Table 2: List of Previous Job-related Accidents	13
Table 3: Air Quality Measurements (Jan.-Jun. 2014)	13
Table 4: Noise Measurements	16
Table 5: Water Quality Measurements (Jan. - Mar. 2014)	17
Table 6: Water Quality Measurements (Apr. - Jun. 2014)	18
Table 7: Observed Issues During the Environmental Inspections	20
Table 9: Letters from the Engineer on Environmental and Social Issues	21
Table 10: Letters from Contractor on Environmental and Social Issues	22

List of Photos

Photo No. 1: Excessive dust along roadwork areas	33
Photo No. 2: Affected trees have to be fully documented	33
Photo No. 3: Borrow Pits should have Reinstatement Plan	34
Photo No. 4: Silt contamination in waterways	34
Photo No. 5: Workers without proper Personnel Protective Equipment (PPE)	35
Photo No. 6: Partially reinstated borrow pit	35
Photo No. 7: Parametric Monitoring from Jan. – June 2014	36

EXECUTIVE SUMMARY

The Project 5 (Taraz Bypass Road Construction) of the CAREC Transport Corridor I within Kazakhstan territory entails the following: **(i) upgrading of a two-lane road to a four lane Category IB (km. 483.3 – km. 491); (ii) construction of new Taraz Bypass along a new alignment (Pk 0+00 – Pk 560+70); and (iii) Rehabilitation of Existing Taraz City Bypass & Two Sections of Merke - Tashkent Road between New Bypass & Old Bypass (Km 491 – Km 536)** The project is within Zhambyl Oblast north of Taraz City and within the transition zone between the Tian-Shan Mountains to the south, the Central Asian Steppe to the north, the lowlands between the Kyrgyz Mountain Range to the east, the Talas Alatau Range to the south, the Karatau Range to the west and the Muynkum (also spelled Mojynkum) Desert to the north.

Construction supervision is being undertaken under FIDIC with environmental supervision and monitoring scopes. The Contractor is obligated to obtain regular parameter measurements of water quality, noise/vibration and air quality, the results of which are submitted regularly to the Engineer. Environmental monitoring of the Engineer is done primarily by the International Environmental Specialist with field coordination with a local environmental consultant.

This report is the **Second Bi-Annual Environmental Monitoring Report covering the January to June 2014 period**. Within this period, the important task performed related to the environment is the resolution of the dumpsite issue at Pk 110. A separate report was prepared detailing the resolution process for the dumpsite issue which involved considerable consultations with major stakeholders. The solution applied consisted of removal of the garbage in the vicinity of the dumpsite and hauling to the adjacent currently operating dumpsite. This measure resulted in better environment of the project road and mitigation of the ill-effects of the dumpsite. The environmental assessment of the measured presented herein proves that positive impacts were done on the project road.

The usual environmentally related issues were also brought to the attention of the Contractor. Parametric measurements were continued to the Contractor and presented in monthly reports.

PART I: INTRODUCTION

1. PRELIMINARY INFORMATION

1.1 Project Background and Objective of the Environmental Monitoring

The Taraz Bypass construction of the Almaty-Taraz highway within the Zhambyl oblast is part of the Republic of Kazakhstan's (RoK) Western Europe–Western PRC Corridor (the Corridor) investment program. The primary aim of the Project is to improve the road sections within the country, which is part of the of the Central Asia Regional Economic Cooperation (CAREC) Transport Corridor 1. The Project hopes to provide efficient transport network in Zhambyl Oblast in particular and to the country in general. The Project components are designated as “Starts”¹ and presented as follows:

Table 1: General Project Description

START	Description	Category	from	To	Length
Start 1	Construction of New Concrete Road	1B	Km	Km 491	7.7 Km
Start 2	Construction of New Asphalt Road	IIB	Pk 0.0	Pk. 560+70	56.07 Km
	Rehabilitation of Merke - Tashkent Road	IIB	Km 491.0	Km 504.0	13.0 Km
	Rehabilitation of Existing Bypass	IIB	Km 504.0	Km 528.0	28.0 Km
	Rehabilitation of Merke - Tashkent Road	IIB	Km 528.0	Km 536.0	8.0 Km
Total					112.77 Kms
	Rehabilitation of Road maintenance Depot Building				1 Nos.

Through standard competitive bidding, a Contractor, JSC “KCC Engineering & Construction Co. Ltd” was selected by the Employer and to be supervised by Kocks-KECC-Almaty Joba-Quality Plan Joint Venture, as the Engineer. Construction supervision includes environmental monitoring, the main purpose of which is ensure that the environmental mitigation measures during construction are implemented through supervision by the Engineer during the construction phase. Environmental issues also are anticipated to be identified in advanced for avoidance and ensure timely completion of the project. The construction contract with KCC was signed on 28 March 2013 between the Employer and the Contractor and official commencement date for construction was 07 August 2013. The Project road is shown in the ensuing page.

1.2 The Project Area

The Project is located 483 km southwest of Almaty within the southern portion of Zhambyl Oblast in southern Kazakhstan (Province). The new Bypass Road section will circumvent the City of Taraz, and in addition road improvements will be done on the old bypass. The new road project section will not be within the Taraz City boundary but traversing the surrounding Rayons of Baizak and Zhambyl.

¹ The designation of “Start” was introduced in the Engineer’s Quarterly Report - October 2013 to 31 December 2013. Previous reports refers to three Sections: Section 1 – Km 483.3 to Km 491; Section 2: Pk 0.0 to Pk 560.7 (New Road); Section 3 – Km 491 to Km 536 (Merke - Tashkent Road and Existing Bypass)

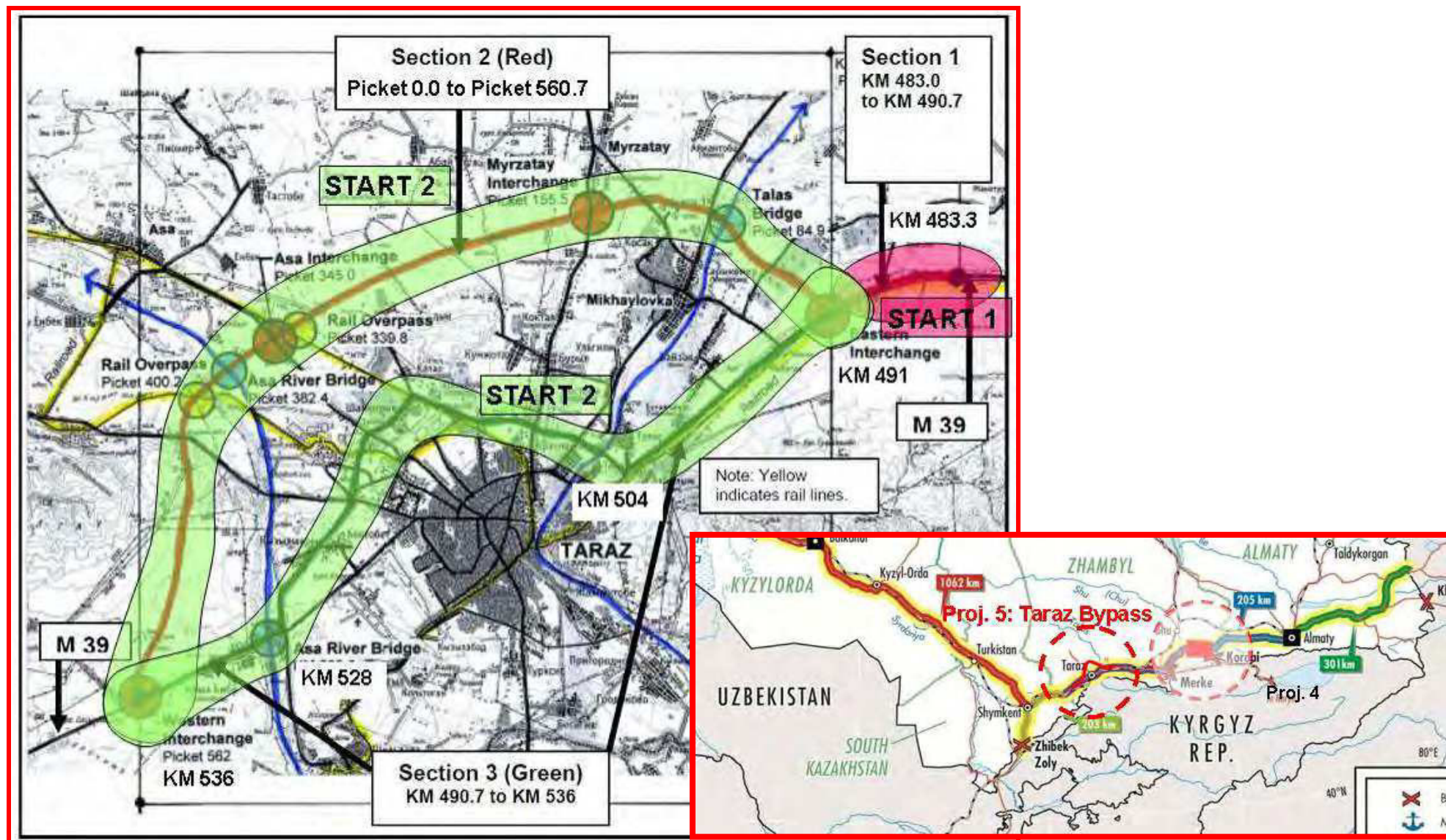


Figure 1: Map of the Project Road

2. PROJECT DESCRIPTION

The technical description of the Project and its components are as follows:

I. **START 1: Construction of New Concrete Road - km. 483.3 – km. 491 (7.7 km)**

The Merke – Tashkent road up to km. 483.3 is already newly built Concrete Road currently in operation. Included in the Taraz City Bypass Project, the next 7.7 km section up from Km 483 to Km 491 will be upgraded to same configuration replacing the existing asphalt pavement with concrete.

Geometric Details of new road is as follows:

- Width of Embankment top – 27.5m
- Carriageway width – 20m - (2 x 3.75)+5.0+(2*3.75)
- Number of Lanes – 4
- Shoulder Width – 3.75 on either side. (0.75m concrete & the rest in earth)
- Embankment Slope Ratio - 1:1.5 to 1:4 depending on the height of the Embankment
- Cross-fall – 2.0%
- Shoulder Cross-fall – 4%

Key Components:

Length of Road	7.7 km
Culverts	8 nos.
Bridges	None
Embankment Filling	161,000 m3
Sub Base (t = 230 mm)	90,800 m3
Lean Concrete Base (t= 180 mm)	34,200 m3
Concrete Pavement (t= 250 mm)	309,768 m3

II. **START 2: Construction of New Taraz City Bypass**

A. **Pk. 0+00 to Pk 560+70 (56.7 km)**

No heavy vehicle is permitted through the City of Taraz. Hence, currently all heavy vehicles are diverted to existing Bypass Road at Km 491 along the Merke – Tashkent Road and connect with main route at Km 528. The diversion of heavy traffic from the City of Taraz City roads helps to maintain the city free of traffic congestions and improve traffic safety.

The Existing Bypass Road is in operation for more than 50 years already. Routine Maintenance, Periodic Maintenance and improvement of isolated sections carried out time to time helped to maintain Bypass in motorable conditions. However, a considerable length of this old bypass shows heavy rutting and depressions owing to the increased intensity of heavy transport in recent times. Rapid expansion of city demands detour of heavy transport before the limits of existing bypass. Hence, this new bypass road is being constructed.

Geometric Details of New Bypass is as follows:

- Width of Embankment top – 15.0m
- Carriageway width – 7.5m (2 x 3.75) in each direction

- Number of Lanes – 2
- Shoulder Width – 3.75 on either side.
- Embankment Slope Ratio - 1:1.5 to 1:4 depending on the height of the Embankment
- Cross-fall – 2.0%
- Shoulder Cross-fall – 4%

Key Components

Length of Road	56.07 km
Culverts	121 Nos.
Bridges over Rivers	3 Nos.
Small Bridges	3 Nos.
Overpasses over Railway	2 Nos.
Overpasses in Interchanges	4 Nos.
Interchanges	4 Nos.
Embankment Filling	2.9 Million m3
Sub Base (t = 230mm & 375 mm)	283,500
Lean Concrete lower Base (t= 150 mm)	107,200 m3
Coated Aggregate Upper Base (t= 120mm)	78,000 m3
HMA- Binder Course (t= 90mm)	60,500 m3
SMA – Wearing Course (t= 60 mm)	40,000 m3

B. Rehabilitation of Existing Taraz City Bypass & Two Sections of Merke - Tashkent Road between New Bypass & Old Bypass (Km 491 – Km 536)

Existing Taraz bypass has undergone routine and periodic maintenance from time to time. However, due to heavily loaded traffic for considerably long period, the existing bypass requires pavement rehabilitation. This has been included in the Contract.

Two Sections of Merke-Tashkent Road between Old Bypass and New Bypass also to be rehabilitated under the Contract.

Key Components:

Length of Existing Bypass	28 km
Length of Merke –Tashkent from Km 491 to Km 504	13 km
Length of Merke –Tashkent from Km 528 to Km 536	8 km
Patching of Potholes	14,500 m2
Correction of Ruts & Depressions using HMA	1,800 m3
HMA Wearing Course	25,500 m3
SMA Wearing Course in selected locations	276 m3

3. PREVIOUS CONSTRUCTION ACTIVITIES AND PROJECT PROGRESS

The construction activities for the Taraz Bypass project road officially commenced in summer of 2013. The construction works consisted mainly of excavation, cut-filling, compaction, fill of surface granular materials (SGM), and laying of lean concrete pavement and some upper layers pavement for the New Bypass Road. In addition, major construction works were done on the bridges, interchanges, and box and pipe culverts. In this period, a number of borrow pits and quarry were operated located in the vicinity of the project road. In addition, several small borrow pits were also used as material sources but are now closed due to limited materials in those areas.

The Contractor's camp and Engineer's office was initially located within the Start 1 (or Section 1) but by September 2013 both moved to a building located at Promzona (industrial zone) in the suburbs of Taraz City. The Contractor operates 1 concrete batching plant and two asphalt mixing plants near Pk 400 of the New Bypass Road.

PART II: ENVIRONMENTAL MONITORING

4. ENVIRONMENTAL MONITORING FRAMEWORK

1.3 Methodology for Environmental Monitoring in Construction Supervision

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

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

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

Section 106 – Protection of Environment

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

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

The initial obligation of the Contractor is to formulate a project Environmental Management Plan (EMP) based on the findings contained in the 2008 Environmental Impact Assessment (EIA) Report. The Contractor submitted such document but was found to be too generic for the project. Hence, the Contractor was asked to submit a detailed site/project specific Environmental Management Plan based on the EIA that was provided, and conforming to the Contract documents. As the work progresses, the Consultant shall monitor the Contractor's compliance with the Environmental Management Plan and report upon impacts encountered and mitigation measures employed and make further recommendations as deemed necessary.

In general, as stipulated in the ToR for the Construction Supervision on the environmental aspect the Consultant shall "Carry out the following duties related to environmental mitigation measures during construction (a) to ensure that all the environmental mitigation measures required to be implemented are incorporated in the contract documents; (b) supervise and monitor the implementation of environmental (management)/mitigation plan (EMP); and (c) in case of unexpected environmental impacts, coordinate with the Project Director and PMC to recommend necessary measures to the Committee of Roads and ADB for Implementation".

Based on this the Environmental specialist shall establish coordinative work with relevant staff of the Consultant and the Contractor to ensure that environmental issues are recognized prior to or discovered during work implementation. The EMP for the project/s or component projects shall be the basis of the monitoring and accordingly, the Contractor should complete and submit their project EMP to the Engineer for approval as soon as possible. Coordinative communication channels shall be established according to the following work coordination chart:

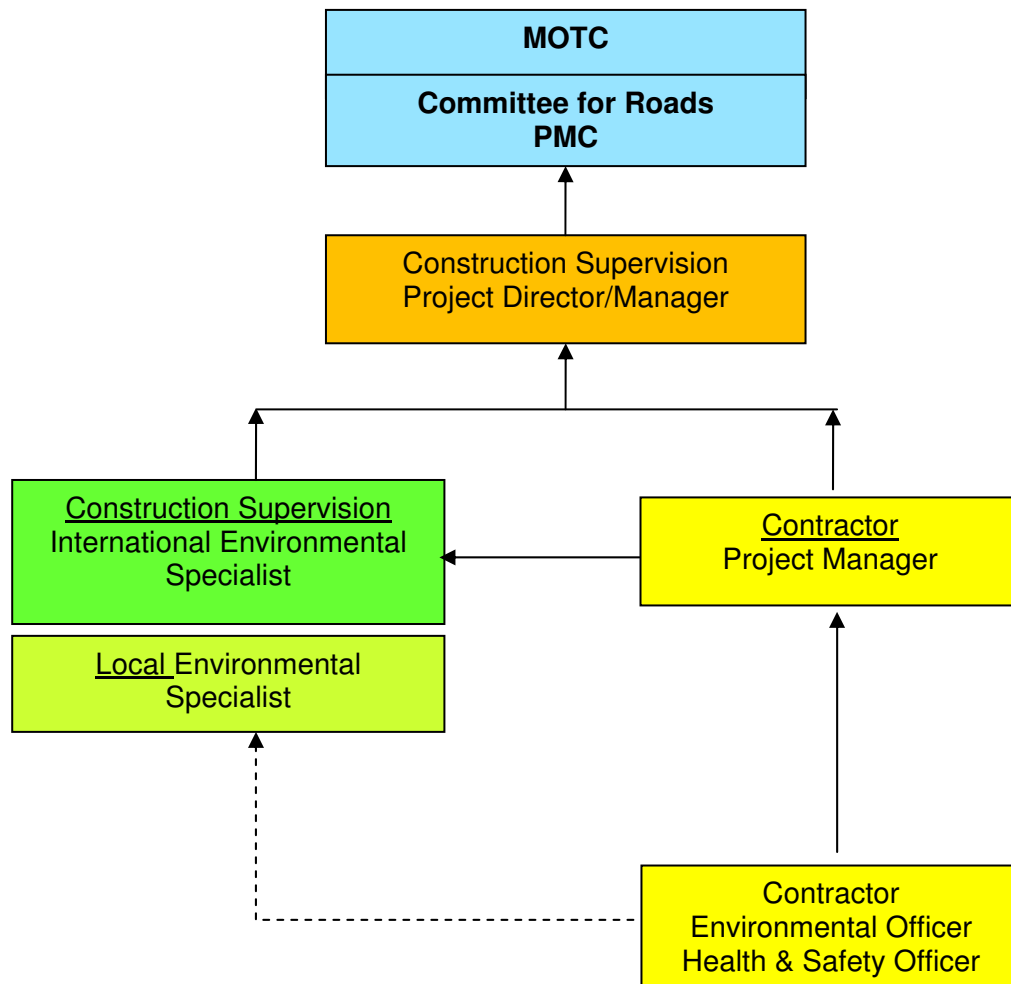


Figure 2: Work Coordination Arrangement

Specific tasks shall be undertaken by the Environmental Specialist as follows (E. Detailed Scope Item 22):

- “Manage and coordinate the update, implementation and monitoring of an initial Environmental Examination or Environmental Impact Assessment (IEE/EIA) as required by the Financing Framework Agreement (FFA) and loan agreement”. The Environmental Specialist will ensure that the EMP, as a dynamic document, is updated corresponding to every phase of the project implementation and that the Contractor shall be directed to produce additional details as deemed necessary.
- “Set-up internal monitoring system on the project’s environmental issues and requirement”. Monitoring protocols shall be established and will be explained to the Engineer’s and

Contractor's staff to be incorporated in the day-to-day monitoring activities. Periodic environmental reporting shall be required on the part of the Contractor as well.

- “Coordinate relevant parties, including civil society organizations, on environmental requirements of the Project”. Information dissemination shall be accomplished through reporting to the Client as well as formation of summary reports for inspection of interested project stakeholders and groups within the impact areas.
- “Closely monitor project sites against unexpected environmental impacts”. Planning is essential and such unexpected impacts can be anticipated with the inspection of the Contractor's Method Statements. Every Method Statement should indicate potential impacts and their corresponding measures to eliminate and mitigate them.
- “Monitor Contractor's compliance to EMP”. Since this is a commitment of the Client, the regular monitoring shall be done by the Local Environmental Specialist in compliance with the EMP and the directives of the International Environmental Specialist.
- “Advise the Project Director and PMC on environmental problems and /or requirements and recommend mitigation measures”. The International and Local Environmental Specialist shall project future issues that may arise and advise the Project Director and PMC on the necessary steps to be undertaken. Field coordination shall be under the oversight work of the Local Environmental Specialist while project management level coordination work shall be performed by International Environmental Specialist.
- “Prepare report on EMP implementation and contractors compliance”. Periodic reporting as required by the Client/s shall be prepared in accordance with reporting schedule of the Engineer / Consultant. This shall be a collaborative work between the local and international environmental specialist.
- “Take part in project performance monitoring and evaluation activities, develop key indicators, and perform surveys”. The environmental specialists shall assess and survey the project site/s and compile necessary information which can form part of the key indicators as part of the project performance monitoring.
- “Assess and prepare capacity building program on environmental issues”. Necessary training materials shall be prepared and training/s can be provided by both Local and International Environmental Specialist as part of the Capacity Building Component.

The next salient steps will be to operationalize these objectives and tasks to enable an efficient and effective environmental monitoring. Corresponding to delineation of roles and responsibilities, reporting procedure shall be set-up. Coordinative meetings shall be done to be abreast with the fulfillment of requirements of Client government and ADB.

1.4 Environmental Monitoring Procedures of the Contractor

The Contractor started monitoring the physical environment at the vicinity of the project road in July 2013. The parameters being monitored are (i) noise and vibration, (ii) water quality, (iii) air quality and (iv) flora and fauna monitoring. These indicators form the **Baseline monitoring parameters** for the project road which can be referred to in the course of the construction of the project as well as during its operation. The basic procedures are described below:

- **Noise and vibration** – Measurement for noise and vibration is performed monthly along the project road construction in around 9 selected stations where active construction and impacts are expected to be felt. The Norms on protection of the environment from noise and vibration are in accordance with the established standards. Monthly readings taken on noise and vibration were not exceeding the norms.
- **Water quality** – There are two rivers that cross the road construction site – Talas and Asa Rivers. Accordingly, bridges are being constructed as required by the project. Since July 2013, water quality readings were done in these rivers. Generally, the readings

indicated that the changes in water quality were non-threatening and any increase in concentrations can be due to seasonal usage of water from the downstream regions.

- **Air quality** – Air quality is controlled along the whole road construction sections by obtaining readings in around 11 selected stations. In addition air quality was obtained at operational quarries for the particular month. Readings on atmospheric air quality is compliant with standards and do not exceed maximum permissible concentration.
- **Monitoring of fauna and flora** – Monitoring of fauna and flora is carried out by direct observation. The habitats of rare animals and birds are not disturbed, as the construction progresses along the project section. Flora along the vicinity of the road is largely affected by dust and traffic emissions.

In addition, a number of pertinent sites are also monitored by the Contractor for any impacts of the construction activities. Such impacts will be recorded and mitigated in accordance to the EMP. Such sites are as follows:

- **Quarries and Borrow areas** – The environmental monitoring on the quarry areas will be done for any potential local contamination to the ground and/or surface water, such as oil spills, solid and liquid waste discharges and related worker's safety impacts. This will be the focus of succeeding monitoring.
- **Bridge and Interchange sites** – Subcontractors who implement works on bridges across the rivers Talas and Asa should be reminded of potential water contaminations, while those constructing interchange bridges should be aware of ground contamination, and safety for workers, pedestrians and motorist.
- **Contractor Camp / Subcontractors temporary camps** – The conditions of these camps were inspected. Non-conformance of the camp conditions should be mitigated as soon as possible.
- **Concrete plant, crusher plant, asphalt plant** – These are critical facilities which need frequent monitoring in terms of air, noise, petroleum and chemical spills, solid waste and workers' safety.

Maps showing these monitoring points are shown in the next pages.



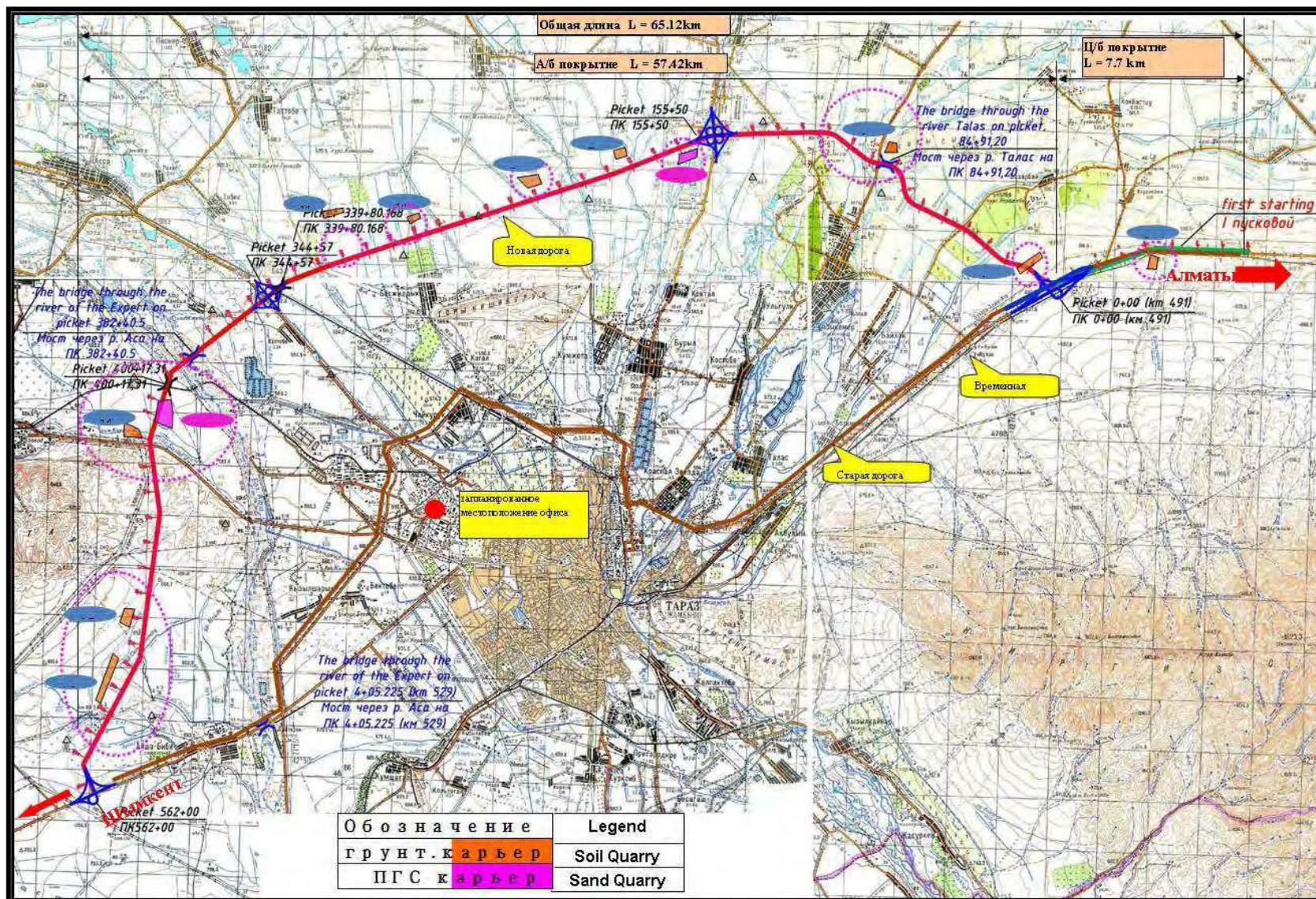


Figure 4: Environmental Parameter Sampling Locations at Quarry Sites

1.5 Contractor's Health and Safety Management

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

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

In case of accident, the Contractor is to submit brief summary about the accidents as part of the monitoring activities for the previous month the monitoring of observance of traffic rules should become more stringent consisting of the following:

1. Mitigation of dust especially at bypass road
2. Installation of road signs on speed limit.
3. Regular checking of journals of mechanics and medics of subcontractors on the control of alcohol and drugs by drivers before going to the site.

In addition the following safety issues need to be monitored:

- **Use of PPE (including replacement, according to climatic conditions)** - summer and winter personal protective equipment (PPE) has been provided. Chiefs must control and strictly watch the worker's security with certified special clothes and PPE, which includes the usage, and wear-out date of clothes. Violations on PPE non-usage, alcohol and drug intoxication would result to immediate dismissal of worker.
- **Dust and noise exposure** - The additional water-carriers were engaged to reduce the dust in summer months. Prolonged exposure to harmful conditions should be minimized consisting of poor air quality, mechanical vibrations (noise, vibration, ultra-sound and others) and emissions (ionizing, electromagnetic, laser, ultra-violet and others) on work places.
- **Operations of Equipment and trucks** - All equipment of the site should have necessary copies of documents and testing certificates. Working dump trucks should have their vehicle registration certificate and drivers should have driving license. Every day drivers are to be checked on alcohol drinking and blood pressure levels. The Contractor checks technical status of vehicles that transport people and carries out systematic trainings to drivers for Road traffic regulations and safety road.
- **Construction Hazards (heights, electric shocks, etc.)** - The subcontractor's chief should be given instructions or orders on safety compliance. Protection to workers should be provided such as for electrical protection, electric tool, gas protection, harnesses and safety belts.
- **Emergency procedures / Coordination with outside Medical Facilities** – During emergency an action plan for first aid and delivery of injured person to

Taraz City Hospital is to be operationalized. In case of fire the evacuation action plan is to be carried out. Telephone numbers of the Emergency department and ambulance service should be readily available.

A listing of the previous job-related accident on the reported by the Contractor is shown below:

Table 2: List of Previous Job-related Accidents

Occurrence Date/Time	Description
March 25, 2014 / 14:40 PM Almaty – Tashkent km 496	Mr. Bitorsynov A., the driver of vehicle Chrysler Neon H 446 SZ was going to Almaty; He tried to overtake a car and collided with vehicle (VAZ 2121) which was in the direction to Taraz city.

For the period, only one vehicular accident was noted. This is a good improvement compared to previous instances. This indicated that driver's awareness to prevent accident along with the safety measures for the project seemed to have improved.

5. PERFORMED ENVIRONMENTAL MONITORING ACTIVITIES

In late January 2014, the International Environmental Specialist of the CSC was mobilized to the site/s in Taraz Bypass Project. The purpose of the mobilization is to provide guidance on anticipated environmental issues for the succeeding bi-annual reporting. From 11 to 28 April, the International Environmental Specialist of the CSC was mobilized again to the site for the purpose of finding resolution to the garbage dumpsite issue at Pk 110. This work was in coordination with the local authorities which relevant to the dumpsite concerns and the PMC. For the overall environmental monitoring and management scopes, joint inspections were done with the specialist with the environment and health & safety staff of the Contractor. Construction sites, material sites, and plants were inspected.

1.6 Monitoring Activities of the Contractor

The Contractor, JSC "KCC Engineering & Construction Co. Ltd", had been performing active monitoring in the form obtaining parameter readings on air quality, noise and vibration, water quality and observations on flora and fauna as per their contractual requirements. Monthly parameter readings and observation with summary report were compiled. The results of the previous monitoring activities are shown below:

Air Quality: Measurements were done monthly and at 11 sampling stations along the project road and at operational quarry sites for a particular month. The results show that air quality is below the limit (MPC - Maximum Permissible Concentration) as observed in the Table below, indicating that the project is not impacting the air quality of the immediate vicinity.

Table 3: Air Quality Measurements (Jan.-Jun. 2014)

Parameter		NO2	SO2	CO	Dust (mg/m3)
MPC Values		0.085	0.5	5	0.5
Jan	0+00	No work	No work	No work	No work
	84+91.2	No work	No work	No work	No work
	155+50	No work	No work	No work	No work

Parameter		NO2	SO2	CO	Dust (mg/m3)
MPC Values		0.085	0.5	5	0.5
	344+57	No work	No work	No work	No work
	400+60	No work	No work	No work	No work
	400+17	No work	No work	No work	No work
	382+40	No work	No work	No work	No work
	483 km	No work	No work	No work	No work
	529 km	No work	No work	No work	No work
	536 km	No work	No work	No work	No work
	561 km	No work	No work	No work	No work
February	0+00	0.039	0.019	0.0045	none
	84+91.2	0.001	0.009	0.0023	none
	155+50	0.0075	0.012	0.0081	none
	344+57	0.006	0.017	0.008	none
	400+60	0.004	0.018	0.006	none
	400+17	0.006	0.016	0.004	none
	382+40	0.005	0.021	0.0056	none
	483 km	0.006	0.0175	0.0045	none
	529 km	0.004	0.021	0.002	none
	536 km	0.003	0.017	0.0075	none
	561 km	0.004	0.0225	0.007	none
March	0+00	0.002	0.014	0.0025	0.015
	84+91.2	0.001	0.003	0.001	none
	155+50	0.006	0.019	0.008	0.017
	344+57	0.005	0.013	0.004	0.016
	400+60	0.003	0.010	0.005	0.040
	400+17	0.005	0.014	0.003	0.019
	382+40	0.005	0.009	0.004	0.006
	483 km	0.0027	0.013	0.005	none
	529 km	0.004	0.021	0.005	none
	536 km	0.004	0.016	0.005	none
	561 km	0.0035	0.0145	0.005	0.013
April	0+00	0.0035	0.0145	0.005	0.029
	84+91.2	0.002	0.004	0.003	none
	155+50	0.006	0.018	0.007	0.030
	344+57	0.004	0.015	0.003	0.017
	400+60	0.003	0.015	0.004	0.025
	400+17	0.006	0.024	0.004	0.025
	382+40	0.004	0.0135	0.004	0.031
	483 km	0.003	0.008	0.004	0.022
	529 km	0.006	0.023	0.006	none
	536 km	0.0050	0.017	0.005	0.016

Parameter		NO2	SO2	CO	Dust (mg/m3)
MPC Values		0.085	0.5	5	0.5
	561 km	0.0061	0.012	0.0045	none
	Ground quarry №16	0.0115	0.272	0.120	none
	Ground quarry №15	0.016	0.328	0.110	none
	Ground quarry №14	0.010	0.205	0.147	none
	Ground quarry №11	0.005	0.0215	0.0065	none
	Ground quarry №10	0.018	0.050	0.011	none
	Ground quarry №8	0.006	0.060	0.008	none
	Ground quarry №7	0.009	0.039	0.019	none
	Ground quarry №6	0.007	0.127	0.011	none
	Ground quarry №4	0.009	0.058	0.0155	none
	Ground quarry №2	0.002	0.007	0.003	none
	Sand gravel mix quarry №2p	0.007	0.113	0.067	none
May	0+00	0.0047	0.0135	0.0055	0.025
	84+91.2	0.003	0.0065	0.004	none
	155+50	0.0075	0.0135	0.0049	0.037
	344+57	0.005	0.015	0.0045	0.023
	400+60	0.002	0.011	0.005	0.035
	400+17	0.006	0.009	0.005	0.028
	382+40	0.007	0.012	0.006	0.021
	483 km	0.004	0.008	0.004	0.027
	529 km	0.006	0.021	0.004	none
	536 km	0.007	0.018	0.005	0.021
	561 km	0.007	0.017	0.006	none
	Ground quarry №16	0.009	0.021	0.007	0.014
	Ground quarry №15	No work	—	—	none
	Ground quarry №14	No work	—	—	none
	Ground quarry №11	No work	—	—	none
	Ground quarry №10	No work	—	—	none
	Ground quarry №8	No work	—	—	none
	Ground quarry №7	No work	—	—	none
	Ground quarry №6	No work	—	—	none
	Ground quarry №4	No work	—	—	none
	Ground quarry №2	0.002	0.009	0.006	none
	Sand gravel mix quarry №2p	No work	—	—	none
June	0+00	0.004	0.012	0.005	0.037
	84+91.2	0.004	0.011	0.003	none
	155+50	0.007	0.011	0.007	0.009
	344+57	0.008	0.016	0.0055	0.010
	400+60	0.006	0.018	0.006	0.110
	400+17	0.004	0.011	0.006	0.024

Parameter		NO2	SO2	CO	Dust (mg/m3)
MPC Values		0.085	0.5	5	0.5
	382+40	0.004	0.010	0.005	0.026
	483 km	0.004	0.008	0.004	0.025
	529 km	0.006	0.018	0.009	none
	536 km	0.007	0.014	0.006	0.019
	561 km	0.005	0.015	0.006	0.008

Noise: Noise measured at the sites was **below** the limit which indicated that noise had been effectively controlled by the Contractor.

Table 4: Noise Measurements

Sampling Point (km)	Max. Allowable value (dBa)	Jan	Feb	March	April	May	June
Pk 0+00 (Starting Point Interchange)	75	35.2	41.3	43.8	41.8	46.2	44
Pk 84+91.2 (Talas bridge)	75	39.7	39.9	40.8	42.8	46.6	46.8
Pk 155+50 (Myrzatay interchange)	75	40.3	37.4	40.9	35	44.5	42.9
Pk 344+57 (Asa Interchange)	75	44.7	44	33.6	45.2	47.9	47
Pk 400+60 (Quarry)	75	43.4	45.3	45.5	43.8	46.2	45.6
Pk 400+17 Concrete Plant	75	42.8	44.4	44.9	45.4	46.9	46.7
Pk 382+40 (Asa Bridge)	75	42.5	46.9	46.1	46.2	47.5	46.9
483 km (Starting point)	75	41.5	41.5	46.7	44.6	46.6	47.5
529 km (Asa Bridge. Aysha –Bibi)	75	-	44.4	43.8	41.6	46.8	41.4
Aisha-Bibi village	75	-	-	-	39.6	39.3	42.1
Myrztai village	75	-	-	-	41.5	41.5	41.1

Water Quality: Measurements results for water quality are generally acceptable with the 22 parameters for each sample from the water sampling stations. Since January 2014, there were 9 water quality stations that were monitored. The results are **below** the MPC (Maximum Permissible Concentration) Values indicating that the project is not impacting the water quality of the immediate vicinity.

Table 5: Water Quality Measurements (Jan. - Mar. 2014)

No	Parameter	MPC Values	January								February								March									
			Crusher (STA 400+60)	Batching Plant (STA 400+17)	Bridge and Talas river STA 84+91.2	Bridge in Aisha Bibi village km 529	Site camp of "Mostospetsstroy-Astana"	Site camp of "Safi Road Construction"	Site camp of "MTS Company" in Sarykemer village	Site camp of branch "KCC Engineering & Construction Co., Ltd" in Taraz	bridge Aisha Bibi village, km 384+40	Crusher (STA 400+60)	Batching Plant (STA 400+17)	Bridge and Talas river STA 84+91.2	Bridge in Aisha Bibi village km 529	Site camp of "Mostospetsstroy-Astana"	Site camp of "Safi Road Construction"	Site camp of "MTS Company" in Sarykemer village	Site camp of branch "KCC Engineering & Construction Co., Ltd" in Taraz	Bridge Aisha Bibi village, km 384+40	Crusher (STA 400+60)	Batching Plant (STA 400+17)	Bridge and Talas river STA 84+91.2	Bridge in Aisha Bibi village km 529	Site camp of "Mostospetsstroy-Astana"	Site camp of "Safi Road Construction"	Site camp of "MTS Company" in Sarykemer village	Site camp of branch "KCC Engineering & Construction Co., Ltd" in Taraz
1	pH	6.5-8.5	-	-	-	-	-	-	-	-	4.35	6.5	4.815	7.545	-	-	-	-	-	7.75	6.75	5.024	4.944	6.1	7.9	7.3	-	-
2	Na+K	200	-	-	-	-	-	-	-	-	21.3	31.13	26.895	25.8	-	-	-	-	-	20.75	35.72	33.035	23.285	87.6	18.1	44.61	-	-
3	K		-	-	-	-	-	-	-	-	0.41	1	0.91	0.075	-	-	-	-	-	0.5	0.8	3.7	0.5	0.5	0.6	7.19	-	-
4	Ca	180	-	-	-	-	-	-	-	-	72.9	54.4	43.825	44.55	-	-	-	-	-	58.63	41.6	52.1	41.955	40.13	52.9	36.35	-	-
5	Mg	50	-	-	-	-	-	-	-	-	22.75	21.9	29.51	25.4	-	-	-	-	-	22	26.8	33.7	27.82	31.2	21.67	42.7	-	-
6	Cu	1	-	-	-	-	-	-	-	-	0.003	0.005	0.008	0.055	-	-	-	-	-	0.006	0.007	0.008	0.006	0.0008	0.003	0.005	-	-
7	Zn	5	-	-	-	-	-	-	-	-	0.07	0.07	0.147	0.14	-	-	-	-	-	0.076	0.11	0.127	0.125	0.06	0.08	0.11	-	-
8	Pb	0.03	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9	Mn	0.5	-	-	-	-	-	-	-	-	0.055	0.04	0.095	0.17	-	-	-	-	-	0.07	0.08	0.115	0.075	0.08	0.08	0.09	-	-
10	As	0.05	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	отсут.	отсут.	-	-	-	-
11	P	5	-	-	-	-	-	-	-	-	2.64	1.35	2.55	3.835	-	-	-	-	-	4.98	4.63	4.735	4.135	4.09	4.18	4.85	-	-
12	Cr	0.05	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
13	Fe	0.3	-	-	-	-	-	-	-	-	0.209	0.226	0.289	0.255	-	-	-	-	-	0.217	0.213	0.251	0.236	0.244	0.194	0.206	-	-
14	Cl	350.5	-	-	-	-	-	-	-	-	4.28	10.9	12.315	7.675	-	-	-	-	-	5.95	8.25	12.54	4.58	7.13	2.3	3	-	-
15	S	500	-	-	-	-	-	-	-	-	81.7	71.9	81.95	57.68	-	-	-	-	-	71.75	77.7	80.965	46.975	136.7	79.99	65.67	-	-
16	Ammonia nitrogen	2	-	-	-	-	-	-	-	-	-	-	0.625	0.34	-	-	-	-	-	-	-	-	-	-	-	-	-	-
17	Nitrates	45	-	-	-	-	-	-	-	-	5.96	12.8	6.035	4.69	-	-	-	-	-	8.09	10.5	6.86	2.755	14.89	4.21	7.21	-	-
18	F	1.2	-	-	-	-	-	-	-	-	0.44	0.71	0.565	0.665	-	-	-	-	-	0.51	0.68	0.67	0.69	0.88	0.73	0.45	-	-
19	Oil	0.1	-	-	-	-	-	-	-	-	0.06	0.008	0.405	0.13	-	-	-	-	-	0.04	0.02	0.008	0.007	0.006	0.01	0.008	-	-
20	Suspended solids	0.25	-	-	-	-	-	-	-	-	-	-	0.34	0.43	-	-	-	-	-	-	-	0.41	0.73	0.2	-	-	-	-
21	COD	30	-	-	-	-	-	-	-	-	4	4.8	11.2	11.66	-	-	-	-	-	5.8	7.5	12.2	10.95	9.08	1.03	9.88	-	-
22	BOD	6	-	-	-	-	-	-	-	-	3.1	3	3.95	5.6	-	-	-	-	-	2.5	3.5	5.85	5.75	4.3	5.3	4.6	-	-

Table 6: Water Quality Measurements (Apr. - Jun. 2014)

No	Parameter	MPC Values	April									May									June								
			Crusher (STA 400+60)	Batching Plant (STA 400+17)	Bridge and Talas river STA 84+91.2	Bridge in Aisha Bibi village km 529	Site camp of "Mostospetsstroy-Astana"	Site camp of "Safi Road Construction"	Site camp of "MTS Company" in Sarykemer village	Site camp of branch "KCC Engineering & Construction Co., Ltd" in Taraz	Bridge Aisha Bibi village, km 384+40	Crusher (STA 400+60)	Batching Plant (STA 400+17)	bridge and Talas river STA 84+91.2	bridge in Aisha Bibi village km 529	Site camp of "Mostospetsstroy-Astana"	Site camp of "Safi Road Construction"	Site camp of "MTS Company" in Sarykemer village	Site camp of branch "KCC Engineering & Construction Co., Ltd" in Taraz	Bridge Aisha Bibi village, km 384+40	Crusher (STA 400+60)	Batching Plant (STA 400+17)	Bridge and Talas river STA 84+91.2	Bridge in Aisha Bibi village km 529	Site camp of "Mostospetsstroy-Astana"	Site camp of "Safi Road Construction"	Site camp of "MTS Company" in Sarykemer village	Site camp of branch "KCC Engineering & Construction Co., Ltd" in Taraz	Bridge Aisha Bibi village, km 384+40
1	pH	6.5-8.5	7.82	7.76	7.15	7.1	7.5	-	6.8	-	7	6.5	7.76	8.19	8.155	6.5	6.5	7.62	7.69	8.07	7.8	7.88	7.95	8.25	6.75	7.75	7.73	7.84	8.29
2	Na+K	200	20.88	30.49	34.26	31.8	20.1	-	23.55	25.16	25.8	27.21	30.49	30.52	26.145	92.92	23.32	49.39	38.6	26.95	25.3	24.6	28.2	28.54	99.4	20.4	50.22	40.1	28.7
3	K		0.7	1.98	3.35	3.15	0.7	-	0.5	0.8	0.8	2.25	1.98	1.7	2.16	1.32	2.28	7.5	2.4	1.55	2	1	1.5	1.845	1.55	0.6	5.1	1.8	1.9
4	Ca	180	53.07	64.33	51.5	51	53.1	-	43.41	50.4	46.7	58.42	64.33	52.1	52.94	48.8	62.17	79.1	59.13	50	49.8	55.8	47.65	55.835	55.1	53.4	68.9	60.22	52.4
5	Mg	50	20	23.38	39.17	33.75	22.7	-	30.22	22.53	31.4	20.04	23.38	33.7	22.05	24.98	18.35	36.85	28.71	29.5	21.5	21.8	31.255	23.9	26.5	21.77	45.2	30.44	32.35
6	Cu	1	0.008	0.003	0.0035	0.0045	0.007	-	0.003	0.007	0.008	0.006	0.003	0.0045	0.006	0.0007	0.0006	0.009	0.005	0.009	0.007	0.005	0.008	0.008	0.005	0.001	0.005	0.006	0.005
7	Zn	5	0.088	0.1	0.145	0.14	0.13	-	0.16	0.15	0.11	0.06	0.1	0.115	0.158	0.008	0.015	0.15	0.11	0.125	0.05	0.09	0.075	0.142	0.014	0.02	0.1	0.14	0.08
8	Pb	0.03	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9	Mn	0.5	0.05	0.04	0.105	0.11	0.09	-	0.05	0.03	0.07	0.04	0.04	0.06	0.13	0.03	0.05	0.03	0.05	0.07	0.03	0.03	0.065	0.109	0.03	0.04	0.04	0.03	0.07
10	As	0.05	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11	P	5	5	5	4.75	4.72	4.86	-	4.86	4.63	4.55	4.93	5	4.9	4.69	5	4.68	4.08	4.8	4.84	4.88	4.9	4.86	4.94	4.88	5	4.12	5	4.74
12	Cr	0.05	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
13	Fe	0.3	0.255	0.203	0.158	0.178	0.177	-	0.258	0.204	0.234	0.211	0.203	0.164	0.214	0.187	0.204	0.163	0.196	0.242	0.189	0.144	0.149	0.181	0.193	0.175	0.172	0.177	0.252
14	Cl	350.5	5.05	8.05	11.79	8.36	2.7	-	5.09	5.9	5.14	5.83	8.05	12.205	4.97	5.38	2.8	3	6	5.36	5.99	5.66	11.995	4.835	7.44	4.24	3.5	5.27	5.65
15	S	500	72.08	78.5	79.55	64.9	80.22	-	48.34	46	57.8	74.7	78.5	77.9	63.69	55.7	80.1	75.8	51	68.6	61.42	36.28	80.85	66.77	113.7	79.7	80.2	57.11	68.045
16	Ammonia nitrogen	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
17	Nitrates	45	7.25	10.1	6.98	4.96	4.35	-	2.41	4.34	3.8	8.09	10.1	5.4	4	3.64	4.2	6.44	4.05	4.15	5.2	5.63	5.685	3.94	3.23	3.93	4.34	5.13	3.06
18	F	1.2	0.66	0.66	0.82	0.76	0.75	-	0.76	0.76	0.86	0.58	0.66	0.63	0.69	0.67	0.73	0.45	0.64	0.725	0.5	0.43	0.67	0.312	0.271	0.23	0.37	0.22	0.135
19	Oil	0.1	0.03	-	0.0055	0.031	-	-	0	0	0.1	-	-	0.007	0.03	-	-	-	-	0.008	-	-	0.025	0.06	-	-	-	-	0.03
20	Suspended solids	0.25	-	-	0.315	0.265	0	-	-	-	0.2	-	-	0.21	0.25	-	-	-	-	0.27	-	-	0.235	0.26	-	-	-	-	0.215
21	COD	30	55.3	6	11.05	11.4	12.4	-	10.4	6.8	13	5	6	11.4	10.9	6.9	6.5	6	5.5	11	5.8	5.8	10.9	12.15	7.5	7	6.4	6	11.05
22	BOD	6	2.5	2.5	5.35	5.5	6	-	5.3	3	6	2.2	2.5	5.4	5.1	3.3	2.8	2.7	2.6	5.4	2.7	2.3	5.15	5.77	3.5	3.3	3	2.9	5.4

1.7 Environmental Audit of the Engineer

The International Environmental Specialist of the Engineer conducted audit on the required documents from the Contractor. The submitted project EMP was found to be too generic and lacking pertinent focused on the requirements of the project. The specialist advised the environmental staff of the Contractor to improve the EMP for subsequent submission. The project EMP should be based on the project EIA and should respond to the requirements of the Contract and the Technical Specifications. Accordingly, the specialist provided guidance for the revision of the EMP. A well written EMP ensures clear understanding on the part of the Contractor and consequently better management of the environment. As of this moment, the EMP still needs improvement for it to be acceptable.

Periodic environmental audits will be undertaken by the Engineer's environmental specialist and necessary guidance shall be provided. Bi-annual Environmental Reports shall be compiled by the Engineer to be submitted within one month after each six-month period. Violations to the EMP and shall be considered non-conformance situation necessitating writing Non-conformance letter by the Engineer to the Contractor. Frequent violations can lead to serious repercussions and sanctions by the Engineer to the Contractor.

In addition, method statements should also contain elaboration of needed mitigation measures for impacts perceived by either the Contractor and/or the Engineer. This shall be checked by the Engineer under advisement of the Environmental Specialist prior to execution of sensitive or critical portions of the project.

The Environmental Specialist has inspected the construction sites including other sites such as Contractor's camp, borrow pits and river quarry. Environmental issues were noted and discussed with the Contractor's environmental staff. A compilation of these issues was prepared in a power point and presented in brief seminar with the Engineer and Contractor's staff on 07 February 2014.

PART III: ENVIRONMENTAL MANAGEMENT

6. ENVIRONMENTAL MANAGEMENT PLAN (EMP)

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

During the construction phase, certain situations would have come up which may not have been anticipated by the Contractor. It is for this reason that the project EMP is considered as a dynamic document which needs to be revised by the Contractor as the need arises.

7. OBSERVED ENVIRONMENTAL IMPACTS

During the mobilization of the International Environmental Specialist in July 2014, to close-out relevant environmental issues for the bi-annual environmental monitoring, joint inspections with the Contractor's staff were conducted at various sites. The areas inspected were the construction sites along the project road, garbage dumpsite at Pk 110, borrow pits, bridges and interchanges. The observed environmental issues were noted and discussed with the Contractor's environmental staff for clarification within the framework of the EIA-EMP. Contractual provisions and Technical Specifications. Photos were taken on a number of them and shown in Annex B. In addition, these issues on the environment, including health and safety, were then compiled for a power point presentation (See Annex A) and presented in brief seminar with the Engineer and Contractor's staff on 07 February 2014. The environmental issues relevant to the construction activities and dumpsite are discussed separately in the sections below.

7.1. Environmental Issues Relevant to Construction

The issues gathered within the period along with the corresponding measures are summarized in the Table below:

Table 7: Observed Issues During the Environmental Inspections

No.	Description of EHS Issue	Description of Proposed Measures
1	<u>Excessive Dust along road works areas</u> – During dry periods, excessive dust was generated by traffic of trucks and equipment. This can have short and long term health impacts to workers. (Photo No. 1)	The Contractor should water the work area more frequently in dry periods to minimize the generation of dust, in compliance with the environmental requirements. Frequency of water spraying should be modified to conform to site requirements.
2	<u>Affect on trees</u> – A good number of trees were affected along new alignment for road and interchanges. (Photo No. 2)	The Contractor should verify the number of trees that were cut. Affected natural vegetation should be reinstated by the Contractor.
3	<u>Reinstatement Plan needed for borrow pits</u> – The project uses a number of borrow pits for road embankment. Excavation without plan would lead to difficulty in reinstating the sites. (Photo	The Contractor should formulate and submit to the Engineer a Reinstatement Plan for all borrow pits. Implementation of the plan shall be prior to demobilization.

No.	Description of EHS Issue	Description of Proposed Measures
	No. 3)	
4	<u>Silt contamination along waterways</u> – Earthworks along or near waterways result in increased turbidity. (Photo No. 4)	The Contractor should institute measures to reduce silt contamination and turbidity in waterways.
5	<u>Workers without proper Personnel Protective Equipment (PPE)</u> – Workers were not wearing helmets and work boots. (Photo No. 5)	The Contractor should instruct his subcontractors that PPE should be worn at all times at the work place to minimize accident and health hazards.
6	<u>(Good Practice)</u> – Partial reinstatement of borrow pit. (Photo No. 6)	Previously used borrow pit has already been partially reinstated. Such conditions should be adopted for all material sources for the project.

7.2. Resolution Process for Dumpsite at Pk110

The issue on the encountered dumpsite was initially discussed in July 2013. After a number of consultations with ADB, MOTC, and local authorities, the Engineer and Contractor was able to resolve the issue in May 2014. A more detailed discussion of the resolution process is presented as a separate Annex C of this Second Bi-Annual Monitoring Report entitled:

SUPPLEMENTAL ENVIRONMENTAL ASSESSMENT REPORT to Bi-annual EMR - July 2014 Dumpsite at Km 110 - Taraz Bypass

8. ENVIRONMENTAL NOTICES AND LETTERS

During the previous period, the CS Consultant (The Engineer) had been actively monitoring the Contractor's performance in the environmental and social aspects. Issues were identified and communicated formally to the Contractor and PMC in the form of official letters. A number of letters pertained to the elaboration of the issues at the dumpsites as well as resolving it. A listing of such letters on the environmental aspects and their status is shown below:

Table 8: Letters from the Engineer on Environmental and Social Issues

Letter No.	Dated	Ref.
140108-RE-KCC-197	08.01.2014	Additional Testing of Dumpsite
140127-RE-KCC-200	27.01.2014	Assistance to International Environmental Expert
140203-RE-KCC-201	03.02.2014	Need for the Contractor to Provide Health and Safety Programs including HIV/AIDS
140414-RE-KCC-225	04.04.2014	Plan on monitoring and decreasing the influence on Environment
140414-RE-KCC-231	14.04.2014	Dumpsite Physical Evaluation
140523-RE-KCC-250	23.05.2014	Instruction for Day work - Leveling of Garbage Dump
140605-RE-KCC-265	05.06.2014	Leveling of Dump Yard - STA 110-113 - Day works

The Contractor's letters to the Engineer is listed below.

Table 9: Letters from Contractor on Environmental and Social Issues

Letter No.	Dated	Ref.
2014-363	20.01.2014	Submission of the Monthly Environmental Monitoring Report for December 2013
2014-368	04.02.2014	Reply referring the request for assistance to environmental specialist
2014-373	03.03.2014	Submission of Environmental Monitoring Report for the second half of 2013
2014-380	12.03.2014	Response on working out and carrying out the program on hygiene and labor safety. including HIV/AIDs
2014-393	20.03.2014	Submission of Plan on Monitoring and Decreasing the Influence
2014-401	02.04.2014	Response to the Meeting Minutes No.26-01/340 dated 27.03.2014 under the chairmanship of the Director of Zhambyl branch of KazAutoZhol JSC
2014-413	04.04.2014	Request to approve the works on clearance of waste landfill on STA 110+00 as day works
2014-439	14.05.2014	Request to pay for additional works on leveling the waste landfill. which will be executed on May 13 as day works
2014-455	24.05.2014	Request to pay for additional works on leveling the waste landfill. which will be executed on May 26 as day works
2014-459	29.05.2014	Submission of the Environmental Monitoring Report for May 2014
2014-483	10.06.2014	Reflection of the clearance of waste landfill as day works
2014-497	23.06.2014	Submission of the Environmental Monitoring Report for June 2014
2014-493	16.06.2014	Implementation of lean concrete repairing and clearance of the remaining asphalt concrete material
2014-548	25.07.2014	Submission of the Environmental Monitoring Report for July 2014

9. CORRECTIVE ACTION PLANS

In this Bi-annual Report, the critical tasks consisted of coming up with the solution for the dumpsite at Pk 110 and environmental safeguard issues related to construction. After many months of deliberations on this particular issue a consensual decision was arrived at. The solution primarily consisted of moving all of the garbage at the vicinity of the road which was considered as illegally dumped into the existing dumpsite where the operator was originally allowed to dump garbage. The measure resulted in better condition for the environment and permanent solution to the long-time issue of garbage for the area.

Construction related environmental issues were similar to what have occurred in the past. These issues were identified in Table 7: Observed Issues during the Environmental Inspections. As discussed, these issues should be constantly be dealt with by the Contractor during the entire construction phase of the project.

One more issue that needs to be dealt with by the contractor is with regards to the project EMP; which need to be more site specific rather than be too generic. This was brought up in the past and still need to be dealt with by the Contractor. Guidance was already provided by the International Environmental Specialist and the Contractor's Environmental staff has initiated the revision but still not acceptable level. Also, the Contractor's monthly environmental reports are wanting in terms of technical discussions on the result of the parametric measurements. In addition, the Borrow Pit Reinstatement Plan should be started soon by the Contractor for appropriate checking. The HIV/AIDS seminar should also be scheduled by the Contractor within the next few months.

ANNEXES

ANNEX A: PowerPoint Presentation for Seminar Workshop on 07 February 2014





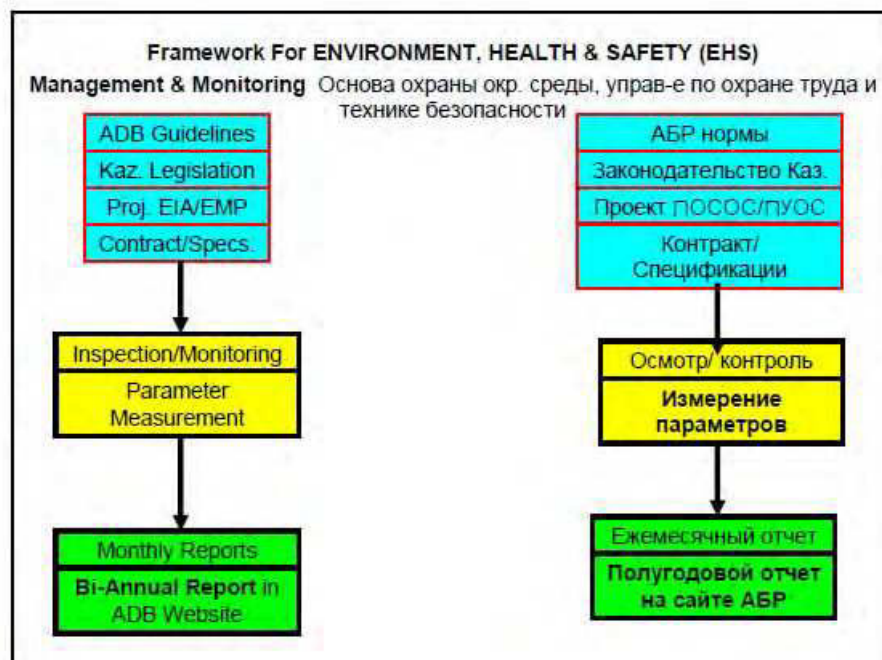

(ADB 2824 KZ)
Seminar No. 2 on
Environmental, Health and
Safety Management &
Monitoring
For Taraz Bypass Section

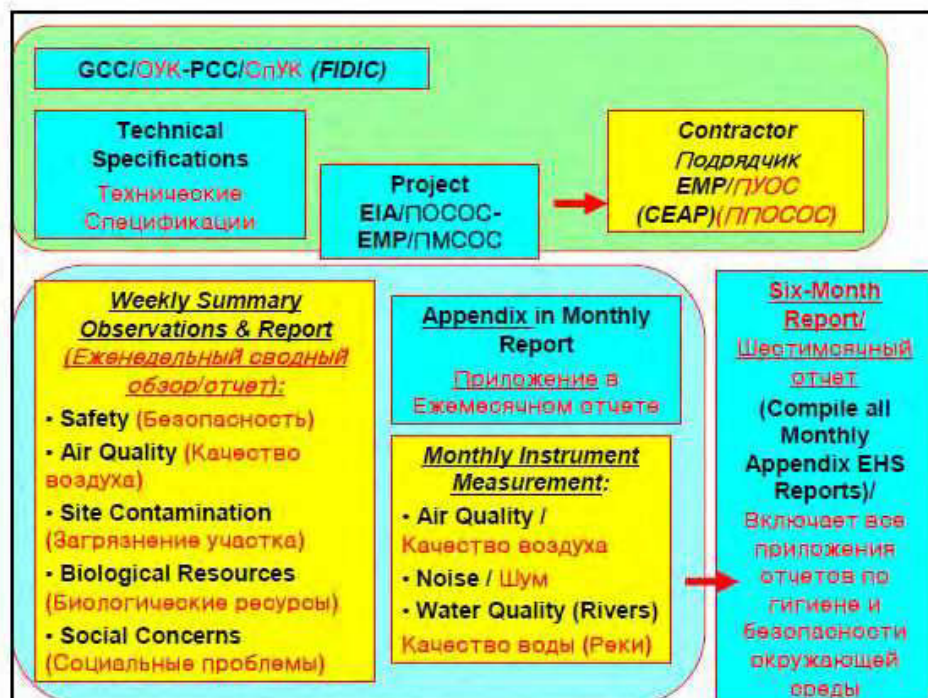
АБР (2824 KZ)
Семинар № 2 по окр.
среде, охране труда,
технике безопасности
и мониторингу на
проекте «Обход г.
Тараз»

아시아 개발 은행 (2824 KZ)
TARAZ BYPASS 공사 환경 및 안전 기술 회의

Environmental Seminar and Workshop

1

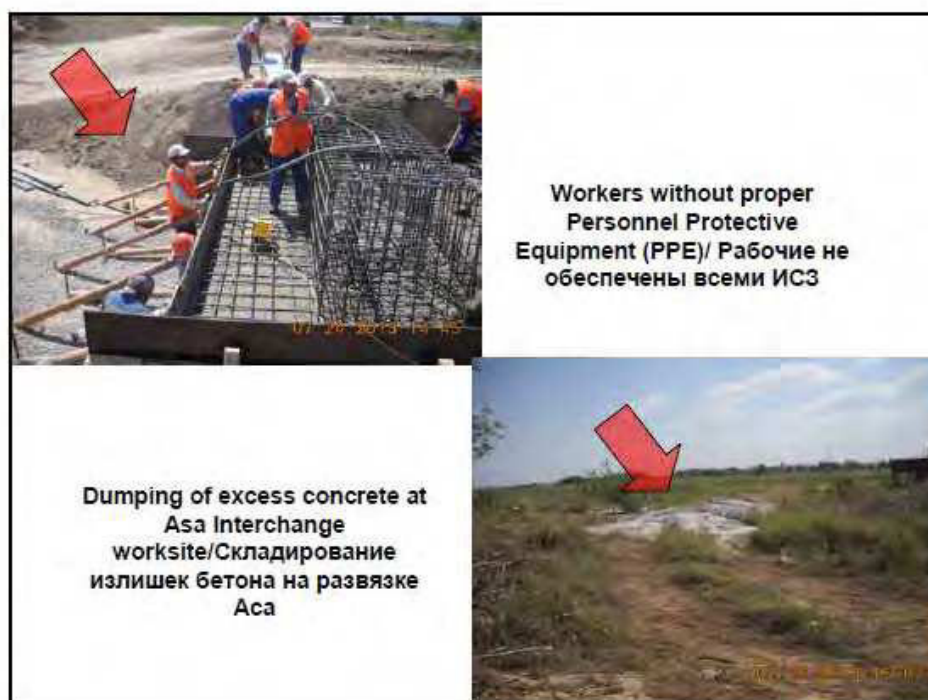




Weekly Monitoring Form		
Name of Inspector Signature _____	Date _____	Time _____
Location _____		
Description of Environmental Concern : _____ _____ _____		
Succeeding Protocols / Steps: <input type="checkbox"/> For Immediate Action by Contractor <input type="checkbox"/> For Discussion with Contractor <input type="checkbox"/> For Discussion with CSC Team		
Photos 	Items to be Inspected at Subcontractor's Sites / Пункты, которые в обязательном порядке проверяются на стройплощадке субподрядной организации: <ol style="list-style-type: none"> 1. Garbage Management / Бытовые отходы 2. Soil Contamination / Загрязнение почвы 3. Workers' Facilities / Условия, созданные для рабочего персонала 4. Personnel Protective Equipment (PPE) or Clothes / Индивидуальные Средства Защиты (ИСЗ) или снаряжение 	

Specific Provisions for ENVIRONMENT, HEALTH & SAFETY (EHS) Management & Monitoring	
Спец. положения по охране окружающей среды, мониторингу охраны труда и техники безопасности	
<i>FIDIC-GCC-PCC:</i>	<i>FIDIC-GCC-PCC:</i>
4.8 – Safety Procedure	4.8 – Техника Безопасности
4.18 – Protection of Environment	4.18 – Охрана окружающей среды
4.15 – Access Route	4.15 – Подъездные Дороги
4.24 - Fossils	4.24 - Ископаемые
6.7 – Health & Safety (including HIV/AIDS)	6.7 – Гигиена и техника безопасности (включая информацию о ВИЧ / СПИД)
Technical Specs:	Технические спецификации:
106 – Protection of Environment (Fuel & Chemical Storage, Water Quality, Air Quality, Noise, Earthwork, Preservation of Antiquities, Environmental Enhancement)	106 – Охрана окр. среды (Топливо и хранения химических веществ, качество воды, качество воздуха, шум, Земляные работы, сохранения древностей, оздоровления окружающей среды)
113 – Diversion and Traffic Control Measures (Traffic Management Plan, etc.)	113 – Объездные дороги и мероприятия по организации движения (план регулирования дороги, и.т.д.)



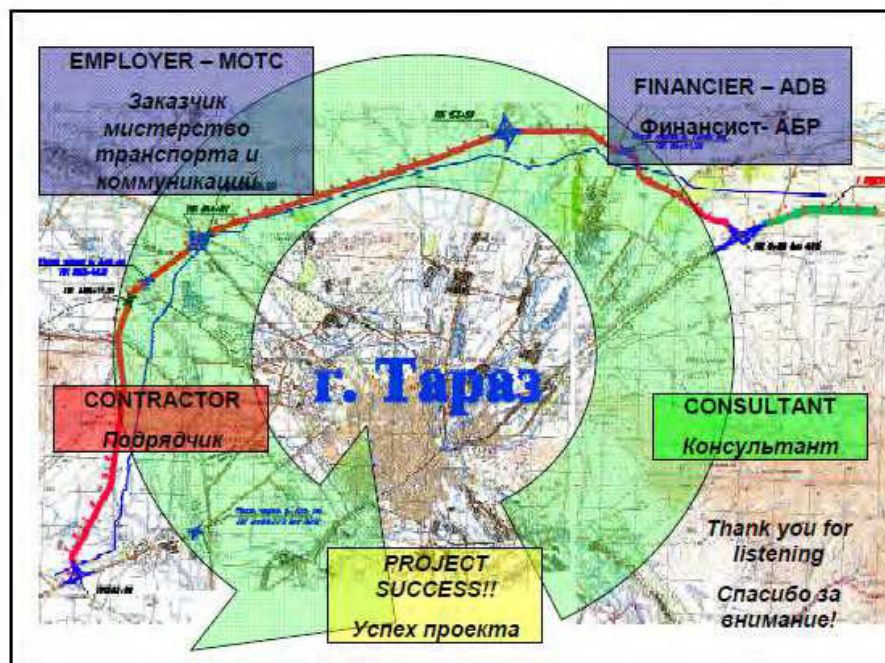


Status of KCC EMP (CEAP)/ Статус ПМСОС	
MAIN REPORT –Subject to Comments by the CS Environmental Expert/s	ОСНОВНОЙ ОТЧЕТ – Изучается Специалист по Охране Окружающей Среды КНС
<p>SPECIFIC SUPPLEMENTAL ENVIRONMENTAL PLANS: СПЕЦИАЛЬНЫЕ ДОПОЛНИТЕЛЬНЫЕ ПЛАНЫ ПО ЭКОЛОГИИ:</p> <ul style="list-style-type: none"> • Water Quality Management Plan/ План по управлению качеством воздуха • Dust Management Plan/ План по управлению запыленности • Noise Management Plan/ План по управлению шумом • Borrow Pit Management & Re-instatement Plan/ Управление карьерами и План Рекультивации • Campsite/s Management Plan/ План по управлению местом размещения вахтовых городков • Solid Waste Management Plan/ План по управлению твердыми отходами • Hazardous Waste Management Plan/ План по управлению вредными отходами • Soil Management Plan/ План по управлению почвенными ресурсами • Traffic & Safety Management Plan/ План по управлению безопасности на дороге • Health (HIV/AIDS) & Safety Mgmt. Program/ План по управлению охраной труда 	

OTHER IMPORTANT ITEMS / ЗНАЧИМЫЕ ПУНКТЫ
<ul style="list-style-type: none"> ➤ All roads within the construction areas of the Site shall be sprayed <u>at least twice each day</u>. / Все дороги, расположенные в пределах строительной площадки, должны поливаться водой как минимум два раза в день. ➤ Borrow pits will be developed so as not to cause drainage or visual intrusion or cause problems such as mosquitoes or water contamination / Разработка карьеров должна проводиться таким образом, что бы избежать проблем с дренированием или визуальной интрузией, а так же такими проблемами как москиты или загрязнение воды ➤ Pit restoration will follow the completion of works subject to final acceptance and payment under the terms of contracts. / Рекультивация карьеров проводится после завершения работ при условии окончательной приёмки и оплаты согласно условиям контракта

**IN CASE OF EMERGENCY, CALL THESE
NUMBERS** / В случае экстренной
ситуации, звоните по следующим
номерам:

1. **101 – FOR FIRE** / Пожарная Служба
2. **103 – MEDICAL AND HEALTH
CONCERNS** / Скорая помощь



PHOTOS OF ENVIRONMENTAL SEMINAR ON 07 February 2014



ANNEX B: Photos of Environmental, Health and Safety Issues



Photo No. 1: Excessive dust along roadwork areas



Photo No. 2: Affected trees have to be fully documented



Photo No. 3: Borrow Pits should have Reinstatement Plan



Photo No. 4: Silt contamination in waterways



Photo No. 5: Workers without proper Personnel Protective Equipment (PPE)



Photo No. 6: Partially reinstated borrow pit

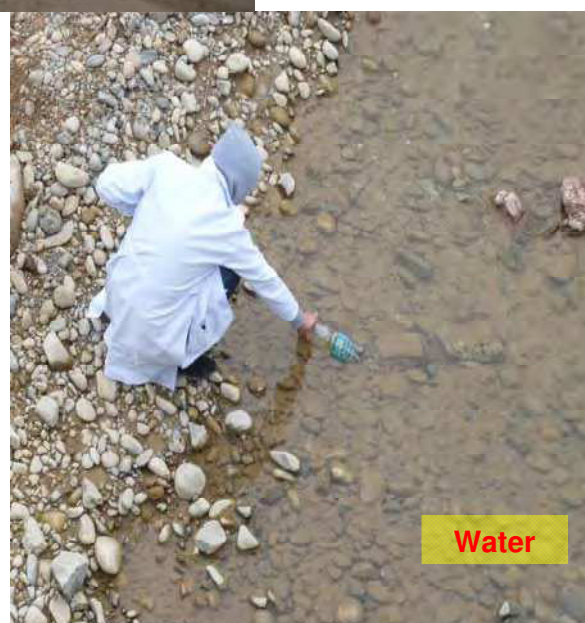


Photo No. 7: Parametric Monitoring Photos from Jan. – June 2014

ANNEX C: SUPPLEMENTAL ENVIRONMENTAL ASSESSMENT REPORT TO BI-ANNUAL EMR - JULY 2014 DUMPSITE AT KM 110 - TARA Z BYPASS



REPUBLIC of KAZAKHSTAN
MINISTRY OF TRANSPORT AND COMMUNICATIONS
COMMITTEE OF ROADS



CONSTRUCTION SUPERVISION OF THE TARAZ BYPASS SECTION IN
ZHAMBYL OBLAST, INVESTMENT PROGRAM PROJECT 5
(ADB Loan # L2824-KAZ, MFF CAREC Transport Corridor I)

SUPPLEMENTAL ENVIRONMENTAL ASSESSMENT
REPORT to Bi-annual EMR - July 2014
Dumpsite at Km 110 - Taraz Bypass



CONSTRUCTION SUPERVISION CONSULTANT (CSP-7)
Joint Venture



Kocks Consult GmbH, P.O.Box 200963
Head Office Koblenz
Stegemannstraße 32-38
D-56068 Koblenz Kocks Consult GmbH,
P.O.Box 200963

TABLE OF CONTENTS (SUPPLEMENTAL Report)

1. PRELIMINARY INFORMATION.....	i
2. DESCRIPTION OF THE PROJECT	i
3. LOCATION OF THE DUMPSITE	iii
4. DESCRIPTION OF PROJECT ENVIRONMENTAL	v
5. INFORMATION ABOUT THE DUMPSITE	vi
5.1. Background Information about the Dumpsite	vi
5.2. Status of the Dumpsite	vi
6. RESOLUTION PROCESS FOR DUMPSITE AT PK110	vii
6.1. Environmental Issues Pertaining to the Dumpsite at Pk 110	vii
6.2. Implementation of Approved Mitigation Measures.....	xiv
7. GENERATION OF ALTERATIVE SOLUTION.....	xviii
8. ENVIRONMENTAL ASSESSMENT OF THE IMPLEMENTED MEASURES	xxiv
SUPPLEMENTAL ANNEXES.....	xxvi

List of Figures (SUPPLEMENTAL Report)

Figure 1: Map of the Project Road	ii
Figure 2: Location of Pk 110 Dumpsite	iv
Figure 3: Layout of the Dumpsite with the Project Road	viii
Figure 4: Layout of the Dumpsite with the Photo Project Road (1)	ix
Figure 5: Layout of the Dumpsite with the Photo Project Road (2)	x
Figure 6: Layout of the Dumpsite with the Photo Project Road (3)	xi
Figure 7: Layout of the Dumpsite with the Photo Project Road (4)	xii
Figure 8: Location of Garbage Inspection Pits	xv
Figure 9: Mapped out Areas of Varying Depths of Garbage	xvi
Figure 10: Inspection Pit at Shallow Area	xvii
Figure 11: Inspection Pit at Mid-deep Area	xvii
Figure 12: Inspection Pit at one of Deep Areas.....	xviii
Figure 13: Inspection Pit at Deepest Area.....	xviii
Figure 14: Solution Option for Shallow and Mid-deep Area	xix
Figure 15: Solution Option for Deep Area	xix
Figure 16: Preferred Solution Scheme to the Dumpsite Issue	xxi
Figure 17: Project Road with Cleared Garbage	xxii

Figure 18: Cleared area at Right Hand Side of the Road.....	xxii
Figure 19: Cleared Area looking toward East.....	xxiii
Figure 20: Cleared Area at the West of the former Dumpsite	xxiii

List of Tables (SUPPLEMENTAL Report)

Table 1: Garbage Layer Thicknesses at Pit Locations	xiv
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1. PRELIMINARY INFORMATION

The Taraz Bypass Road, now under construction and a component section of the Almaty-Taraz highway in Zhambyl oblast, is also part of the Republic of Kazakhstan's (RoK) Western Europe–Western PRC Corridor (the Corridor) investment program. The implementation of the Project hopes to provide efficient transport network in Zhambyl Oblast in particular and to the country in general. The Contractor is JSC “KCC Engineering & Construction Co. Ltd” w and to be supervision Engineer is Kocks-KECC-Almaty Joba-Quality Plan Joint Venture. Construction supervision includes environmental monitoring, the main purpose of which is ensure that the environmental mitigation measures during construction are implemented through supervision by the Engineer during the construction phase. Environmental issues also are anticipated to be identified in advanced for avoidance and ensure timely completion of the project.

The Taraz Bypass Project (referred to as Project 5) consists of two parts: (i) an approximate 7.7 km upgraded road, from category-II to category-IB with four lanes; and (ii) an approximate 56.2 km new category-II bypass road. The Project was classified as an Environment Category A, for which an Environmental Impact Assessment Report was prepared in accordance with ADB's Safeguard Policy Statement (2009).

2. DESCRIPTION OF THE PROJECT

The Project is located 483 km southwest of Almaty within the southern portion of Zhambyl Oblast in southern Kazakhstan (Province). The new Bypass Road section circumvents the City of Taraz, and to be supplemented by improvements the old bypass. The new road project section will not be within the Taraz City boundary but traversing the surrounding Rayons of Baizak and Zhambyl

Since the existing Bypass Road had been in operation for more than 50 years already, a considerable length of this old bypass shows heavy rutting and depressions owing to the increased intensity of heavy transport in recent times. Also, rapid expansion of city demands detour of heavy transport before the limits of existing bypass. Hence, this new two-lane bypass road is being constructed. In addition, due to heavily loaded traffic for considerably long period of the existing Taraz bypass, this road requires pavement rehabilitation. The Project road is shown in the following page.

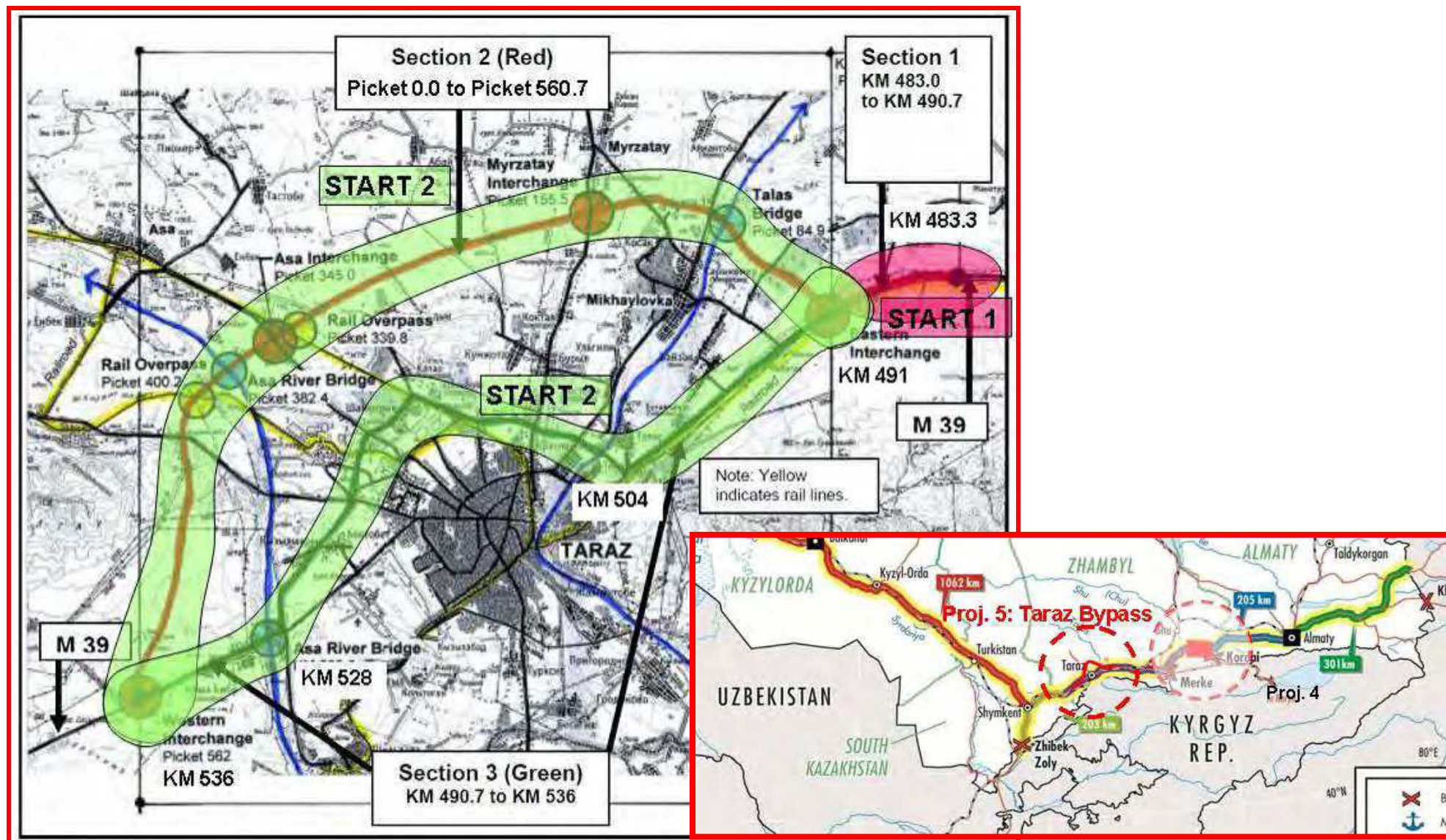


Figure 5: Map of the Project Road

3. LOCATION OF THE DUMPSITE

As the project progressed, one of the important issues that came up was the presence of garbage dumpsite which was not mentioned in previous EIA documents. In July 2013, the Engineer's² International Environmental Specialist made an initial visit to the project site to set up the environmental monitoring procedures with the Contractor³ and establish with them the baseline data for the project such as parameters for air quality, water quality, noise, ecological features, etc.

Prior to the site visits, it was mentioned to the International Environmental Specialist that the bypass road alignment passes near an existing dumpsite. This is a point of interest and which was immediately visited on for initial assessment on 16 July 2013. This visit developed a number of discussions regarding the issue in the effort of dealing with it within the environmental framework of ADB and the Government of Kazakhstan. The said dumpsite is located in the vicinity of PK 110 and primarily north of the bypass road alignment. It is around 3-4 km from Kusak village and adjacent to farmlands found at the east side of its location. To the south side an old factory complex can be found which was observed to be inactive. The following map shows the location of the dumpsite in relation to the project road.

During the initial field visit it was determined that the bypass road itself traverses mounds of dumped garbage materials. Sensing the issue, the Contractor has decided to momentarily discontinue the road embankment preparation at the fringes of the dumped garbage pending resolution of relevant issues.

² Kocks Consult GmbH

³ KCC Engineering & Construction Co., Ltd.

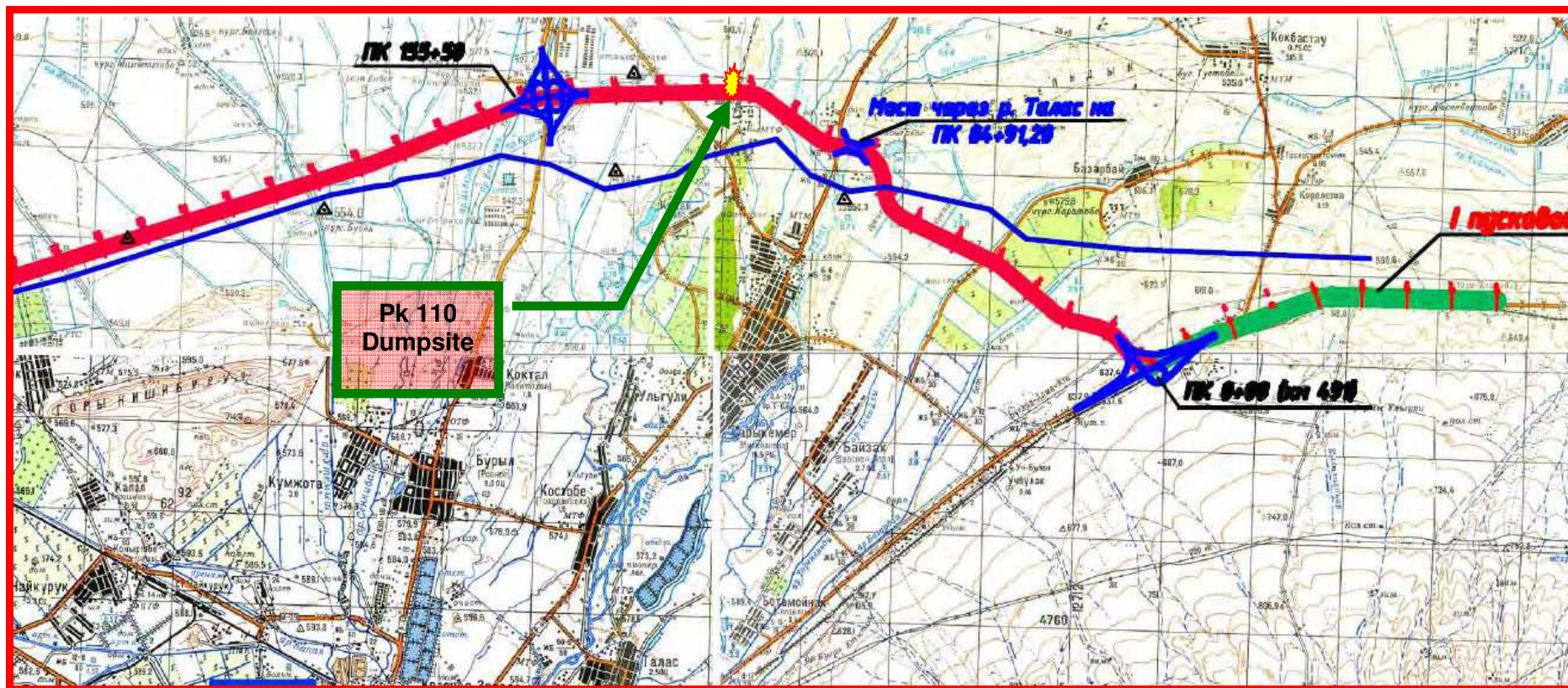


Figure 6: Location of Pk 110 Dumpsite

4. DESCRIPTION OF PROJECT ENVIRONMENTAL

Based on the ADB environmental screening criteria, the project was judged to be Category A project with recognizable impact to the existing environment owing to fact that the bypass itself is in a new alignment. With its financing, the design and implementation of the Taraz Bypass Project must comply with the relevant environmental and social safeguards of the ADB, including the ADB's Safeguard Policy Statement (2009), as well as all applicable RoK laws and regulations. Accordingly, prior to commencement of the project, the Environmental Documents and accompanying EMP were prepared and formed part of the Contract Documents for the construction.

The project's general area is said to be within the transition zone between the Tian-Shan Mountains to the south and the Central Asian Steppe to the north, the lowlands between the Kyrgyz Mountain Range to the east, the Talas Alatau Range to the south, the Karatau Range to the west and the Muynkum (also spelled Mojynkum) Desert to the north. The Project Area's underlying geology is complex and generally described in terms of plate tectonics such that mountains in the area are still on the uplift. The area is also seismically active, with recent earthquake measuring 6-7 on the Richter Scale, with a major earthquake experienced in May 2003 with an intensity of eight on the Richter and epicentre near Kulan (approximately 130 km east of Taraz City).

The land relief along the project road consists of mountains running parallel south of Section 1 (Start 1); moderately steep hills to the south of Section 2 (Start 2-A); and flat lands along Section 3 (Start 2-B). The project road mostly traverses alluvial plain deposited by the discharges of the rivers and streams emanating from the mountains to the south. The Taraz Bypass is also within the within the catchments of the Talas and the Asa Rivers and their tributaries, which are both are part of the larger Chu-Talas watershed.

The flora along the Right-of-Way of the project road consists mainly of agricultural products, especially along Section 1 (Start 1) and Section 2 (Start 2-A). Section 3 (Start 2-B) is an existing road and heavily travelled, and the adjacent land devoted to agricultural uses, expanding settlements and residential. The Project Area beyond the ROWs is characterized mainly of low diverse meadow vegetation with predominantly germanous plants and herbs and halophytic-germanous vegetation, and with no known reports of threatened or endangered plant species or habitats. There is no natural forest lands along the entire ROW, but the thriving trees in the project site consist mainly of poplar, elm, sometimes birch and maple.

There is no threatened or endangered animal species known to exist in the potential area of impact (PAI). However, indigenous mammals typically found in the undisturbed portions of the Kazakh Steppe include rodents such as ground squirrels (*Citellus*), hamsters (*Cricetus*, *Cricetulus*, *Podopus*), voles (*Microtus*), birch mice (*Sicista*), lemmings (*Lagurus*), marmots (*Marmota bobac*); and lagomorphs such as pikas (*Ochotona*) and hares (*Lepus*). Wolf (*Canis lupus*), foxes (*Vulpes vulpes*, *V. corsac*) and Siberian polecat (*Mustela eversmanni*) are typical steppe carnivores. Important listed species are saiga antelope (*Saiga tatarica*) as critically endangered (CR) and the giant mole-rat (*Spalax giganteus*) as vulnerable (VU); however these species are very unlikely in the vicinity of the proposed ROWs.

Reptiles that exist in the general area include the common lizards (*Lacerta agilis*) and vipers (*Vipera ursini*); amphibians include toads (*Bufo viridis*) and frogs (*Rana arvalis*). Four species of *Vipera ursini* are found in the area, more likely in Talas and Asa Rivers or area wetlands that are listed as threatened; four species of *Bufo viridis* are also listed as threatened.

The local climate is abrupt continental dry, with hot summer and moderately cold winter. Spring seasons is short and warm with frost still occurring in late months of May, while the autumn is

dry and warm. Frost free conditions last to around a minimum of 160 days within a normal year. The region's peak values for temperature recorded over the past 22 years are a maximum temperature of 44°C in summer and a minimum of -40°C in winter. The average annual rainfall ranges from 360mm to 465mm, whereby 187-252 mm falls during the warm period (April-September). During February and March strong snow storms (blizzards) from southwest to southern directions frequently occur.

The Taraz Bypass Project is located and entirely contained within Zhambyl Oblast and inside two Rayons: Baizak and Zhambyl; and is on the periphery of Taraz City. Zhambyl Oblast has a population of 1.0221 million people recorded in 2009 with population accounts for 40 percent urban and population 60 percent rural.

Resources in Zhambyl Oblast include its mineral deposits and areas suitable for both crop production and the raising of livestock. In Sections 1 and 2, the grazing of livestock and crop production (both rain-fed and irrigated) are predominant activities, while in area along Section 3 are a mix of agricultural uses, urban expansion and particularly in the western portion large scale heavy industrial activities (some of which appear defunct).

The Project Environmental Document submitted to ADB mentioned about the presence of 6 archaeological sites within this 400-meter wide area (200 m either side of the centerline of the ROW). These were subjected to further archaeological investigations and studies prior to allowing the Contractor to proceed in the construction.

5. INFORMATION ABOUT THE DUMPSITE

5.1 Background Information about the Dumpsite

As has been gathered from various informants, initially the area, which was around 3 hectare plot of land, was leased for 49 years to Ltd "Aldi and K by the Baizak Region Akhimat as disposal site of garbage without any stipulated restrictions. This was arranged on 30th of December 2005 through an Act of Right for Temporary Ownership resolution number # 634. This facility falls under the Institution of sanitary-epidemiological supervision of the Baizak region, Zhambyl Oblast, which conducts examination for maximum emission of pollutants for site of Ltd "Aldi and K".

During the conduction of topographical survey and designing of the Taraz Bypass, it was said that there was no garbage dumped along the road alignment. Hence, this issue was not present before and could not possibly be discovered yet. Currently, with the accumulation of garbage right along the alignment through time and in the absence of clear proof, it becomes difficult now to establish culpability. Needless to say, no one is accepting any responsibility on the situation.

5.2 Status of the Dumpsite

Based on previous estimate, the area actually being used as a dumpsite has enlarged to 14 hectares in area. Originally, there were around 13 individual dumping sites with three currently active in receiving garbage. The site is around 1.5 km. to the South of Kussak-2 village and in 1.0 km east from the plot of land owned by Ltd "Akzhol" in "Dikhan" territory. The nearest residential building is located at a distance of 1500 meters to the south of the dumpsite.

Dust and gas controlling equipment are non-existent and the continuous combustion of dumped materials is the main source of air pollutants in the atmosphere. As reported the dumping procedure consist of unloading, waste compaction, application of soil cover, and storage of waste.

Currently, garbage is being hauled from 7 rural districts of Baizak region with a population of 84,716. The daily delivery of garbage amounts to 0.5278 ton, but would seem to be more. With the continuous operation of the dumpsite, considerable amount of pollutants will be discharged into the immediate atmosphere and pose risk and hazards to the road users.

There are no observation station that monitors air pollution, weather and rainfall and other environmental parameters. It was said that control of MPC (maximum permissible concentration) standards observation is carried once every 3 months.

6. RESOLUTION PROCESS FOR DUMPSITE AT PK110

6.1 Environmental Issues Pertaining to the Dumpsite at Pk 110

The issue on the encountered dumpsite was extensively discussed in the first Bi-annual Environmental Monitoring Report (January 2014)⁴. In July 2013, ADB's Environmental Specialist⁵ issued instruction to Kocks International Environmental Specialist to undertake a closer investigation of the site and comprehensively elaborate the actual situation. Based on such investigation the issues were described as follows:

1. The dumped garbage materials were found outside of the property of the private dumpsite owner.
2. The road's alignment actually runs through the property of the Akhimat. Hence. the garbage materials were illegally dumped within the Akhimat's property.
3. Based on Contractors' survey. the property line of the private dumpsite is around 350 m to the right edge of the road. The Akhimat's property was divided in one big portion at the right-hand-side and small portion at the left-hand-side. The distance from the left edge of the road to the edge of the Akhimat's property at the left-hand-side is around 20 m. (see attached map and photos).
4. The perceived plan as of now is to task the Contractor to move the garbage out of the Road Right-of-way (ROW) into the adjacent areas. Whatever garbage that will remain at the smaller area of the Akhimat's property will have to be moved by the private owner of the dumpsite. as this is his responsibility; this holds also for all the garbage illegally dumped within Akhimat's property. **Effectively, the project will only clear the garbage from within the ROW.**
5. Since the garbage will still be remaining adjacent to the ROW, the generation of methane and spontaneous combustion will continue and threat on traffic and people will persist.
6. The legal-environmental issues are as follows:
 - (i) Under Kazakhstan sanitary regulations. a garbage dumpsite is considered Class I dangerous object and accordingly requires 1000m of protection (buffer) distance. The distance between the project road and the dumpsite is only 350 meters – hence now appears to be an issue.
 - (ii) The dumpsite was given permit in October 2012 to operate for 5 years. The locational conflict may result in the closure of the dumpsite.

⁴ Kocks Consult GmbH. Bi-Annual Environmental Monitoring Report - Jan. 2014

⁵ Mr. Nurlan Djenchuraev, ADB Environmental Specialist

- (iii) The current access road will be crossing the project road. Due to the construction and later the operation of the road, the access road to the dumpsite will be affected - a new access road will have to be decided for the continued operation of the dumpsite.
- (iv) All garbage materials should be dug out entirely, and perhaps even deeper since these materials would have mixed with the original soil.
- (v) This garbage dumpsite was not mentioned in the project IEE; guidelines would have to be formed with respect to excavation, handling and moving of garbage within the boundary of the existing dumpsite. This can be extra task and mobilization time for the international environmental specialist of the Construction Supervision Consultant.
- (vi) The Employer and GoK would have to be notified regarding this issue and be assisted in formulating measures and options on the operational and locational conflict of the dumpsite and the project road.

The following Photos and Diagrams depict the issues at the dumpsite.

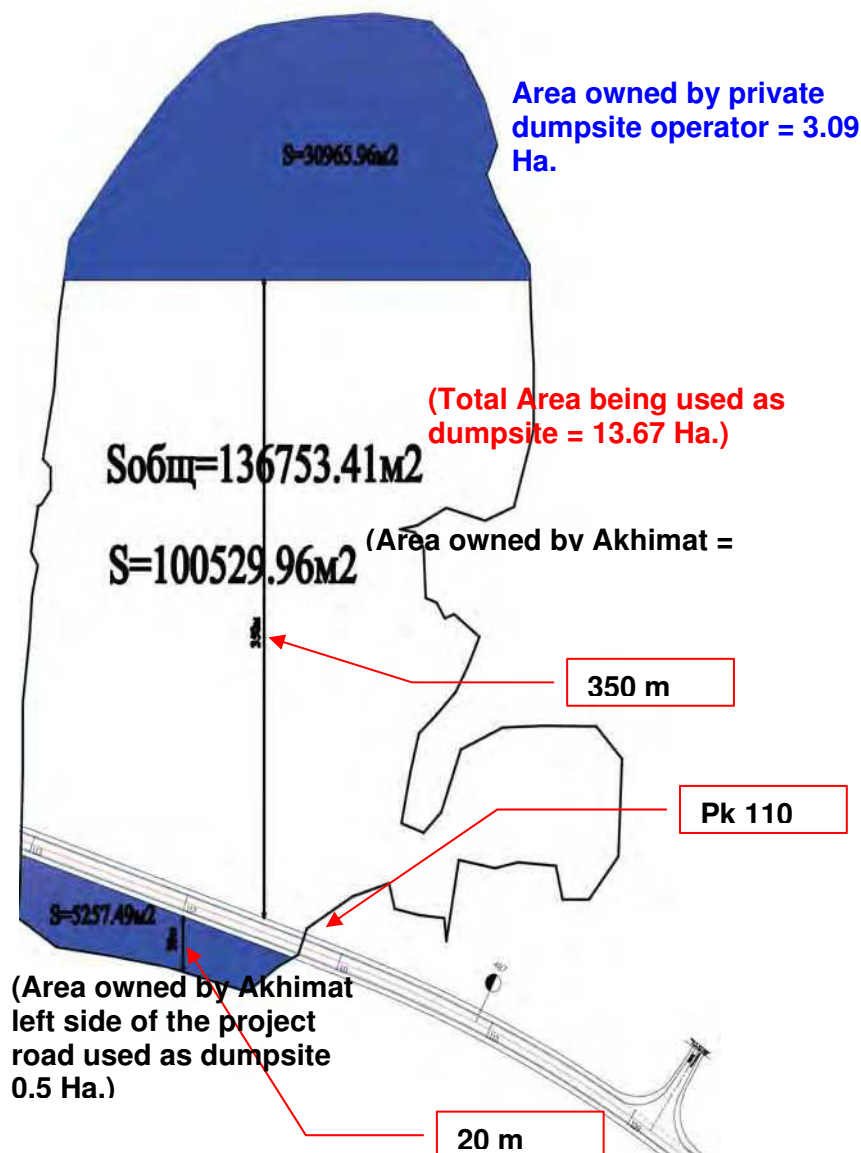


Figure 7: Layout of the Dumpsite with the Project Road

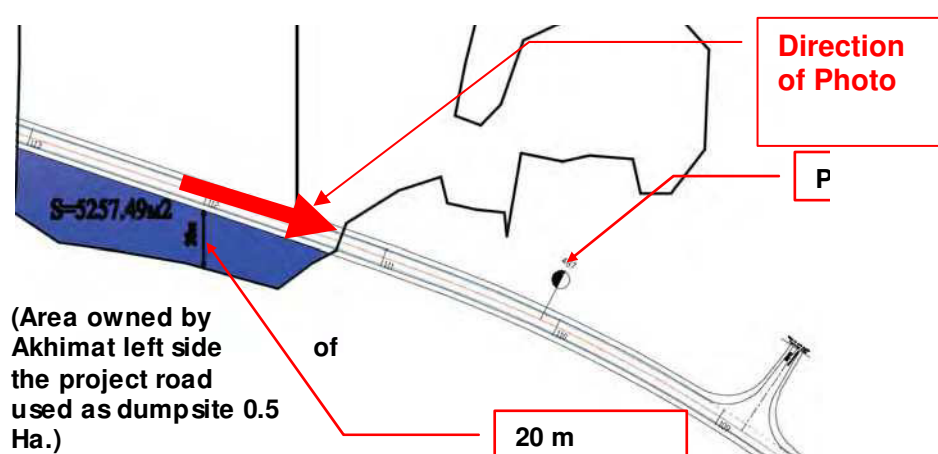


Figure 8: Layout of the Dumpsite with the Photo Project Road (1)

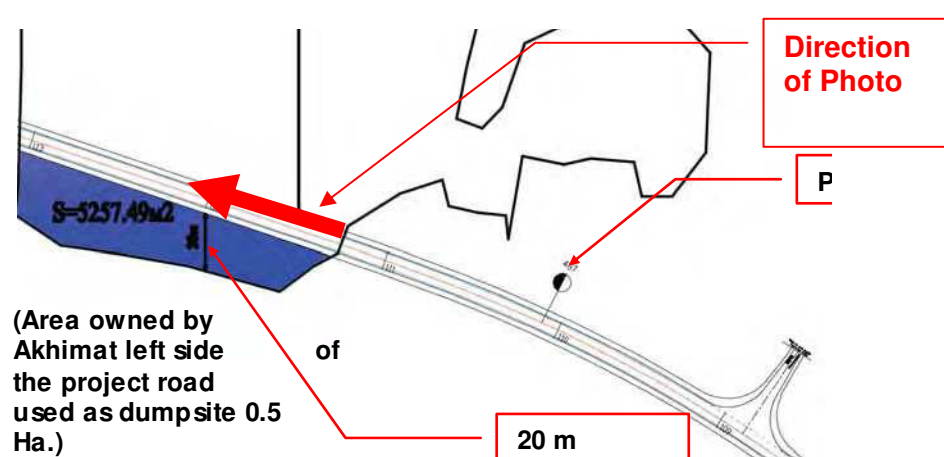


Figure 9: Layout of the Dumpsite with the Photo Project Road (2)

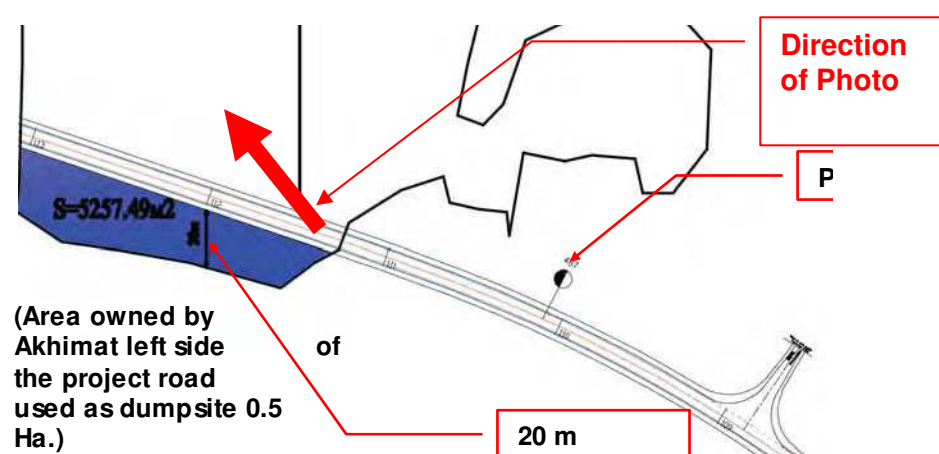


Figure 10: Layout of the Dumpsite with the Photo Project Road (3)

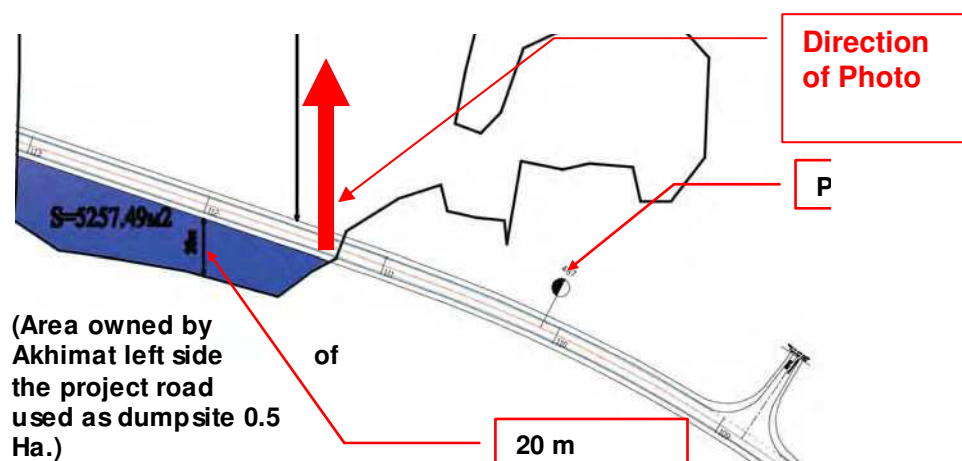


Figure 11: Layout of the Dumpsite with the Photo Project Road (4)

Upon presentation of the elaborated issues to the Client, a teleconference was done on 12 August 2013, participated by ADB, PMC and the Engineer, wherein an agreement was reached for an Environmental and Social Assessment Report to be prepared regarding dumpsite at Pk110 with the following tasks:

1. Assess how significant are the potential impacts and risks of the dumpsite to the road. Has it caused soil contamination, water or groundwater pollution, other impacts?
2. Assess the potential solutions. and propose the most optimal one to address the issue
3. Update the EIA, and EMP, and Resettlement Plan (if needed) and submit them to ADB.

The major difficulty encountered was the performance of physico-chemical tests for dumpsite soil samples to ascertain the level of contamination. Despite this obstacle, in response to this directive, the International Environmental Specialist drafted and submitted on a preliminary report⁶ detailing the test to be undertaken in accordance to the reference standards and methods as follows:

1. Testing methods will be carried out in accordance with sanitary-epidemiological requirements by certified accredited laboratory in the system of Kazakhstan accreditation for compliance to requirements of ST RK ISO/MEK 17025-2007 “General requirements to competence of testing and calibrating laboratories.”
2. Resolution of Republic of Kazakhstan # 168 dated on 25th of January 2012 of Approval of Sanitary regulation “Sanitary-Epidemiological requirements to air of rural and urban settlements, soil and its safety, maintenance of urban and rural settlements’ territory and work conditions with the sources of physical factors, impacted on humans”. According to clause 5 of Resolution “Sanitary-Epidemiological requirements to soil. Sanitary norms of permissible concentration of chemicals in soil, pollution levels and degree of danger for population health” are given in Tables 1. 2 Appendix 11 of Present Sanitary Regulations, Appendix 11 to Sanitary regulation “Sanitary-Epidemiological requirements to air of rural and urban settlements, soil and its safety, maintenance of urban and rural settlements’ territory and work conditions with the sources of physical factors, impacted on humans”, Table #1 Sanitary Norms of Permissible Concentration of chemicals in soil.

Due to the high cost involved for the laboratory test, it became necessary to come up with other alternative approaches for the resolution of the dumpsite issue. It is recognized that among the important objectives are as follows:

1. Assess the level of contamination of the site and determine if there are impacts to the road.
2. Should there be perceived impact, propose most optimal solution to address the potential problem.
3. Come up with additional measures to protect the health and welfare of the people who can be affected by the presence of the dumpsite, e.g. local population, construction workers, etc.

⁶ Kocks Consult. DUMPSITE ASSESSMENT PRELIMINARY REPORT - AUGUST 2013

4. Determine ways to contain the ill-effects of the dumpsite to the environment and eliminate any further threats which may persist during the operation of the road.

6.2 Implementation of Approved Mitigation Measures

Following the directives of ADB and PMC, the Engineer and Contractor continued to find the most practical solution for the dumpsite. Sometime in December 2013, work was done along the road construction strip for the road which consisted of clearing away the existing garbage and installation of the necessary pavement structure up to the lean concrete level. However, alongside the road, the garbage materials still remained, posing risk of contamination to the environment as well as risk to motorist due to windblown garbage debris and smoke.

In January 2014, the Engineer's international environmental specialist visited the site to assess the situation. Preliminary data gathering of the current situation was done and some discussions with local officials were done to determine possible joint courses of action.

On 07 March 2014, a technical meeting was held during a site inspection at the Taraz Bypass Road which were attended by representatives of the following: (i) KazAvtolhol; (ii) Akimat of Baizak District, Sanitary and Epidemiological Station of Baizak District (SES); (iii) Aldi and Co. Solid Waste Management Company; (iv) ADB Environmental Specialist; (v) Road Committee; (vi) the Engineer; and (vii) the Contractor. Considering the environmental requirements of the Asian Development Bank and the environmental legislations it was agreed:

- Request the Engineer, in coordination with KazAvtolZhol, Akimat, Contractor, Designer and Sanitary and Epidemiological Station to develop a technical solution for the garbage dump taking into account environmental considerations by April 15, 2014.
- Engineer will prepare assessment of the solution and update the Environmental Impact Assessment and Environmental Management Plan by May 15, 2014.

Documentation for such meeting is shown in Supplemental Annex C-1. Following the above directives from the joint meeting, the Engineer's International Environmental Specialist was mobilized to the site in April 2014. The major task of producing a technical solution consisted of assessing the depth of dumped garbage in the site. This entailed instructing the Contractor to conduct inspection pit excavation at various locations to determine the thickness of garbage layers at various locations. The result of the excavation is shown Table below with the accompanying map for the inspection pits.

Table 10: Garbage Layer Thicknesses at Pit Locations

Location	UTM Coordinate ⁷	Garbage Thickness	Remark
Location 1	43°3'2"N. 71°30'25"E	1.40 m	Mostly soil. with degraded plastic
Location 2	43°3'2"N. 71°30'26"E	0.20 m	Mostly soil material
Location 3	43°3'5"N. 71°30'37"E	0.50 m	Plastic and bottles on surface
Location 4	43°3'5"N. 71°30'35"E	0.90 m	Plastic and bottles under surface
Location 5	43°3'5"N. 71°30'30"E	1.50 m	Soil and plastic under surface
Location 6	43°3'6"N. 71°30'29"E	1.80 m	Considerable plastic and organic
Location 7	43°3'6"N. 71°30'28"E	3.50 m	Considerable plastic and organic
Location 8	43°3'7"N. 71°30'26"E	1.90 m	Considerable plastic and organic
Location 9	43°3'8"N. 71°30'25"E	1.80 m	Considerable plastic and organic
Location 10	43°3'8"N. 71°30'24"E	1.10 m	Considerable plastic and organic

⁷ Using approximate GPS locations

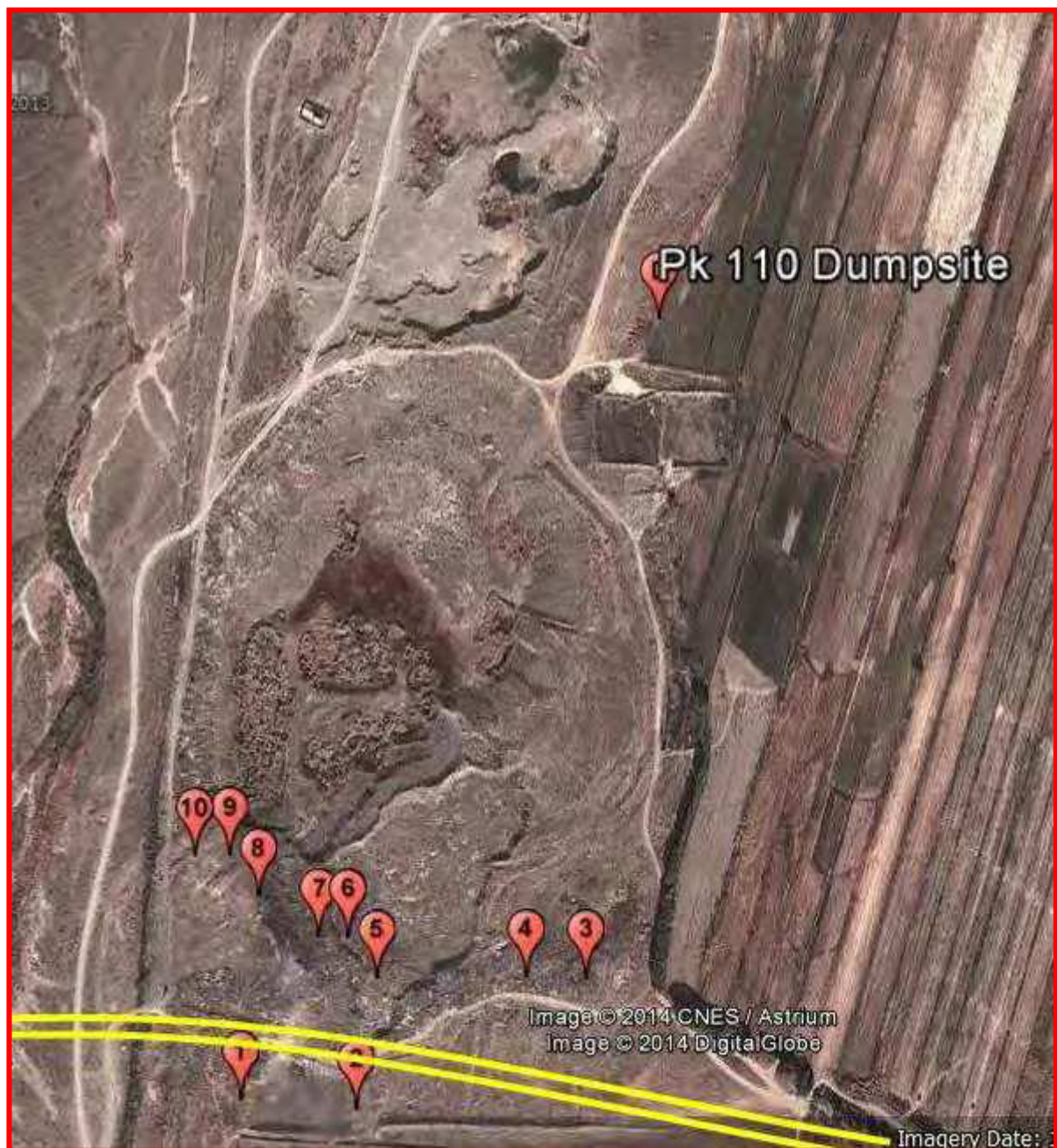


Figure 12: Location of Garbage Inspection Pits

Based on the results, the layers of shallow, mid-deep and deep areas can be also deduced as shown in the color coded areal map below. As shown the left side of the road has a small deep area and relatively large shallow area. On the right-hand side, the shallow area is found at the east end while the deep area is found at the west end. A mid depth area is found somewhere in between the shallow and deep areas.

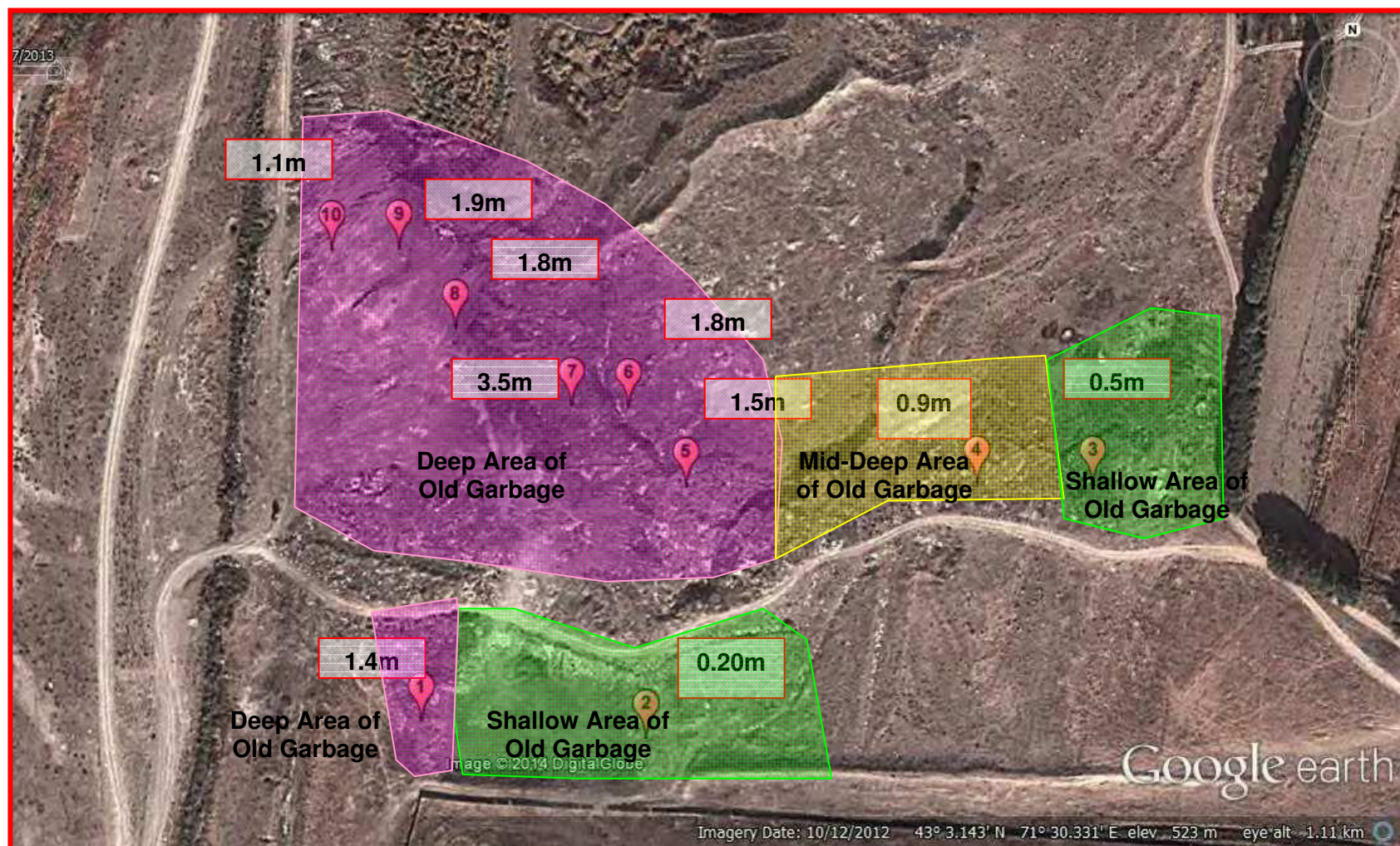


Figure 13: Mapped out Areas of Varying Depths of Garbage



Figure 14: Inspection Pit at Shallow Area



Figure 15: Inspection Pit at Mid-deep Area



Figure 16: Inspection Pit at one of Deep Areas



Figure 17: Inspection Pit at Deepest Area

7. GENERATION OF ALTERNATIVE SOLUTION

On 23 April 2014, a technical meeting was held at the Zhambyl Regional Affiliate of JSC “KazAutoZhol” to discuss the options for resolving the dumpsite issue. This meeting was attended by: (i) the Contractor; (ii) the Department of Ecology; (iii) ZRA JSC KazAutoZhol; and (iv) the Engineer. In this meeting, the International Environmental Specialist of the Engineer presented options for dealing with the dumpsite which would consist of (i) leveling the garbage; (ii) providing a granular cover; (iii) clay cover with topsoil to allow vegetation; (iv) drainage interceptors; and (v) methane exhaust pipe. These options effectively will close the dumpsite and transform them into a less detrimental condition and with more visually appealing

configurations. Two schemes were presented – one for shallow and mid-deep areas and the other for deep areas as shown below.

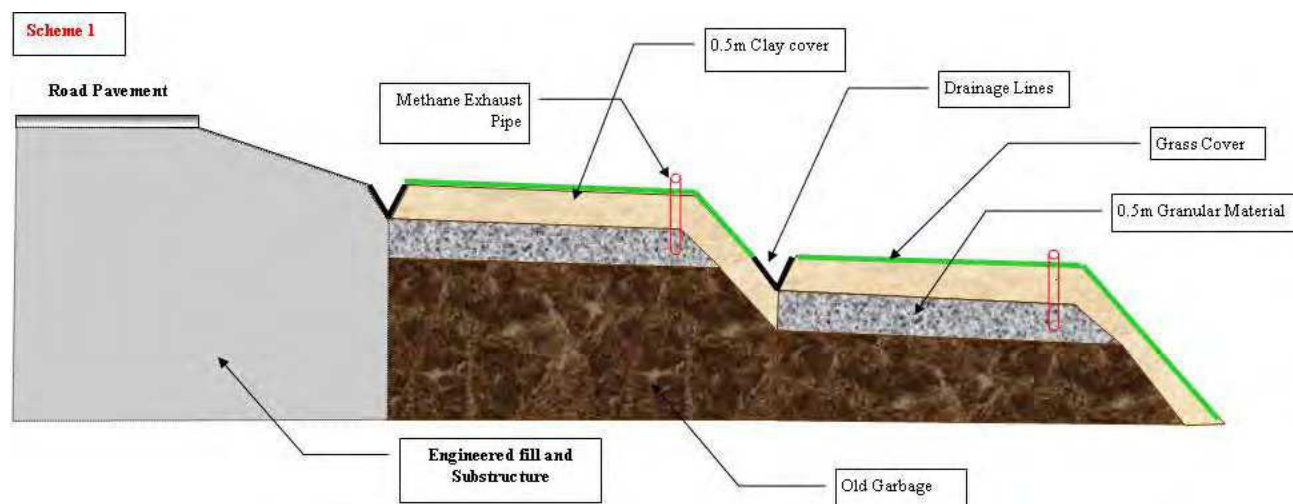


Figure 18: Solution Option for Shallow and Mid-deep Area

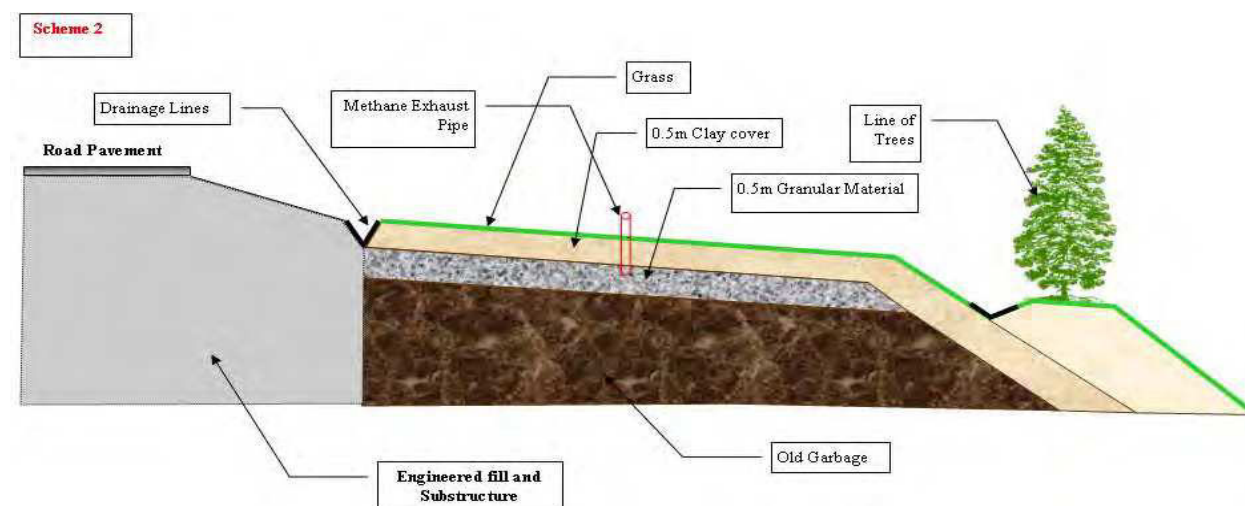


Figure 19: Solution Option for Deep Area

The above options were discussed during the said meeting and opinions were heard for and against them. The Department of Ecology mentioned that they prefer to have all of the garbage removed from the site and transferred to the existing approved dumpsite. In their opinion, allowing the dumpsite to be converted will entail that they become responsible in maintaining and monitoring it. Due to their limited funds and personnel, these options were not favorable to the Department of Ecology. Besides, it was also emphasized that the dumpsite was a result of illegal dumping of the operator in an unapproved area and hence should be restored back to original condition. Because of this, the clearing and hauling of garbage to the existing dumpsite became the preferred option. Hence, the solution that was implemented in the dumpsite at Pk 110 consisted of (i) clearing of all garbage material; (ii) hauling them into the existing dumpsite; (iii) providing granular backfill and final cover. This solution scheme is shown in the following figure. These solutions were implemented within May 2014 and some photos of the area shown below present the final conditions of the Pk 110 former dumpsite.

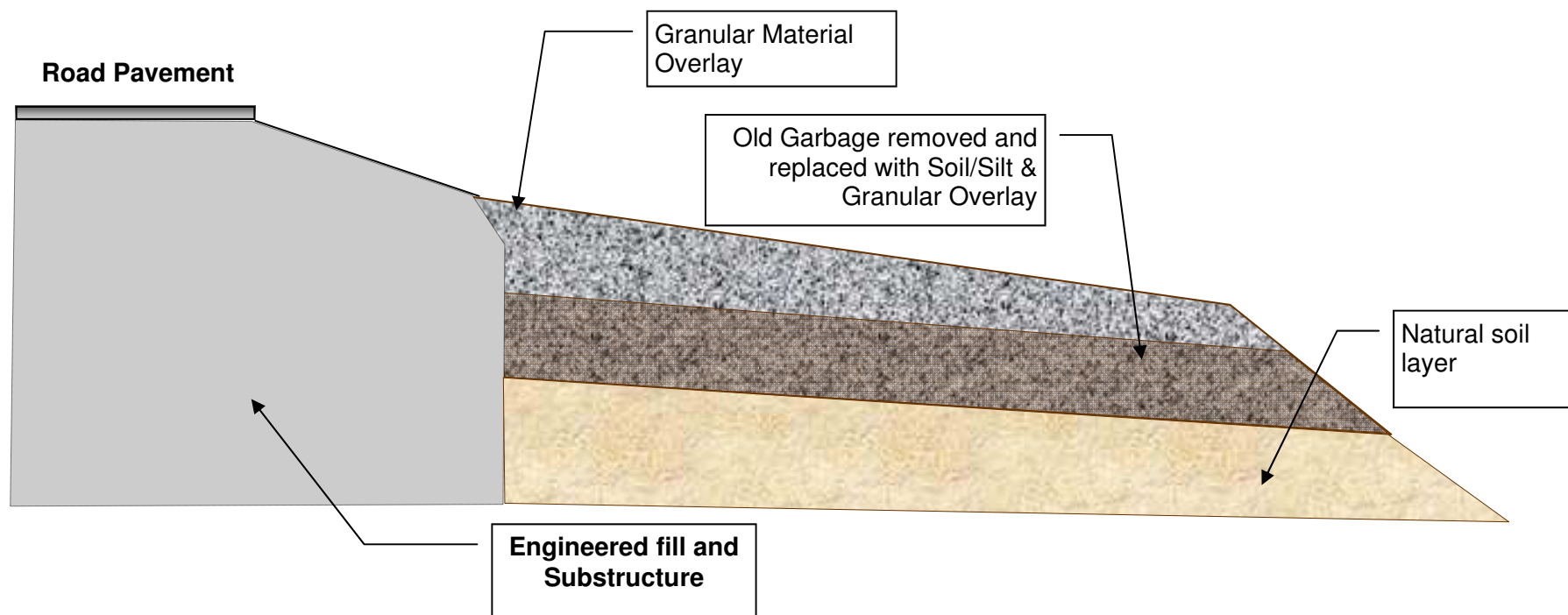


Figure 20: Preferred Solution Scheme to the Dumpsite Issue



Figure 21: Project Road with Cleared Garbage



Figure 22: Cleared area at Right Hand Side of the Road



Figure 23: Cleared Area looking toward East



Figure 24: Cleared Area at the West of the former Dumpsite

8. ENVIRONMENTAL ASSESSMENT OF THE IMPLEMENTED MEASURES

The preferred measures by the stakeholders were implemented in May 2014 as a result of the meeting held on 22 May 2014. From the resolutions in this meeting, the Engineer issued an instruction to the Contractor to clear the said existing garbage in the vicinity of the project road at Pk110. These documents pertaining to this is shown in Supplemental Annex C-2.

As stated in the Engineer's instruction to the Contractor, all of the garbage would have to be cleared from the designated area and to be transferred to the nearby active dumping site. The mentioned scope was to be paid as Day Works to the Contractor. In addition, soil/silt and granular backfill were spread over the cleared areas as final cover. After completion of the aforementioned measures, the Engineer's International Environmental Specialist was mobilized to the site to assess the completed works in terms of the environmental aspects as follows:

- **Positive Impacts on Water Quality** – The clearing and transferring of garbage eliminated the contamination to the groundwater, since the generation of leachate that could penetrate into the lower strata and eventually the groundwater was eliminated. The flow or migration of contaminated water via overland flow is also eliminated as rain runoff will no longer be contaminated by the garbage.
- **Positive Impacts on Air Quality** – The removal of garbage eliminates the generation of methane which naturally results from anaerobic decomposition of organic materials. The eradication of methane also eliminates flammable condition of the garbage and hence, no more smoke will be generated which can become transportation hazard. Foul smell generation is also eliminated as organic materials are drastically reduced in the area. The soil/silt and granular material overlay will serve as cap for reducing production of foul odor in the area. Dust is minimal since silt and clay particles are in between gravel and are practically undisturbed. In time, grasses are expected to be growing in the area and natural re-vegetation can progress
- **Positive Impacts on Noise** – The work was done in brief period using heavy equipment; hence, the generation of noise was confined only during the work in the aforementioned period. Furthermore, the residential areas in village are at considerable distance from the worksite and are minimally affected by any noise generated. Also, work time were practically day time which creates no disturbance to people's sleep at night time.
- **Positive Impacts on Flora and Fauna** – The removal of garbage diminishes the exposure of flora and fauna to possible contaminants. Crops in adjacent farmlands and natural vegetation will be having more conducive condition for growth and propagation. Farm animals, strayed animals and even wildlife will have also decrease exposure due to the removal of garbage in the specified area. As observed previously, animals are attracted to the area due to presence of possible food or organic matter. Dogs appear to the area due to the smell. Insects draw closer also because of the presence of decaying matter. Birds hover around because of the insects and partly due to organic matter that can be scavenged on the site. It is possible that rodents in the area lurk around also in search of food. Because of these, contamination, infection and disease vector could be an issue. With the removal of the garbage, these issues are diminished resulting in better condition for the site.
- **Improve Impacts on Safety to Motorists** – When the garbage dumpsite was still existing, windblown materials, smoke and particulates were occasionally observed. This situation can pose hazard to motorist in the future. With the elimination and transfer of the garbage, this hazard is virtually eliminated and resulting into a more safe road condition.

- **Positive Impacts on natural aesthetics of the area** – The presence of garbage creates very disagreeable surroundings, which are generally abhorred by people. It is expected that the road will be well travelled and the presence of garbage will not be a welcomed view. With the elimination of garbage and application of soil/silt and granular material, the unsightly view is eliminated. It is expected that natural re-vegetation will occur and that a more pleasant scenery will be expected in due time.

Undoubtedly, the elimination of the garbage dumpsite in the vicinity of the road has a lot of advantages and resulted in a more positive impact to the environment. This condition has to be maintained by strictly preventing illegal dumping in the future. In addition, the current dumpsite should be managed in a better way so as to eliminate the continuous negative impact to the environment as well as to the people in the vicinities.

SUPPLEMENTAL ANNEXES

ANNEX C-1: Documentation pertaining to the Dumpsite at Pk 110

Minutes of the Technical Meeting on the Garbage Dump Site issue, PK 110, Taraz Bypass

Location: Piket 110, Taraz Bypass Road

Date: March 7, 2014

Participants: KazAvtoZhol (Zhambyl Branch in Taraz), Akimat of Baizak District, Sanitary and Epidemiological Station of Baizak District (SES), Aldi and Co. Solid Waste Management Company.

Background

1. In July 2013, the Engineer raised an issue of illegal garbage dumpsite, located in the right of way of the Taraz bypass project at Pk 110. On 12 August 2013, a video conference was held among the ADB, MOTC/PMC and the Engineer. The result of the conference was a letter issued by the PMC to the Engineer to make a preliminary examination of the dumpsite. A Dump Site Assessment preliminary report was completed by the Engineer in August 2013.

2. On September 20, 2013, the MOTC and ADB signed a Memorandum including the following actions on the dump site issue:

- The Committee of Roads sends a letter to Akimat of Zhambyl Oblast with a request to solve the issue of illegal garbage cite at Piket 110.
- The Engineer updates the document on environmental assessment and environmental management plan.
- ADB monitors the status of the resolution of the issue directly and through the PMC.

3. On December 5, 2013, KazAvtoZhol held a meeting with the Contractor and Engineer, and observed on unsatisfactory condition of the road section where the garbage dump is located. The Contractor and Engineer were instructed to put the garbage dump in order, to cover it with soil unusable for construction, and level with the road scrapper (Protocol No 26-01-1).

4. ADB noted that no environmental or sanitary assessment was conducted for the proposed actions. The proposed technical solution may have impact on soils and ground water, and may cause uncontrollable generation of methane. ADB suggested arranging a technical meeting involving all the stakeholders involving the Contractor, Engineer, KazAvtoZhol, local administration and sanitary and epidemiological station.

Agenda

5. The purpose of the technical meeting was to assess the proposed technical solution from the environmental and sanitary impacts prospective and discuss environmentally sustainable solutions for the Garbage Dump Site.

Discussion

6. Akimat mentioned that the dumping garbage in the area continued for years from animal farms located in the area. Later, due to dumping activity the adjacent area became an illegal dump site. ADB noted that the technical solution proposed in the Protocol is environmentally unsound due to remaining environmental impacts related to potential contamination of ground water and soil. Representative of Sanitary and Epidemiological Station agreed that there is a risk of environmental and health impacts and observed that no environmental and health assessment for the proposed solution has been made.

7. ADB suggested the Engineer to work-out an environmentally sustainable technical solution for the garbage dump issue in compliance with the national environmental legislation and ADB Safeguards Policy Statement.

Actions Agreed Upon

8. Considering environmental requirements of the Asian Development Bank and national environmental legislation it was agreed:

- Request the Engineer, in coordination with the KazAvtoZhol, Akimat, Contractor, Designer, and Sanitary and Epidemiological Station to develop a technical solution for a garbage dump taking into account environmental considerations by April 15, 2014.
- Engineer will prepare environmental assessment of the solution and update the Environmental Impact Assessment and Environmental Management Plan by May 15, 2014.

List of Participants

1. Djenchuraev Nurlan, Environment Specialist, ADB
2. Kilybaev Azimkhan, Deputy Akim, Baizak District
3. Tolepbergenov A, Chief of the District Sanitary and Epidemiological Station
4. Esenkulov Zh, Director of Aldi & Co, Solid Waste Management Company
5. Tul'tayev Dauren, Representative of the Road Committee
6. Leonardo Gaskon de Leon, Engineer, Kocks GmbH
7. Erzhan Shedreev, National Environmental Specialist, Kocks GmbH
8. Kim Song Guk, Representative of contractor KCC

SUPPLEMENTAL ANNEX C-2: Documentation for the Resolution of Dumpsite at Pk 110

ПРОТОКОЛ № 26-01-4/ 59
совещания под председательством
директора ЖОФ АО «КазАвтоЖол» Е.Жасыбаева

Место проведения:
г. Тараз

Время проведения:
22 мая 2014 года
09-00 час.

Присутствовали: по списку

Повестка дня:

1. Рассмотрение предписания УАП ДВД Жамбылской области.
2. Подготовка к проведению мероприятия «Экскурсия ветеранов-дорожников».
3. Разное.

Выслушаны краткие доклады:
представителя УАП ДВД Жамбылской области Мананбаева Е.Д.,
Резидент-инженера компании «КОКС» Упали Хевега,
руководителя проекта Джо Донг Чон.

В связи с вышеизложенными поручено:

По вопросу: предписания УАП ДВД Жамбылской области.

1. Инженеру резиденту компании «КОКС» Упали Хевега

- совместно с подрядчиком, представителем УАП ДВД Жамбылской области, представителем Филиала провести осмотр участка поста «Айша Биби» представить предложения;
- выдать инструкцию подрядчику по проведению работ (демонтаж и обновление колесоотбойных брусьев и др.)

2. ФАО «КСС Проектирование и строительство» 5 транш

- обеспечить выполнение ремонтных работ поста «Айша Биби» согласно 800 ведомости;

3. Главному специалисту ОККиПР Тультаеву Д.А.

- совместно с РГП «Казхавтодор» провести осмотр поста ГАИ на ст. Отар

3. Директору РГП «Казхавтодор» Ерембаеву О.М.

- обеспечить выполнение работ по приведению в порядок обстановки поста ГАИ на ст. Отар

4. Представителю УАП ДВД Жамбылской области Мананбаеву Е.Д.

- представить подрядчику «КСС» утвержденный перечень установки дорожных знаков, чертежей и схем.

По Вопросу: Подготовка и проведение мероприятия «Экскурсия ветеранов-дорожников».

5. ФАО «КСС Проектирование и строительство» 4, 5 транш

- подготовить место проведения ознакомительных докладов по строительству участков;
- организовать осмотр участков согласно представленной программы.

6. Директору РГП «Казахавтодор» Ерембаеву О.М.

- назначить ответственного по присутствию на экскурсии и проведения мероприятия согласно программы;
- обеспечить выездом медицинского работника

Разное

7. Начальнику отдела ККиПР Акжолову А.К.

- осуществить совместный выезд на ПК 110 строительства участка Обход г.Тараз, провести осмотр мусоросвалки и представить предложения

8. Инженеру резиденту компании «КОКС» Упали Хевеге

- выдать инструкцию по мусоросвалке на ПК 110 строительства участка Обход г.Тараз

9. ФАО «КСС Проектирование и строительство» 5 транш

- усилить темпы работ по открытию движения транспортных средств на ПК 561 к 30 мая 2014 года

Директор
Жамбылского областного филиала
АО «КазАвтоЖол

Е. Жасыбаев

↓ 8. To Resident Engineer of "Kocks"
- Issue instruction regarding dump site at PK 110
construction site Taraz bypass

CONSTRUCTION SUPERVISION CONSULTANT (CSP-7) - JOINT VENTURE			
KOCKS INGENIEURE	KECC	ALMATY JSCC LLP	ALMATY JSCC LLP
Head Office Koblenz Kocks Consult GmbH, P.O.Box 200963 D-66065 Koblenz Phone: +49 261 1302-0, Fax: +49 261 1302400	Republic of Kazakhstan Office Kocks Consult Almaty Branch, P.O.Box 200963 050022 Almaty, Kurnengesi Str.84 A Tax ID: 600700671999 EIRN: 12147011853	Site Office PC "Baizak" Baizak region, Zhambyl Oblast, Republic of	

KCC Engineering & Construction Co., Ltd.
Abai street 74
Asa village
Zhambyl Region
Zhambyl Oblast
Republic of Kazakhstan

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

Your Ref.:

Our Ref.:
140523-RE-KCC-250

E-Mail:
Hewage@kocks-ing.de

Contact:
Upali Hewage

Date:
23.05.14

Subject: Contract L2824-KAZ: MFF CAREC Transport Corridor I Investment Programme, Contract 010, Project 5 (Taraz City Bypass)

Ref. Instruction for Day work – Leveling of Garbage Dump
Предписание по Поденным работам – Выравнивание Мусорной Свалки

<p>Dear Sir,</p> <p>This is further to Joint discussion with JSC "KazAutoZhol" on 22nd May 2014 and subsequent Joint Site Visit.</p> <p>You are herewith instructed to deploy bulldozer to push the garbage dump to nearby pit and level it as advised in the Joint Site Meeting.</p> <p>Payment will be made under Day Work - Equipment - Pay Item No.4.</p> <p>You shall inform our ARE , Mr. Jumanov B. immediately once started in order to maintain Site Reports to avoid payment complications.</p>	<p>Уважаемый Господин,</p> <p>Данное касательно Совместного совещания с ЖОФ АО «КазАвтоЖол» 22 мая 2014 года и последующего совместного выездного совещания.</p> <p>Настоящим инструктируем Вас задействовать бульдозер, чтобы вытолкнуть мусор свалки на близ расположенную яму, и выровнять согласно рекомендации Совместного Выездного совещания.</p> <p>Оплата будет производиться согласно Пункту Оплаты №4 - Оборудование задействованный для Поденных работ.</p> <p>Вам следует уведомить нашего Ассистента Инженера-Резидента, Г-на Джуманова Б. немедленно, как начнутся работы, с целью подготовки Отчетов по Участку во избежание трудностей платежа.</p>
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Yours Sincerely

Upali Hewage
Resident Engineer
KOCKS CONSULT GMBH

Sparkasse Koblenz, Swift (WALD) 11111111
IBAN DE98 5705 0130 0001 0045 99 44 00 00 00 00
Deutsche Bank AG, Koblenz, SWIFT DEUTDE33HAN
IBAN DE91 5705 0130 0001 0045 99 44 00 00 00 00

ALMATY JSCC LLP
Tax ID: 600700671999
EIRN: 12147011853

General Director
KCC Engineering & Construction Co., Ltd.
KCC Engineering & Construction Co., Ltd.
KCC Engineering & Construction Co., Ltd.

23 05 2014