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Reporting Period: January 10 June 30, 2019

Semi-Annual Environmental Monitoring Report: January 1-June 30, 2019

Kyrgyz Republic:  
CAREC Corridor 3 Improvement Project (Bishkek-Osh  
Road), Phase 4 (Km 15.9-60)

Financed by the Asian Development Bank

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Submission Date: July 2019

## TABLE OF CONTENT

1	INTRODUCTION.....	1
1.1	Preamble.....	1
1.1	Headline Information .....	1
1.2	PBMC Contract- KARA-BALTA- SUUSAMYR (km. 61-129) Section.....	1
2	PROJECT DESCRIPTION AND CURRENT ACTIVITIES .....	4
2.1	Project Description .....	4
2.2	Project Contracts and Management.....	7
2.2.1	Main Organizations Involved in the Project.....	7
2.2.2	Project Management.....	8
2.2.3	Features of the Contract.....	10
2.3	Project Activities During Current Reporting Period.....	11
2.3.1	Road and Bridge Construction .....	12
2.3.2	Borrow-pits.....	16
2.3.3	Construction waste.....	17
2.3.4	Aggregate crushing, concrete and asphalt batch plants .....	18
2.3.5	Workers camp Operations.....	18
2.3.6	Tree Management.....	19
2.3.7	Soil Management .....	20
2.3.8	Road and Workplace Safety.....	20
2.4	Changes to Project Design and Construction Methods.....	23
3	ENVIRONMENTAL SAFEGUARD ACTIVITIES .....	24
3.1	General Description of Environmental Safeguard Activities .....	24
3.2	Site Audits .....	24
3.3	Issues Tracking .....	27
3.3.1	Air pollution and dust.....	27
3.3.2	Bridges and culverts.....	28
3.3.3	Borrow pit operations and management.....	28
3.3.4	Materials production plant management.....	28
3.3.5	Waste asphalt and concrete recycling and disposal .....	28
3.3.6	Occupational and environmental health and safety .....	28
3.3.7	Work camp management: worker facilities, solid and liquid waste.....	28
3.3.8	Noise, vibration air quality and water quality.....	29
3.4	Summary of Issues Tracking .....	29
3.4.1	Trends from 2017-June 2019 .....	29
3.5	Unanticipated Environmental Impacts or Risks .....	37
4	RESULTS OF THE ENVIRONMENTAL MONITORING .....	38
4.1	Overview of Monitoring Conducted during Current Period .....	38

4.1.1	Dust and Air Pollution.....	38
4.1.2	Culverts.....	39
4.1.3	Bridges.....	40
4.1.4	Borrow-pits.....	40
4.1.5	Asphalt Plant Operations.....	42
4.1.6	Aggregate Processing Plant Operations.....	44
4.1.7	Tree Management.....	45
4.1.8	Workers' camps .....	45
4.1.9	Waste Management .....	45
4.2	Trends .....	49
4.3	Summary of Monitoring Outcome .....	50
4.4	Material/ Resources Utilization .....	50
4.4.1	Current and Cumulative Resource Utilization .....	50
4.5	Waste Management .....	51
4.6	Health and Safety .....	51
4.6.1	Community Health and Safety.....	51
4.6.2	Worker Health and Safety .....	52
4.7	Training .....	53
5	FUNCTIONING OF THE SEMPS and CEMWP .....	53
6	GOOD PRACTICE AND OPPORTUNITY FOR IMPROVEMENT .....	55
6.1	Good Practice.....	55
6.2	Opportunities for Improvement .....	55
7	SUMMARY AND RECOMMENDATIONS .....	56
7.1	Summary.....	56
7.2	Recommendations.....	56

## ANNEX 1

Monitoring Report: PMBC Component- CAREC Corridor 3 (Bishkek-Osh Road) Improvement Project, Phase 4. Performance-based maintenance pilot contract. Kara-Balta-Suusamyр section (km 61-129,5)-CAREC/C3/P4/ICB/WC2

## LIST OF TABLES

Table 1. Road sections where the construction work was carried out 2017-2019.....	5
Table 2. Main organizations involved in the project Environmental Safeguards .....	8
Table 3. Construction Supervision Consultant organization .....	10
Table 4. Project Contracts Features.....	10
Table 5. Construction Progress since 2017 and Jan.-June 2019 Period .....	11
Table 6. CSC Auditor field inspection record January 1-0June 30, 2019.....	24
Table 7. Summary of Issues Tracking Activity for Current Period.....	29
Table 8. Listing of non-compliance issue ( January-June 2019 Pending resolution ( 2018) and Jan-June 2019, including CEMWP item No. and reference to SEMP. ....	<b>Ошибка! Закладка не определена.</b>
Table 9. List of streets backfilled with old asphalt in 2018 .....	47
Table 10. Accounting list for disposal of household solid waste ( garbage) .....	49
Table 11. Cumulative Resource Utilization; 05-2017-12 2018 & 01-06 2019.....	50

## LIST OF FIGURES

Figure 1. Bishkek-Kara-Balta road section, of the Bishkek-Osh Road.....	3
Figure 2. Project Road Sections and conversion of PK to Km.....	6
Figure 3. Organization Structure for the Contractor( not new project manager as of May 2019) .....	9
Figure 4. Road construction underway.....	13
Figure 5. Underground pedestrian crossing and flooding issue .....	14
Figure 6. Krepostnoy Channel Bridge and Ak-Suu River Crossing.....	15
Figure 7. Bridge construction at the Sokulkuk River .....	15
Figure 8. Bridge construction at the mudflow channel from the Ak-Suu River .....	15
Figure 9. Kara-Balta borrow site and excavation depth exceeds permit .....	16
Figure 10. Violating excavation depth during the reopening of the Kara-Balta borrow-pit.....	16
Figure 11. Examples of construction debris along roadside .....	17
Figure 12. Newly built culvert blocked with construction debris. ....	17
Figure 13. Concrete prefabrication yard. ....	18
Figure 14. Empty bitumen barrels and lids storage .....	18
Figure 15 Ak-Suu Construction Camp and Kitchen facility .....	19
Figure 16 OHS materials in front of worker Kitchen.....	19
Figure 17. Placement of propane tanks near open flame .....	19
Figure 18. Topsoil Placement and Storage along the Alignment .....	20
Figure 19. Alexandrovka construction waste blocking road .....	21
Figure 20. Unsafe Construction Practices, Alexandrovka Village .....	22
Figure 21. Dangerous construction practices, Belavodsk .....	22
Figure 22. Safety at the workplace sign for use at the construction site .....	23
Figure 23. Non compliance Issue identified and outcome recorded .....	30
Figure 24. Contractor's action to address significant, pending and minor non- compliance notices .....	30
Figure 25. Compliance issues raised by topic since 2017, in 95 non compliance notices. ....	31
Figure 26. Example of Poor Dust Suppression.....	38
Figure 27. Burning bitumen to heat bitumen during the waterproofing of culverts .....	39
Figure 28. Debris almost totally blocking new culvert entrance .....	39
Figure 29. The culvert with an extra section added and Jelamysh R. bridge blockage .....	39
Figure 30. Residual bentonite clay at the riverbed of Ak-Suu River	<b>Ошибка! Закладка не определена.</b>
Figure 31 Construction waste at the northern side of the bridge under construction.....	40
Figure 32. Topsoil incorrectly stored at the river shore .....	41

Figure 33 Dust formation during during As-Suu borrow-pit mining .....	41
Figure 34. Jelamysh borrow-pit before( left panel)l and after mining ( right panel).....	42
Figure 35. Kara-Balta borrow-pit operations.....	42
Figure 36. Empty bitumen drum storage .....	43
Figure 37 Bitumen in metal barrels stored in the prepared platform .....	43
Figure 38 Chemical storage tanks with concrete platform allowing for easy clean up.....	44
Figure 39. Dust in the aggregate processing plant and the asphalt plant .....	45
Figure 40. Old asphalt for backfilling of private areas at the request of the residents .....	46
Figure 41. Old asphalt on local small roads and laneways .....	47
Figure 42. plastic packaging bitumen packaged and transported in .....	48
Figure 43. Carrying out of works at height without PPE .....	52
Figure 44 Operation of equipment without water sprinkling, with causing harm to the health of workers .....	52
Figure 45. Lecture on AIDS for Chinese and local workers .....	53

## **ABBREVIATIONS AND ACRONYMS**

ADB	Asian Development Bank
AP	Asphalt Plant
APP	Aggregate Processing Plant
CAREC	Organization of Central Asian Regional Economic Cooperation
CBP	Concrete batch plant
CEMWP	Construction Environmental Management Work plan
CSC	Construction Supervision Consultant [EPTISA]
DDPTSSSES	Department of Disease Prevention and State Sanitary-Epidemiological Surveillance of the Ministry of Health of the Kyrgyz Republic
EHS	Environmental Health and Safety
EMP	Environmental Management Plan
IEE	Initial Environmental Examination
IPIG	Investment Project Implementation Group
Km	kilometer
KR	Kyrgyz Republic
MoF	Ministry of Finance of the Kyrgyz Republic
MoTR	Ministry of Transport and Roads of the Kyrgyz Republic
MPC	Maximum permissible concentration
MPL	Maximum permissible level
OHS	Occupational Health and Safety
PBMC	Performance-Based Maintenance Contract
PPE	Personal Protective Equipment
RoW	Right of Way
SAEPF	State Agency for Environmental Protection and Forestry under the Government of the Kyrgyz Republic
SEMP	Site-Specific Environmental Management Plan
SIETS	State Inspectorate for Environmental and Technical Safety under the Government of the Kyrgyz Republic

# 1 INTRODUCTION

## 1.1 Preamble

1. This report is the fourth "semi-annual" environmental monitoring report, covering the ongoing CAREC Corridor 3 (Bishkek-Osh road), Phase 4 construction project, for the period from January 1 through June 30, 2019. The monitoring report addresses how well the Contractor and the government are implementing mitigation and monitoring measures specified in the Project's environmental management plan (EMP), and what specific actions were taken and must still be implemented to improve environmental performance. During the reporting period, the road rehabilitation works included work on the reconstruction of six bridges, replacement of 100s of culverts, removal of old asphalt, preparation of new road lanes for the 45.1 km long project road, marking of trees to cut to accommodate the placement of overhead electrical and communication lines along the entire section, as well as the continued operation of asphalt and concrete plants, and the aggregate processing plants.
2. This report documents the progress of the work and measures taken to prevent or mitigate environmental impacts stemming from the construction work, defined in the IEE, as well as ones occurring unexpectedly. The results are based on numerous site visits, conducted by the CSC's national and international environmental specialists from January through June 2019.

### 1.1 Headline Information

3. The Bishkek-Osh road represents about one fourth of international road network in the Kyrgyz Republic, and links the country to Kazakhstan in the north, Uzbekistan and Tajikistan in the south, and the People's Republic of China in the southeast. The road crosses four of the seven regions of the country and serves about 2 million people. It is the only direct surface link between the southern and northern parts of the country making it crucial for maintaining the country's social, political, and economic integrity. The Bishkek-Osh road forms part of the CAREC Corridor 3, which runs from the west and south Siberian region of the Russian Federation through Kazakhstan, Kyrgyz Republic, Tajikistan, Afghanistan, and Uzbekistan to the Middle East and South Asia.
4. The CAREC Corridor 3 (Bishkek-Osh road) Improvement project, Phase 4, (Bishkek-KaraBalta section) is a 45.1 km long section of that highway. The project's benefits will be efficient movement of freight and passenger traffic along the Bishkek-Osh road, improved safety for both road users and pedestrians, as well as minimizing the environmental impact of the road in terms of noise impact from passing traffic by installing less noisy asphalt-pavement and improving drainage and rebuilding six bridges.

#### 1.1.1 PBMC Contract- KARA-BALTA- SUUSAMYR (km. 61-129) Section

5. Component 2 of the overall contract is the performance based maintenance pilot contract for the section of the highway from Kara-Balta to the tunnel entrance at Suusamyr. This section of the Bishkek-Osh Highway is located mainly in the Chui intermountain valley, at the bottom of the mountains. The elevation of the project road varies from 800 m above sea level in Kara-Balta to 3,300 m in Suusamyr, at the entrance to the highway tunnel.
6. The project road is located in a high-risk seismic zone (9-point) and in combination with high soil erosion on steep slopes and extensive slides from Km 97 - km.129, representing a constant safety and environmental due to landslides and earthquakes. It is in a semi-arid zone, with a protracted cold season. Frosts in the mountainous region starts in October and lasts until the end of May. Annual precipitation along the project area is about 450 mm. In the mountainous area of the project site, the number of winter events (snowfall) averages 60 days (between November and April).
7. Land utilization in the impact zone of the Kara-Balta-Suusamyr road section, in particular, at the beginning of the project road section is agricultural wheat, fodder and industrial

crops, various types of vegetables, such as potatoes, bell peppers, carrots, watermelons, eggplant, and fruit plantations like apple and apricot are cultivated.

In the mountainous region, human activity is limited to breeding horses and sheep. The landscape changes closer to the steppes, with the ground covered with grass and low shrubs, such as the saxaul shrub (*Haloxylon ammodendron*). Chia and reed grass are common.

8. The road corridor covered by the PBMC (Kara-Balta-Suusamyr) does not interfere with any watercourses, wetlands or other sensitive areas.
9. Sensitive zones - The project road section does not pass over, through or near any established sensitive ecological zones. The existing road passes through the villages of Bekitai, Bokso-Jol, Kairma and Sosnovka. Under the existing contract, one of the measures aimed at ensuring road safety is the restoration of road markings and marking of pedestrian crossings, as well as the installation of appropriate road signs. A speed limit of 60 km / h has been established inside the villages, on a separate section, a speed limit of 40 km / h (school locations).
10. In the Kara-Balta town, Sosnovka village and until the end of the project site, the existing road crosses the Kara-Balta River in 22 locations. River crossings are via short bridges all in fairly good condition. According to the Decree of the Government of the Kyrgyz Republic dated September 7, 2009 No. 561 "On Fishery Development and Use of Natural and Artificial Reservoirs in the Kyrgyz Republic", the Kara-Balta River belongs to fishery reservoirs. In other words, there is fish in the river and, most likely, the river is a place for recreational fishing. This category of river is assigned a level of protection that prohibits the maintenance of the development of aggregates near the river, the construction of obstacles, dams or the movement of water vehicles that hinder the movement of fish. Therefore, no work is carried out near the Kara-Balta River, except for works on erosion protection to minimize sediment discharge to the river.
11. In the course of rehabilitation of roadside drain ditches, the diversion of surface water, in order to prevent the entry into the river, is carried out on a roadside area covered with grass, which makes it possible not to pollute the river, which is a habitat for fish.
12. Annex 1 of this report presents the detailed monitoring results for the Kara-Balta-Suusamyr section, being implemented as a PBMC maintenance contract.
13. The inspections carried out confirmed that maintenance was being completed with care not to contaminate the Kara-Balta River.
14. Issues were reported concerning inadequate snow removal at the pass and a lack of adequate salt and sand spreading during the winter months. The contractor is correcting this situation.





Figure 1. Bishkek-Kara-Balta road section, of the Bishkek-Osh Road (Source: Hagler Bailly, Pakistan, 2016)

## 2 PROJECT DESCRIPTION AND CURRENT ACTIVITIES

### 2.1 Project Description

15. According to the classification of the ADB Safeguard Policy Statement, the project (Figure 1) classified as Category B, requiring an Initial Environmental Examination (IEE).
16. The rehabilitation of the 41.1 km of the Bishkek-Osh Road, from Km15.9 to 61, requires a major reconstruction of the entire roadway. Design of the project meets standards of KR Technical Category 1-b (main urban arteries) with the following geometrical attributes:
  - Number of lanes – 4 and 6
  - Lane width –3.5 – 3.75m
  - Carriageway width – 2x7.5
  - Shoulder width – 3.75 m
  - Carriageway shoulder breakpoint stabilization – 0.75 m
  - Axle design weight – 11.5 tones
17. Over the entire 45.1 km all old pavement, as well as much of the sub-base, is being removed, then replaced with new material and covered with the two layers of the asphalt-concrete pavement 14 cm thick, the upper one is 5 cm and the lower one is 9 cm thick, with additional underlying black crushed stone course 9 cm thick. According to the Contractor's Terms of Reference, the road pavement has been designed for an initial design life of 10 years with structural overlay options for 15 and 20 years of design life.
18. The highway Right of Way (RoW) width is from 50 to 60 meters. The existing pavement is asphalt concrete and the paved width is between 15 and 20 m. Soft shoulder width ranges from 1.5 to 3.0 m. The project road section proceeds westward from km 15.9 to the outskirts of Kara-Balta city, and has four, then three lanes, which at km 24 reduces to two lanes. The width of the road pavement of the two-lane section is 8-12 m, with shoulders another 1.5-3.0 m. At km 61, at the roundabout, the Bishkek-Osh road turns to south, and marks the end of the project.
19. The terrain across the site can be classified as a foothill plain with a height of 750-800 m above sea level and steadily gaining altitude southward toward the Tian Shan mountain range. The population density is a mixture high-density urban section and expanses of rural lands.
20. The road reconstruction will meet the laws and norms of the Kyrgyz Republic. This reconstruction will upgrade the road to a 4-lane highway for the entire length to Kara-Balta, also increasing the radii of curvatures in the plan and longitudinal profile.
21. In order to improve drainage system, the work includes reconstruction of all existing culvert system and addition of new cross drainage structures for a total of 548 culverts. The existing six bridges are being totally replaced. Finally, more the 64 km of sidewalks, 95 new above ground pedestrian crossings, 12 new signalled pedestrian crossings, and six underground pedestrian crossings will be built.
22. Due to the serious resettlement issues and the need to address them before commencement of construction period, the sequence of construction works was planned, such that works primarily covered those areas where there are no or there are minor resettlement issues or where compensation has been fully addressed.

Since January 1, 2019, and the start of the construction season in early April, work is ongoing in six road sections (Table 1. and Figure 2). Of these, four were being worked on during the previous six-month period and sections 1.4, 2.3 and 2.3 are being asphalted during this reporting period.

**Table 1. Road sections where the construction work was carried out 2017-2019**

Section No.	Start of the section, km	End of the section, km	Length of section, Km
<b>2017</b>			
1.1	15+900	21+300	5.40
1.2	35+500	40+580	5.08
1.3	45+600	51+600	6.00
1.4	54+200	59+350	5.15
<b>2018</b>			
2.1	21+300	35+500	14.20
2.2	40+580	45+600	5.02
2.3	51+600	54+200	2.60
2.4	59+350	60+926	1.57
<b>2019</b>	Start of Construction 11.03.2019		
1.1	19+700	21+300	1.60
2.2**	40+580	45+600	5.02
1.3	46+300	51+600	5.30
2.3**-p	51+600	54+200	2.60
1.4**-p	54+200	59+350	5.15
2.4**-p	59+350	60+950	2.60

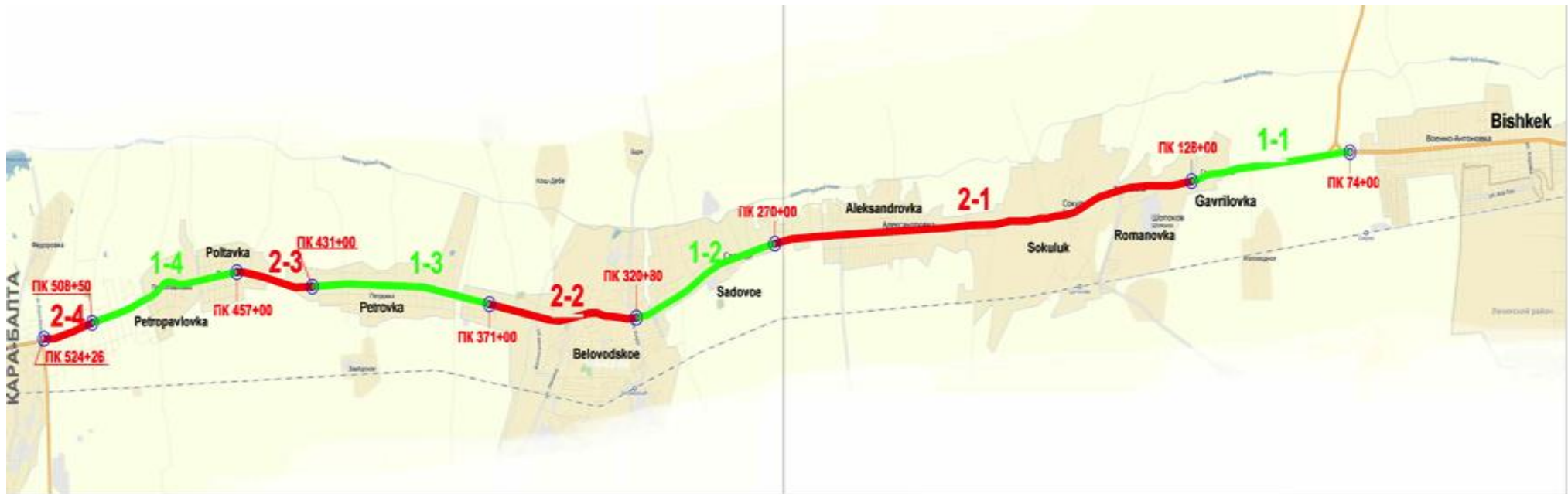
\*\*= Same section as during the July-Dec 2018 monitoring period p= paving ongoing

23. The construction work is being carried out mainly within the existing road right-of-way, thus keeping environmental impacts to a minimum. During the reporting period, the contractor using the following borrow sites:

- No. 1 Jelamysh located 11 km south of the road at km 18 of the road,
- No.2 Sokuluk No.1 south about 3.3 km from the main road at km 23m,
- No.3 Sokuluk 2 at km 27.5 and 7.7 km from the road,
- No.4 Ak-Suu 1 located in the old Ak-Suu river bed 2.2 km from the road and at Km 44 along the alignment.
- No.5 Ak-Suu 2 is the 5th borrow area located further upstream in the old dry riverbed and is 8.6 km from the Project road.
- No.6 Kara-Balta, located at Km 61 of the road about 4 km from highway, in an industrial factory zone.

24. For June 2019, the contractor uses the Ak-Suu 2 and Kara-Balt borrow pits. The use of the borrow pit Jelamysh is completed, the harvested material is being removed. The Contractor will start the preparation of the "Recultivation Plan" of the Zhelamysh open-cast mine, for the commencement of the the recultivation work.





Section	PK		KM		Length (km)
	Start of section	End of section	Start of section	End of section	
1-1	74+00	128+00	15+900	21+300	5+400
2-1	128+00	270+00	21+300	45+600	5+020
1-2	270+00	320+80	35+500	40+580	5+080
2-2	320+80	371+00	40+580	45+600	5+020
1-3	371+00	431+00	45+600	51+600	6+000
2-3	431+00	457+00	51+600	54+200	2+600
1-4	457+00	508+50	54+200	59+350	5+150
2-4	508+50	524+60	59+350	60+926	1+576

Section-1	Start of Sub-Section	End of Sub-Section	
1	74+00	128+00	5+400
2	270+00	320+80	5+080
3	371+00	431+00	6+000
4	437+00	508+50	5+150
Total length (km):			21+630

Section-2	Start of Sub-Section	End of Sub-Section	
1	128+00	270+00	14+200
2	320+80	371+00	5+020
3	431+00	457+00	2+600
4	508+50	524+26	1+576
Total length (km):			23+396

Figure 2. Project Road Sections and conversion of PK to Km.

25. The operation of asphalt, aggregate production and concrete batch plants located on a Ak - Suu borrow site, witch located >1.0 km from the nearest residence and 5 km from the project This zone is provided with all necessary utilities (places for recreation, kitchen, dining room, showers, toilets) for living or finding staff with 2-shift work. All necessary measures to ensure sanitary and fire safety are ensured. The contractor has an agreement with the local hospital for emergency cases, there is a first aid kit.

## **2.2 Project Contracts and Management**

### **2.2.1 Main Organizations Involved in the Project**

26. Relevant organizations involved in the project are;

- Ministry of Finance of the Kyrgyz Republic (MOF);
- Ministry of Transport and Roads of the Kyrgyz Republic (MoTR), the Implementing agency; and its,
- Investment Projects Implementation Group (IPIG)- the executing agency;
- State Agency for Environmental Protection and Forestry (SAEPF);
- State Inspectorate for Environmental and Technical Safety (SIETP);
- Department of Disease Prevention and State Sanitary and Epidemiological Surveillance under the Ministry of Health (DDPSSSES).

27. The Ministry of Finance of the Kyrgyz Republic is the authorized state body responsible for coordinating actions with ADB and other donors on external assistance issues.

28. MoTR is responsible for the development of the transport sector, and is the Executing Agency (EA) of the project. MoTR has overall responsibility for the planning, designing, implementation and monitoring of the project. IPIG, the Implementing Agency (IA), works under the MoTR and implements the tasks assigned by MoTR, and has direct responsibility for the Construction Supervision Consultant EPTISA (CSC).

29. The State Agency for Environmental Protection and Forestry is responsible for the state policy in the environment sector and coordinating the actions of other state bodies on these issues. Its functions as follow:

- environmental policy development and implementation;
- state ecological expertise (Environmental Impact Assessment);
- issuance of environmental licenses
- ecological monitoring;
- provision of environmental information services.

30. The State Inspectorate for Environmental and Technical Safety works in accordance with the Law "On the procedure for conducting inspections of entrepreneurship entities", and carries out supervision procedure on compliance with:

- environmental legislation, established rules, limits and norms of environmental management, standards of emissions and discharges of pollutants and waste disposal in the environment;
- industrial safety requirements during construction, expansion, reconstruction, technical re-equipment, operation, conservation and liquidation of hazardous production facilities;
- the requirements of land legislation;
- safety requirements for operation of equipment and facilities for the storage and distribution of petroleum products and gases, cranes;
- requirements of safe operation rules in construction, installation and maintenance of electrical networks and electrical equipment.

31. Department of Disease Prevention and State Sanitary and Epidemiological Surveillance supervises the sanitary and epidemiological welfare of the population, the safety of goods, products, environmental objects and conditions, and the prevention of harmful impact of environmental factors on human health.

### 2.2.2 Project Management

32. MoTR as the implementing agency overseeing the project, with the IPIG as the day-to-day manager and the project's executing agency. IPIG has direct supervision responsibility of the contractor and shares this with the consultant EPTISA, referred to as the construction supervision consultant (CSC). There are a number of subcontractors retained by the main contractor and who report directly to the contractor, the China Railway Engineering Group No. 5 (Table 2).

33. The contractor has been assigned the responsibility to consult with local officials about the placement of waste construction materials and temporary restriction of access. Until Dec. 2018 the monitoring tasks were assigned to the CSC, but since then EPTISA management reviewed the contract specification, which state that the contractor must conduct and pay for the field-monitoring program. As a result these tasks have been handed to the contractor.

34. The CSC oversees the day-to-day operation of the contractor on all engineering, environmental and social issues that need to be addressed and which arise and must be resolved. It is led by a team leader, stationed in the field, and nine international specialists (Table 3) who are in the field intermittently. At present only the contract specialist; environmental specialist and PBM consultant make periodic field visits.

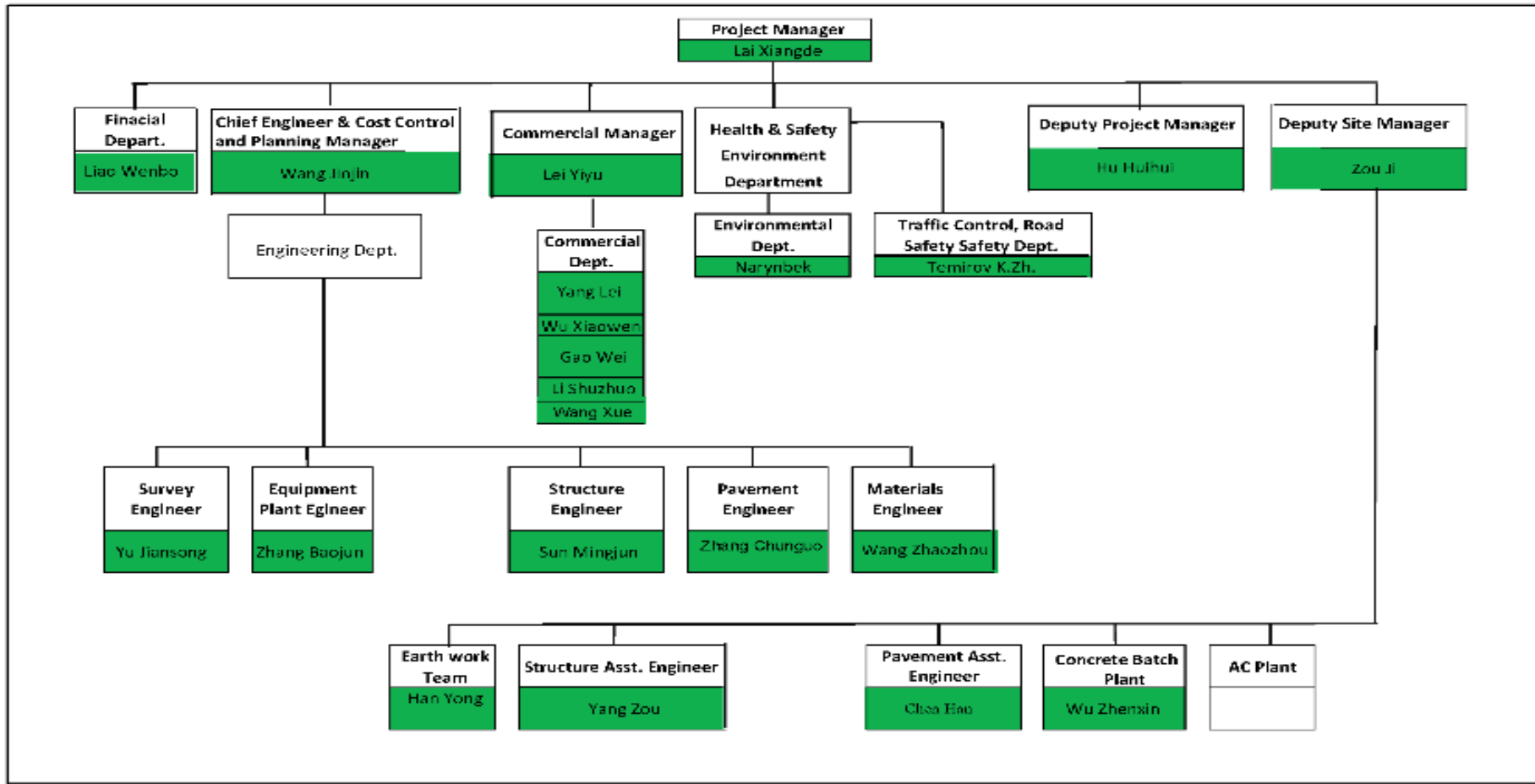
**Table 2. Main organizations involved in the project Environmental Safeguards**

No	Organization name	Role in project	Responsible person for the environmental safeguards	Contacts
1	MoTR & it's IPIG	Implementing & Executing Agency	Ruslan Satybaldiev Director Asylbek Abdygulov (IPIG)	<a href="mailto:asylbeka@piumotc.kg">asylbeka@piumotc.kg</a>
2	EPTISA	Int'l Env. Specialist	Geza Teleki	<a href="mailto:gcteleki@gmail.com">gcteleki@gmail.com</a>
3	EPTISA	Nat'l Env. Specialist	Tatiana Volkova	<a href="mailto:volkova_ti55@mail.ru">volkova_ti55@mail.ru</a>
4	The limited liability company "China Railway Engineering Group No. 5»	Contractor's Env. Specialist	Narynbek Myrsaliev	<a href="mailto:Narynbek_m@mail.ru">Narynbek_m@mail.ru</a>
5	LLC «Ishmer»	Subcontractor	-	
6	PE "Maksat"	Subcontractor	-	
7	Municipal Maintenance Depot	Subcontractor	-	

35. In addition, there are nine national specialists (Table 3), who as of June 31st will have exhausted their input period. The project is expected to continue for at least another two years and they are necessary to monitor and contractor's work.

36. The issue of contract continuity will be addressed during the net ADB mission scheduled for early July 2019.

### Contractor's Organization Chart



Mobilized

Figure 3. Organization Structure for the Contractor( not new project manager as of May 2019)

**Table 3. Construction Supervision Consultant organization**

<b>International Staff</b>	
Highway Engineer/Team Leader	Hakan Nemutlu
Pavement and Materials Engineer**	Paolo Cocco
Bridge/Structural Engineer	Sabbir Siddique
Road Safety Specialist	Partha Mani Parajuli
Quality Assurance Engineer	Ruhi Eren Gurcay
Contract Specialist**	Serdar Hakkaçırılmaz
Social Development and Resettlement Specialist	Dragica Veselinovich
Environmental Specialist**	Geza Teleki
PBM Consultant**	Akli Ourad
Climate Change Specialist	Henrikus M. Bosch
<b>National Staff</b>	
Highway Engineer/Deputy Team Leader	Yzatbek Toktomambetov
Pavement and Materials Engineer	Abdykerim Kaparov
Bridge/Structural Engineer	Viktor Urlanpov
Hydraulic and Drainage Engineer	Vasily Chernyh
Road Safety Specialist	Sadryrallev Shalloobek
Quality Assurance Engineer	Sanjar Satybaldiev
Quantity Surveyor	Edil Shabdanov
Social Development and Resettlement Specialist	Azamat Omorbekov
Environmental Specialist	Tatiana Volkova
PBM Consultant	Nurbek Jumaliev

### 2.2.3 Features of the Contract

37. The present estimates place the completion is April 2020 plus 1 year of the defect liability period (Table 4), with the contractor handling over all mitigation and monitoring functions to BR on April 2021.

**Table 4. Project Contracts Features**

<b>Item</b>	<b>Details</b>
Project	Central Asia Regional Corridor 3 (Bishkek-Osh Road) Improvement Project Phase 4
Contractor	China Railway No.5 for Component 1 implementation
Road section:	15.9 km – 61 km, the overall length is 45.1
Donor:	Asian Development Bank.
Contract Sign Date:	28/03/2017
Executing Agency	Ministry of Transport and Roads of the Kyrgyz Republic
Notice to Commence	03/04/2017
Completion Date	April 02, 2020.
Time for Completion – Days	2 years 4 month
Extension of Time – Days	-
Defect Liability Period – Days	365
Contract Amount	USD 70,239,899.29



## 2.3 Project Activities During Current Reporting Period

38. During the reporting period from January through June 2019, road construction works were carried out on six road sections (Table 1.). With four of this seeing work already in the previous reporting period. Given that construction work for this period begin in earnest in mid-April 2019 the main work components of earthworks, drainage structures installation, pavement works and miscellaneous tasks have resumed (Table 5). The five subtasks under pavement activities saw the greatest amount of activity followed by earthworks where over 49,000 m<sup>3</sup> of material was handled.

39. Construction work included:

- earthworks - removing and disposing of excess unsuitable soil, rolling and tamping of roadside slopes. According to the direction of ADB, works on soil compaction were carried out without vibration;
- works on pavement laying, laying of sub-base course, asphalt laying;
- arrangement of parapets (Jersey barriers/median dividers) and reinforced concrete chutes;
- construction of bridges and culverts

**Table 5. Construction Progress since 2017 and Jan.- June 2019 Period**

No	Earth Works Activities	Unit	Design Specification	Completed 2017 through 12, 2018	Completed 01-06, 2019	% of completion- All
1	Clearing and grubbing	ha	76	27	1.78	36
2	Cutting and grubbing of trees	pcs	3,348	5812	50	114
3	Excavation and disposal of suitable material from existing road to reuse as fill material	m3	296,331.00	184,727.00	49,006.00	62
4	Formation of embankment using common soil from borrow pits	m3	67,511	42,544	10,867	63
5	Excavation and disposal of unsuitable soil to a spoil area	m3	103,290	73,861	0.00	72
6	Scarifying of existing asphalt concrete pavement	m3	84,340	38,233	6,366	45
<b>No</b>	<b>Drainage Works</b>					
1	Pipe culverts, d= 1.5 m	pcs.	57	38	0.0	67
2	Culverts with opening 0.8x0.8 m	pcs.	98	84.5	24.5	86
3	Culverts with opening 0.5x0.5 M	pcs.	392	2	0.0	0.5
4	Box culverts - 2.0x2.0 m	pcs.	1	1	0.0	100
5	mounting of reinforced concrete chutes B-3.	pcs.	21,600	300	0.0	1
<b>No</b>	<b>Pavement Works</b>					
1	Sub-base – 28cm	m3	448,920	184, 649.97	53 566	41
2	Base course - 15cm	m3	157,257	61,054.43	17,318.34	39
3	Black crushed stone – 9cm (asphalt treated base)	m3	86 906	30,615,98	8,380,28	35
4	Binder course – 9cm	m3	84,046	21,811.69	13,796,26	26
5	Wearing course - 5cm	m3	46,692	61.7	61.7	<1

No	Earth Works Activities	Unit	Design Specification	Completed 2017 through 12, 2018	Completed 01-06, 2019	% of completion-All
<b>No</b>	<b>Bridges</b>					
1	Jelamysh River Km 18.3	lm	25.1	96%	0	96%
2	Jantay channel Km 24.4	lm	35.5	45%	-0	45%
3	Sokuluk River KM 27.7	lm	35.2	80%	3%	84%
4	Krepostnoy channel Km 40.7	lm	35.5	not started		-
5	Ak-Suu River. Km 44	lm	29.2	40%	40%	40%
6	Ak-Suu River (mudflow channel) Km 44.6	lm/%	20.1	83%	1%	84%
<b>No</b>	<b>Miscellaneous Works</b>					
1	Underground crossing Km55+410	lm/%	27.9	70%	20%	90%*
2	Underground crossing Km 57+415	lm/%	24.5	50%	40%	90%*
3	Underground crossing Km 59+640	lm/%	24.5	22%	63%	85%*
4	Jersey Barrier UnitsOP-1	pcs	14,887	1,663	343	11
5	10kV+04 kV power transmission line poles/towers	pcs	571	259	0	45
6	Communication line poles/towers	pcs	706	336	0	48
7	Trees To be Replanted	pcs	11,700.	0	0	0**
8	Sidewalks	km	64	0	0	0
9	Bus platforms	pcs	Approx. 45	0	0	0
10	Landscaping	km	90 km	0	0	0

\*= refers to only basic concrete work, no finish started, including stairways, electrical, flood control and painting; \*\*= tasks can only start after construction such as placing of road hardware and contouring of topsoil is complete, i.e., once all earthworks are finished in any one section, . lm=lineal meter

### 2.3.1 Road and Bridge Construction

During the reporting period works were carried out on leveling, backfilling and rolling of the carriageway (



40. **Figure 4)** at all sections of the road (Figure 2). Asphalt is being down in Sections 1.4,2.3 and 2.4.



**Figure 4. Road construction underway.**

41. At sections 2.3 and 2.4, construction of three underground crossings near vulnerable areas (schools) is underway. The close location of groundwater complicates the construction of crossings (Figure 5). It is necessary constantly pump out a large amount of groundwater and block the foundation with large stones, as well as do waterproofing. Construction of underground crossings is at the final stage. Upon completion, all construction waste will be removed.

42. Laying of asphalt continues along three road sections



**Figure 5. Underground pedestrian crossing and flooding issue**

43. During the reporting period, work continued on the construction of bridges over the rivers Ak-Suu and Sokuluk, and mudflow channel from the river Ak-Suu. Bridges over the river Sokuluk and mudflow channel from the river Ak-Suu is almost completed and soon traffic will open along them. Preparatory work began on the construction of the bridge over the bypass channel "Krepostnoy" (Figure 6 and Figure 7).





**Figure 6. Krepostnoy Channel Bridge and Ak-Suu River Crossing**



**Figure 7. Bridge construction at the Sokuluk River**



**Figure 8. Bridge construction at the mudflow channel from the Ak-Suu River**

44. Intensive work continues on the reconstruction of culvert pipes in the six sections listed in Table 1. The proximity of groundwater complicates the construction since it must be pumped at all times and





Depletion of nearby wells is a potential problem

### 2.3.2 Borrow-pits

On the part of the contractor, in the development of the Kara-Balta borrow pit, inconsistencies have been made, in part the excess of the depth of the borrow pit development. This inconsistency was noted by the Engineer, which was instructed by the Contractor to immediately fix the inconsistencies. After that, the contractor carried out the appropriate work and brought the development depth of the borrow pit to the appropriate depth. Also, the Engineer noted the non-observance of safety precautions when working an excavator at the Kara-Balt borrow pit. Excavator work at the edge of a cut regularly removing material from below the machines (Figure 9), potentially destabilizing the machine and putting the operator in danger.



Figure 9. Kara-Balta borrow site and excavation depth exceeds permit

45. Letter No. EP-CR5-HN-1065 was sent to the contractor with indication of violations, and on the need to bring development parameters into line with the design, cleaning and restoring the riverbed, observing safety regulations and deadlines for eliminating the violations revealed. The June 2019 inspection indicated that little had changed.



Figure 10. Violating excavation depth during the reopening of the Kara-Balta borrow-pit

46. In order to inspect the Kara-Balta borrow pit for remediation works the CSC and Contractor's environmental specialists conducted site visits jointly. To date no remediation has started.



### 2.3.3 Construction waste

47. During the reconstruction of culverts, old concrete products are stored on the road shoulders and are not removed in a timely manner. Recently, areas for the placement of old reinforced concrete products have been determined together with the local authorities. These materials (Figure 11), together with roadside soils will now be removed to these areas.
48. Oral instructions were constantly given to the Contractor about the need to remove all construction waste from the roadside, and a letter was sent to the Contractor No. EP-CR5-HN-1051, to which reply was received that waste removal has begun. From the contractor's side, an explanation is given that the remnants of unfit reinforced concrete products will be moved away from the site as they accumulate at the project site.



Figure 11. Examples of construction debris along roadside



Figure 12. Newly built culvert blocked with construction debris.

49. During the field inspection some culverts remained blocked (**Figure 12**) and the contractor was given instructions and the construction manager has been notified to take immediate action. The contractor began work on cleaning up new culverts. The contractor is monitoring this issue to avoid inconvenience to the local population during the irrigation period.

### 2.3.4 Aggregate crushing, concrete and asphalt batch plants

50. At the production sites, works on the crushing of raw materials and the preparation of stocks of materials continues. The casting of various reinforced concrete products for the road needs (concrete rings, chutes, Jersey dividers, supports for retaining walls, etc.) is on-going (**Figure 12**). In May, asphalt laying was carried out at sections 1.4, 2.3 and 2.5 (see Figure 2). As a result, the asphalt plant is working continuously.



**Figure 13. Concrete prefabrication yard.**

51. Empty and full drums of bitumen are placed on a specially prepared site. A large number of empty bitumen barrels and metal lids from the barrels are accumulating (**Figure 14**) on the site (although not contaminating the ground). The contractor plans to use part of the empty barrels as a temporary arrangement in the areas where the work is being done, having previously painted them and installed reflective tape on the barrels. The engineer has given the Contractor instructions on the need to dispose of unused empty barrels. This issue is at the decision stage.



**Figure 14. Empty bitumen barrels and lids storage**

### 2.3.5 Workers camp Operations

52. The workers' camp at Ak-Suu (**Figure 15**) accommodates 20 people. The camp has two fire fighting equipment stands. Each room is designed to accommodate two workers. The camp has a kitchen unit, equipped place for eating, showers, sinks, and toilets.

53. Since many of the residents smoke, fire safety rules must be strictly observed. Smoking is allowed only in designated areas, metal urns for cigarette butts are installed.





**Figure 15 Ak-Suu Construction Camp and Kitchen facility**

54. At the worker camps in the villages of Sokuluk and Belavodsk, household waste and sewage from septic tanks are disposed in a timely manner, and all protective measures for sanitary hygiene are observed. Periodic checks are carried out on compliance with environmental requirements. After an oral warning about the need to equip a fire shield, 2 shields were installed in the camp (**Figure 15**).



**Figure 16 OHS materials in front of worker Kitchen**

55. A warning was also given to the removal of gas cylinders (Figure 17) from the room and placing them in metal cabinets, but this violation has not yet been eliminated. There is an urgent need to remove gas cylinders from the kitchen.



**Figure 17. Placement of propane tanks near open flame**

### 2.3.6 Tree Management

56. Total number of trees cut down throughout the project area amounted to 5 812 pieces. However, some of the trees included in this number were not cut down, due to the proximity of overhead power lines and the location of the underground cable. During the reporting

period, trees were cut down during the work on carrying out the air pole of electricity transmission lines and underground communication lines. If it is necessary to cut down additional trees, this will be done in accordance with the procedure, according to the process defined in SEMP Annex 10.

### 2.3.7 Soil Management

57. Topsoil removed and stored in special areas allocated by the local administration during the last reporting period remains in place, with smaller amount being taken by local contractors. After completion of the construction work, what remains will be used for backfilling slopes and landscaping.
58. Obtaining permission from the environmental authorities to remove topsoil in the construction corridor is not required. The contractor has obtained permission from local authorities to store topsoil in several sections. Embankments of topsoil are kept at a height not exceeding 1.5 m and maximally protected from the impact of elements (**Figure 18**), mainly, from a wind during the dry construction season. Currently, topsoil is removed on an area of 1,5 hectares. Currently, the total volume removed has not changed from the previous reporting period, namely 30, 000 m<sup>3</sup>.



**Figure 18. Topsoil Placement and Storage along the Alignment**

### 2.3.8 Road and Workplace Safety

59. During this reporting period, there were number of safety violations, all having been brought to the attention of the contractor orally and by letter now as well as during the previous reporting period, and yet the same violations are being repeated.
60. In May, road safety consultant visited the Bishkek-Kara-Balta road section 9 times and conducted a survey. As a result, violations of road safety were revealed and 2 letters were sent to the Contractor about non-compliance:

Project road safety inspection dated 18.05.2019	<a href="#">EP-CR5-HN-1048</a>	21.05.2019
Environmental and safety incompliances dated 28.05.2019	<a href="#">EP-CR5-HN-1065</a>	30.05.2019

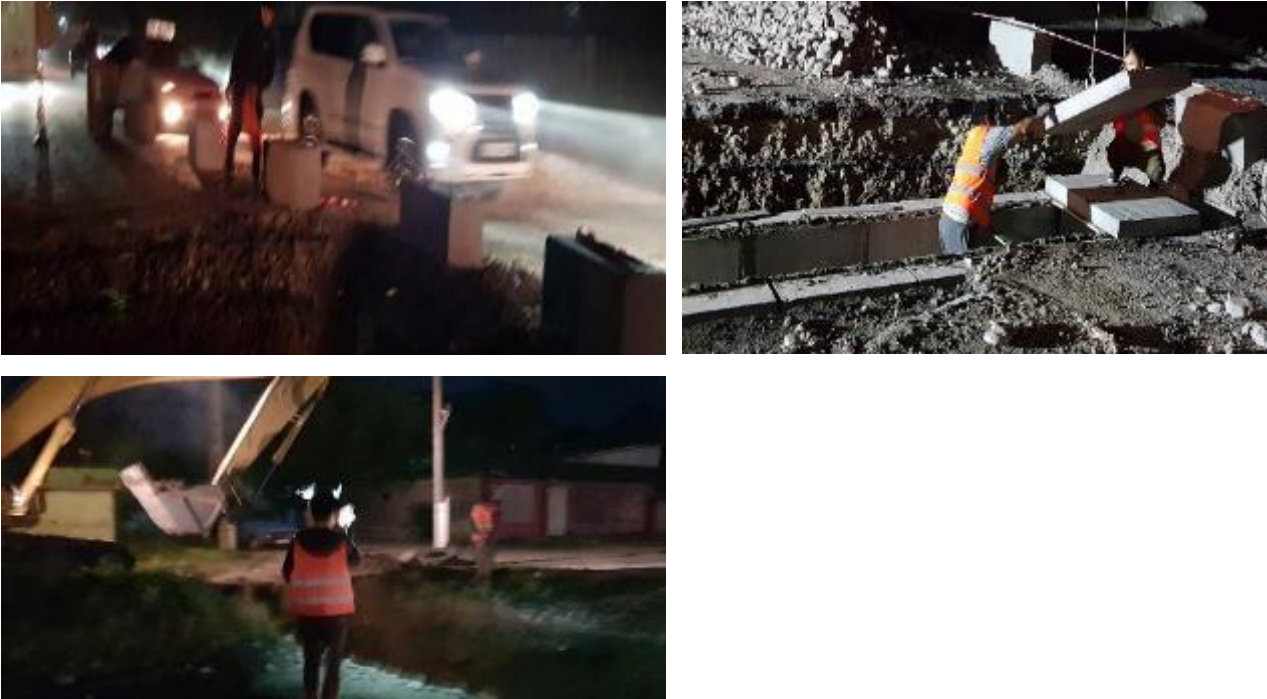


- 61. During the survey it was revealed that from PK-422+27 (Km 50.73) to PK-430 (Km 51.5), approximately 900 m, a continuous parapet barriers were installed in the middle of the carriageway (without breaks). In the case of local residents on this issue, the Consultant will consider the issue of organizing gaps based on road safety and local road safety standards, as well as taking into account the consent of the road police.
- 62. In the village of Alexandrovka on the bypass roads in the repair zones, there were dangerous blockages note which affected the traffic movement and lead to significant traffic jams – The contractor was told to rectify this condition immediately. Inspection by the CSC's international environmental consultant indicated that repair was only partially completed.



**Figure 19. Alexandrovka construction waste blocking road**

- 63. In Alexandrovka, operations were carried out at night-time, while the safety rules and regulations were not observed, workers were on the work sites at night without safety helmets, some without high-visibility jackets, without a traffic controller present, without fencing and without lighting. The contractor has issued this equipment to the workers, but does not enforce its use, most likely since a subcontractor who does not follow instructions was actually doing the work. At the time of preparing the report, the contractor accepted all the comments and proceeded to eliminate them.



- 64. Also on the part of the Engineer, the contractor was instructed to: When working at night, it is necessary to have a safety engineer and site manager present; supervise workers using the high-visibility jackets; provide rehabilitation or arrangement of temporary pedestrian crossings.



**Figure 20. Unsafe Construction Practices, Alexandrovka Village**

65. Village of Poltavka - there is no sign warning of children crossing to the nearby school. It is necessary to promptly install traffic signs, especially near schools. This work must be completed before the start of the school season. This issue will be monitored in August, to make sure that by the start of school the passage / transition will ensure security properly.
66. In Belavodsk, in areas where new drainage pipes were built, there is a roughness of the road and the presence of holes. The contractor was instructed to restore damaged asphalt, the presence of the necessary warning signs and their timely removal of dirt to improve their visibility at night. (Figure 21).



**Figure 21. Dangerous construction practices, Belavodsk**

67. **Road Safety Campaign;** The subcontractor "KMAX" responsible for the road safety campaign left the project due to unforeseen circumstances (letter from the company "KMAX" dated 26.04.2019) and as such the CSC began searching for a replacement. On May 4 companies submitted their quotations. The consultant submitted quotations to IPIG and ADB for consideration.
68. It is noted that on the part of the contractor it is not enough to impose control over the workers for compliance with safety regulations during work, as well as the untimely fulfilment of road safety requirements. The engineer gave instructions about the need for continuous monitoring of workers (conducting training and briefing on an ongoing basis) and fulfilling road safety requirements. CSC has also proposed the use of the sign placard shown in Figure 22.

# SAFETY AT THE WORKPLACE



Figure 22. Safety at the workplace sign for use at the construction site

## 2.4 Changes to Project Design and Construction Methods

69. For this reporting period no project design changes have been noted.

70. For this reporting period no changes to the agreed to construction methods were recorded. However, in April 2019, CSC environment team were instructed to hand over all field data collection tasks to the contractor. This included, air, noise and water quality monitoring as well as soils testing.

### 3 ENVIRONMENTAL SAFEGUARD ACTIVITIES

#### 3.1 General Description of Environmental Safeguard Activities

71. During the reporting period, regular visual monitoring on compliance with environmental requirements during the execution of construction works at all road sections was carried out by the EPTISA environmental specialists as well as the environmental specialist of the Investment Project Implementation Group (IPIG) under the MoTR KR, as well as the Contractor's environmental specialist.

72. Field inspections involved one-day visits and inspection of all work sites, borrow areas, work camps and batch plants.

#### 3.2 Site Audits

73. Between July 1 and Dec. 30<sup>th</sup>, 2018, the CSC's international and national environmental specialist conducted 75 field inspections (see table in 07-12, 2018SEMR) and undertook two training workshops with the contractor on EMP implementation and use of the CEMWP and EMPs (Table 6). For these inspections, the contractor's environmental specialist accompanied the CSC's auditor.

**Table 6. CSC Auditor field inspection record January 1-0June 30, 2019**

No.	Date of visit	Auditors Name	Propose of Audit	Summary of any Significant Findings	Cross Reference to Monitoring Report
<b>MARCH 2019</b>					
1	05.03	Volkova T. Myrsaliev N.	Monitoring of construction sites, together with the Contractor's environmental specialist	Trees were cut down in section 2.2, which administratively covers two villages (Belavodsk and Petrovka). In total, 624 trees are to be cut down. However, due to electrical and telephone wires, many trees were left untouched.	See March 2019 Monthly Report
2	11.03	Volkova T.	Work on the site. Monitoring of all objects during the road construction.	Works on reconstruction of culverts in sections 2.2 and 2-3 (Poltavka and Belavodsk) are underway. Close location of groundwater complicates the construction.	See March 2019 Monthly Report
3	12.03	Volkova T. Abdygulov A. ADB Expert	Site visit with the ADB/ MoTR specialist. Holding a meeting	Monitoring of construction sites. Meeting with the Contractor. Discussion of environmental issues.	See March 2019 Monthly Report
4	25.03	Volkova T.	Work on the site. Monitoring of all objects during the road construction.	Meeting with the Contractor. Discussion of environmental issues. Preparing a letter about environmental non-compliances (EP-CR5-HN-980)	See March 2019 Monthly Report
5	27.03	Volkova T. Myrsaliev N.	Work on the site. Monitoring of all objects during the road construction	Contractor does not provide dry wood for bitumen heating. Workers are forced to burn bitumen. The poisonous black smoke emitted at the same time negatively affects the health of workers and residents of	See March 2019 Monthly Report



No.	Date of visit	Auditors Name	Propose of Audit	Summary of any Significant Findings	Cross Reference to Monitoring Report
				the village. Preparing a letter about environmental non-compliances (EP-CR5-HN-981)	
6	29.03	Volkova T.	Work on the site. Monitoring of all construction sites.	Groundwater complicates the construction of culverts	See March 2019 Monthly Report
			<b>APRIL 2019</b>		
1	01.04	Volkova T. Myrsaliev N.	Monitoring of construction sites, together with the Contractor's environmental specialist	Meeting with the Contractor. Discussion of environmental issues.	See April 2019 Monthly report
2	03.04	Volkova T. Chodoev D.	Joint site visit with a safety specialist. Monitoring of construction sites.	Familiarization of safety specialist with construction sites	See April 2019 Monthly report
3	05.04	Volkova T. Abdygulov A. ADB Expert	Joint site visit with the ADB/MoTR Expert. Holding a meeting	Monitoring of construction sites. Meeting with the Contractor. Discussion of environmental issues.	See April 2019 Monthly report
4	08.04	Volkova T.	Work on the site. Monitoring of all objects during the road construction.	Monitoring of underground crossings construction.	See April 2019 Monthly report
5	10.04	Volkova T. Myrsaliev N. Chodoev D.	Work on the site together with the Contractor's environmental specialist and safety specialist. Monitoring of construction sites	Site visit to the Kara-Balta borrow-pit. Familiarization of safety specialist with construction sites	See April 2019 Monthly report
6	12.04	Volkova T. Myrsaliev N. Chodoev D.	Work on the site together with the Contractor's environmental specialist and safety specialist. Monitoring of construction sites	Site visit to the Ak-Suu 2 borrow-pit. Familiarization of safety specialist with construction sites	See April 2019 Monthly report
7	16. 04	Volkova T.	Work on the site. Monitoring of all objects during the construction of the road.	Meeting with the Contractor. Discussion of environmental issues.	See April 2019 Monthly report
8	18. 04	Volkova T.	Work on the site. Monitoring of all objects during the road construction.	Groundwater complicates the construction of culverts. Due to long rains, the roads were washed out. Preparing a letter about environmental non-compliances EP-CR5-HN-1026	See April 2019 Monthly report
9	23. 04	Volkova T.	Work on the site. Monitoring of all	Preparing a letter about environmental non-	See April 2019 Monthly report

No.	Date of visit	Auditors Name	Propose of Audit	Summary of any Significant Findings	Cross Reference to Monitoring Report
			objects during the road construction.	compliances EP-CR5-HN-1020	
10	25. 04	Volkova T.	Work on the site. Monitoring of all objects during the road construction.	During the construction of the underground crossing and culverts, the pits are not fenced, which poses a threat to life and health of the population. Preparing a letter about environmental non-compliances EP-CR5-HN-1023	See April 2019 Monthly report
No.	Date of visit	Auditors Name	Propose of Audit	Summary of any Significant Findings	Cross Reference to Monitoring Report
			<b>MAY 2019</b>		
1	14.05	Volkova T. Myrsaliev N. Chodoev D.	Work on the site together with the Contractor's environmental specialist and safety specialist. Monitoring of construction sites.	Meeting with the Contractor. Discussion of environmental issues.	See May 2019 Monthly report
2	15.05	Volkova T.	Monitoring of construction site	Monitoring of underground crossings construction.	See May 2019 Monthly report
3	16.05	Volkova T.	Monitoring of construction site	Monitoring of culverts construction.	See May 2019 Monthly report
4	21.05	Volkova T.	Monitoring of construction sit	Work on the site. Monitoring of all objects during the construction of the road. Preparing a letter about environmental non-compliances EP-CR5-HN-1051	See May 2019 Monthly report
5	23.05	Volkova T. Myrsaliev N.	Monitoring of construction site, together with the Contractor's environmental specialist	Monitoring of objects on the located at the asphalt plant. Site visit to Ak-Suu 2 borrow-pit	See May 2019 Monthly report
6	24.05	Volkova T. Myrsaliev N.	Work on the site. Joint site visit to the Jelamysh borrow pit	Meeting with the Contractor. Discussion of reclamation works at the Jelamysh borrow-pit and other environmental issues.	See May 2019 Monthly report
7	28.05	Volkova T. Myrsaliev N.	Monitoring of construction site together with the Contractor's environmental specialist	Visual monitoring of works on Kara-Balta borrow-pit	See May 2019 Monthly report
8	29.05	Volkova T.	Monitoring of construction site.	Work on the site. Monitoring of all objects during the construction of the road, Kara-Balta borrow pit. Preparing a letter about environmental non-compliances EP-	See May 2019 Monthly report



No.	Date of visit	Auditors Name	Propose of Audit	Summary of any Significant Findings	Cross Reference to Monitoring Report
				CR5-HN-1065	
9	30.05	Volkova T.	Monitoring of construction site		See May 2019 Monthly report
			<b>June 2019</b>		
1	04.06	Volkova T. Myrsaliev N. & Chodoev D.	Monitoring of construction site. Kara-Balta borrow-pit	Violations of safety during works at the borrow-pit	No June 2019 environmental report: budget for CSC environment staff exhausted June 24, 2019
2	11.06	Volkova T.	Monitoring of construction site.	Large amount of reinforced concrete waste has accumulated on the road	NA
3	17.06	Teleki., Geza Myrsaliev N.	Monitoring with Contractor's Env. Spec.	Dust Debris on roadside Poor worksite safety Blocked river channels and culverts	NA

74. The audit inspection sequencing closely followed the mitigation and monitoring items listed in the EMP and in the CEMWP prepared by the contractor. The CEMWP was used as a checklist.

75. Environmental staff of the MOTR's IPIG sometimes accompanied the CSC's auditors, but most often conducted separate visits focusing on specific issues such as safety, dust management and local complaints. Between Jan 1 and June 30th, IPIG visited the construction site approximately 90 times, often with multiple objectives covering not only environmental and social issues but also engineering work problems addressed with the CSC team leader.

### 3.3 Issues Tracking

76. The focus during this reporting period was on:

- Air pollution and dust
- Bridge and culvert construction
- Borrow pit operation and management
- Materials production plants
- Waste asphalt and concrete recycling and disposal
- Occupational and environmental health and safety
- Work camp management: worker facilities, solid and liquid waste
- Noise and vibration

#### 3.3.1 Air pollution and dust

77. The issues tracked were breaches by contractor workers burning of waste, insufficient amount of firewood to heat the bitumen, there were some facts of the use of bitumen for heating, which is not acceptable. The contractor was given instructions on the timely provision of firewood. Dust suppression measures, the need for more rapid action by the contractor without waiting for comments from the engineer. One example would be a delay in the operation of water carriers when refuelling a vehicle. The contractor was instructed to refuel water carriers without a queue, in order to be able to continuously water, especially on hot days. The Contractor could complete these steps without reminder and guidance from the Engineer. Dust suppression is mainly carried out by the contractor in the areas where

work is in progress, however, the contractor's personnel should independently control the soil moisture in order to avoid discontent or inconvenience to local residents and drivers traveling in this area.

### **3.3.2 Bridges and culverts**

78. The issues tracked were the disposal and clean-up of construction materials concrete waste and earthworks, plus removal of construction waste from river and streambeds as well as construction waste blocking newly built culverts. The CSC prepared a guiding SEMP (IEE Annex 9, and 13 provided in 2017).

### **3.3.3 Borrow pit operations and management**

79. Issues tracked were adherence to permitted extraction volumes, depth of extraction and dust, noise and erosion management. Secondly maintenance of haul roads was also reported on. Finally the use by the contractor of the SEMP on Borrow Pit Management and Rehabilitation (SEMP Annex 14 of the IEE provided in 2017) was also tracked.

### **3.3.4 Materials production plant management**

80. Issue tracked were management of dust and noise at the aggregate crushing, concrete and asphalt production plants. The auditors also examined the management of raw bitumen. The IEE's SEMP's 6,9, and 11 provide necessary detailed guidance in 2017.

### **3.3.5 Waste asphalt and concrete recycling and disposal**

81. Given that 45.1 km x 12-14m x 25 cm of, or >146,000 m<sup>3</sup> of old asphalt pavement and thousands of tons of concrete from the bridges and culverts, bus stops, etc., need to be properly disposed of, managing the environmental impacts is a constant concern and carefully tracked by the CSC auditors. The focus has been on environmentally acceptable recycling of old crushed asphalt and disposal of the concrete. The Project's IEE includes SEMP's on Earthworks (IEE Annex 12) and Management of Waste Asphalt (IEE Annex 7) provided to the contractor in 2017.

### **3.3.6 Occupational and environmental health and safety**

82. Most often, the contractor cannot provide sufficient compliance with safety requirements at work. Despite being instructed many times and being given detailed training at least three times since the start of the project, the same issue keeps arising. Contractor permits repeated noncompliance and the same errors / comments are allowed. To provide specific guidance for the contractor, CSC prepared SEMP Annexes 3 and 4 and provided them in 2017. At the beginning of the current building season, the Contractor replaced the safety technician who instructs the staff and visits the work sites. Results will be reflected in the next semi-annual report.

83. In the event that the Engineer reveals gross violations of the contractor, the engineer will be forced to work until the situation is improved.

### **3.3.7 Work camp management: worker facilities, solid and liquid waste**

84. The project operates three work camps at 1) Ak-Suu for the material production facility operators and prefabrication yard, with around 20 residents, 2) Belavodsk is an equipment maintenance and storage area (as the work on the site Petrovka and Poltavka is completed, the number of temporary residents will decrease.), 3) around 29 residents and the main contractor office and camp housing 30 people<sup>1</sup>.

85. Converted containers are sufficiently suitable for temporary accommodation of personnel. It is necessary to constantly monitor the living conditions of the contractor's personnel in order to maintain an acceptable level of accommodation / arriving at the workplace.

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<sup>1</sup> All data on people in the camps provided by the contractor, 20/06/2019

86. Cleanliness in the kitchen and fire safety It is also an issue that is constantly monitored by the Engineer, in order to maintain an extremely safe and secure level of temporary residence / accommodation for personnel.

87. There untimely garbage collection is observed on the territory of temporary residence plots, and the impossibility of explaining to the attracted workers the need to use the garbage cans left in special places. The engineer gives permanent instructions to carry out explanatory work among local and foreign personnel. CSC prepared IEE SEMP Annex 4 in 2017 and provided it to the contractor.

### 3.3.8 Noise, vibration air quality and water quality

88. Given the very noisy background conditions, construction noise added only periodic noise spike, pushing the noise level from 65 to 70 dBA during work periods. With regard to vibration, due to the changed working method of compaction of the embankment and pavement, vibration is not used. The quality of compaction is achieved by increasing the number of rollers in the area where compaction is carried out.

### 3.4 Summary of Issues Tracking

Since the start of construction in mid 2017 95 non-compliance issue were presented to the contractor and defined both orally and by letter, including defining mitigative measures to be applied (Table 7 and 8).**Ошибка! Источник ссылки не найден.**

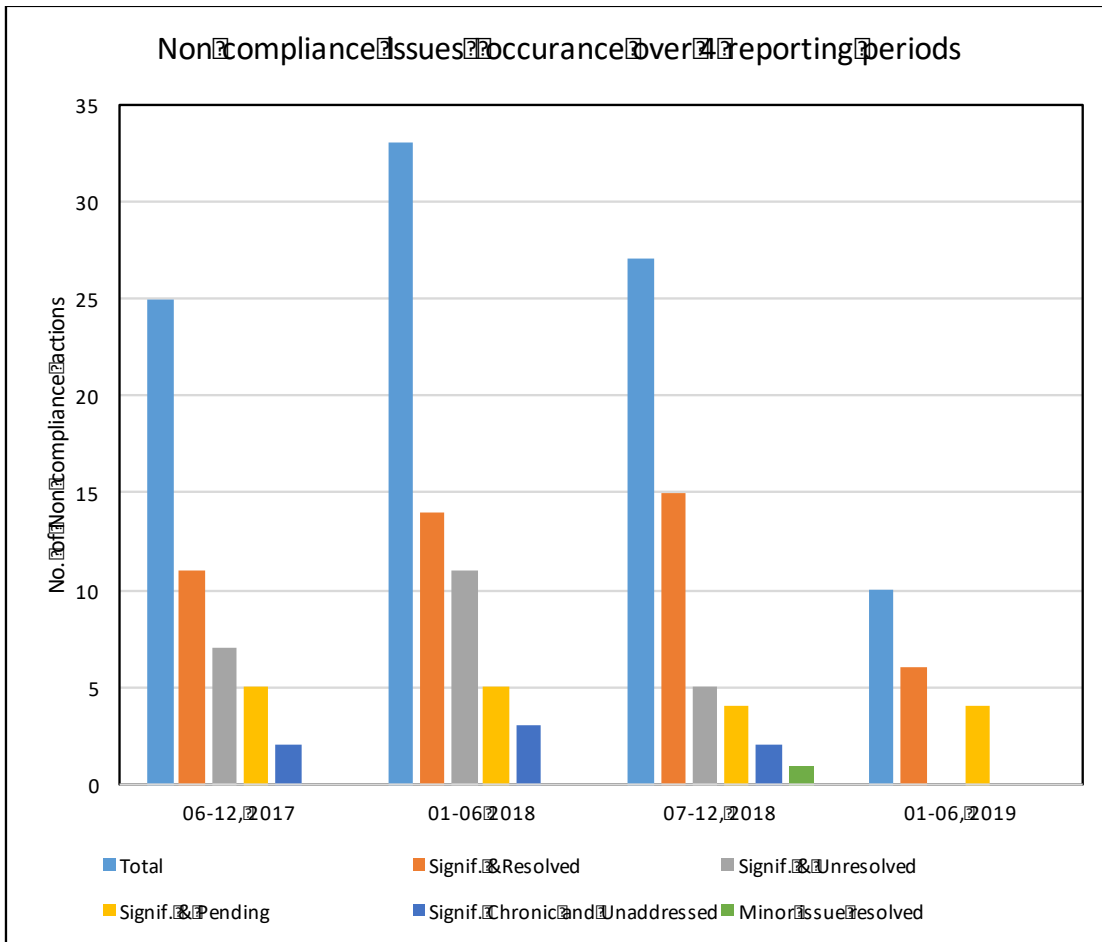
**Table 7. Summary of Issues Tracking Activity for Current Period**

<b>Non Compliance</b>	<b>01-06, 2019</b>	<b>Total</b>
Total	10	<b>10</b>
Significant & Resolved	6	<b>6</b>
Unresolved	0	<b>0</b>
Pending	4	<b>4</b>
Chronic and Unaddressed	2	<b>2</b>
Minor issue	0	<b>0</b>

89. The reason for the large number of unresolved compliance issues is that, although a specific element was corrected during one reporting period, a similar nonconformity was identified during the subsequent reporting period, as, for example, with respect to management of unsuitable reinforced concrete structures, safety measures and road safety issues.

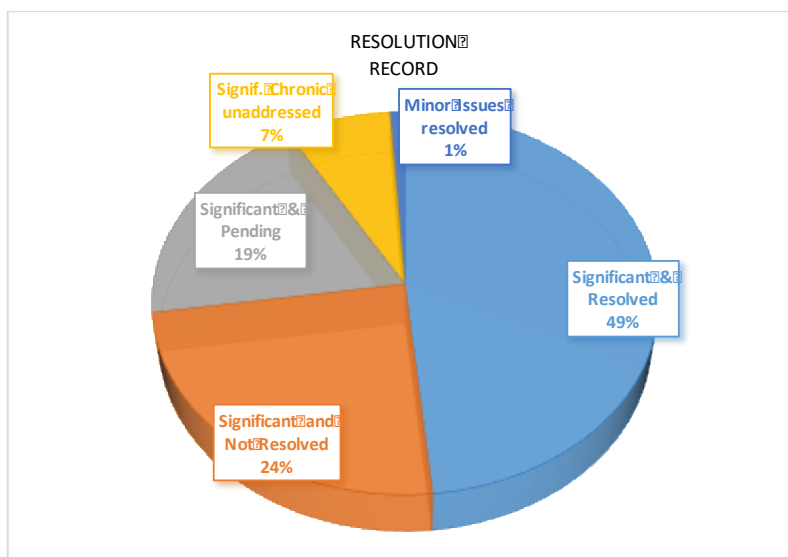
#### 3.4.1 Trends from 2017-June 2019

90. The trend over the four reporting periods (Figure 23) shows a steady growth in the number non-compliance issue from 06, 2017 through 12, 2018, with the peak being the 2nd reporting period. It has taken the contractor 18 months to begin to thoroughly address issues raised by CSC's auditors and to resolve them quickly. For the Jan-June 2019 reporting period there were only 10 non-compliance issue documented and six were resolved during the reporting period; a significant improvement. The contractor needs to improve the management of these issues and conduct on-going briefings / seminars among its staff to avoid repeating the mistakes / omissions made.



**Figure 23. Non-compliance Issues identified and outcome recorded**

91. Viewed across the four reporting period, slightly less than half of the issue raised were significant with potentially large negative effects had they been left unaddressed. However the contractor did address about 48 % of the issues raised by CSC, did not fully respond on 26 % of then and did not respond in time on another 15%. Ten percent of the issues were chronically repeated non-compliances, dealing mostly with (Figure 24), with worksite safety and OHS.



**Figure 24. Contractor's action to address significant, pending and minor non-compliance notices**

92. In terms of the topics raised in the non compliance letters the focus was on Occupational and Environmental Health and Safety, work camp management, waste materials disposal from project site (Figure 25).

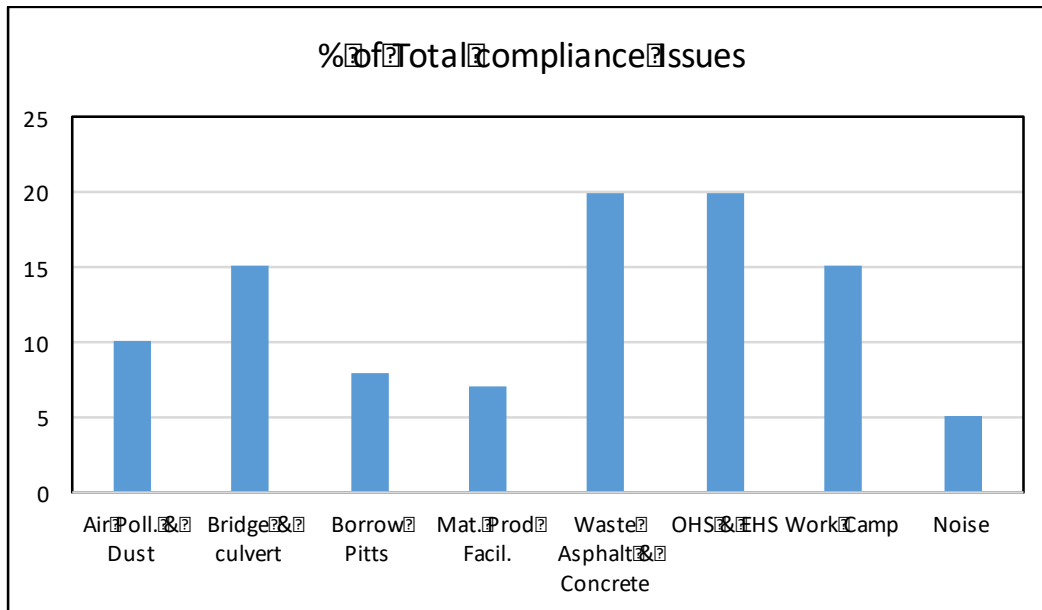


Figure 25. Compliance issues raised by topic since 2017, in 95 non-compliance notices.

93. Interestingly, while there were 1000's of trees cut there were almost no non-compliance issue raised, other than better tree cutting practices and machinery operation. Intensive oversight of the contractor by CSC and IPIG and the requirement for very detailed inventories of trees to be cut very likely significantly reduced non-compliance issues.

**Table 8 Listing of non-compliance issues January-June 2019.**

No	The issue of non-compliance	Applicable Guide on Best Practices (No.)	Specific issue and location	Actions to be taken by the Contractor	Status	Period of execution
1.	<b>Construction waste disposal issue</b>	Annex 5. Waste Management Plan	Road Maintenance Unit 9 - refuses to accept the dismantled elements of engineering structures, such as concrete slabs and racks.	Contractor must work with local authorities on the identification of appropriate locations for disposal of unusable reinforced concrete pieces.  Contractor should start collection of concrete and construction waste once disposal location is identified.	<b>Partially completed</b>	The contractor, together with the local authorities, determined the sections (streets of the inner villages, etc.) where the old asphalt is placed. All the necessary letters from the local authorities and permission are available. The contractor performs these works.
2.	<b>The bridge over Jalamysh river</b>	Annex 3. Plan For Safety, Health And Hygiene	Main construction works of the bridge is completed, however, handrails to be installed. Contractor should conduct bank stabilization works to avoid caving.	The contractor should conduct bank stabilization works and conduct filling of cavities.  Handrails should be installed to ensure pedestrians safety	<b>Pending</b>	Work on the bridge Zhelamysh not started. Currently, the contractor is working on asphaltting at sites in the villages of Gavrilovka, Petrovka, Poltak, Novonikolayevka. Work on the Zhelamysh will be continued later, as the primary work is completed.
3.	<b>Bridge over Sokuluk River</b>		Despite the fact that there is a pedestrian crossing over the Sokuluk river, pedestrians are using the main road that is reducing the traffic speed and cause potential risk for	The contractor should install additional road signs prohibiting using the main road and/or print a banner with scheme of bypass.	<b>Completed</b>	The contractor installed warning signs for pedestrians (the north side of the Sokuluk Bridge) about the absence and prohibition of crossing the



No	The issue of non-compliance	Applicable Guide on Best Practices (No.)	Specific issue and location	Actions to be taken by the Contractor	Status	Period of execution
			life and health of citizens			bridge along the open lane. On the south side there is a separate pedestrian crossing over the Sokuluk Bridge.  Work is underway on the arrangement of the bridge to ensure the safe passage of pedestrians (dividing borders are installed for the pedestrian walkway).
4.	<b>Bridge over Ak-Suu River</b>	Annex 3. Plan For Safety, Health And Hygiene	Bypass canal is not strengthened and most likely will be erodible once there will be more water in the river. Once the weather will improve water level will raise therefore it is necessary to conduct regular monitoring to ensure that earthen dam is not breached.	The contractor should apply bank protection measures to minimize soil erosion and prevent chute choking.	<b>Completed</b>	The contractor cleaned up the bed of debris and unusable material. At present, work is underway to prepare the concreting of the channel under the bridge, as well as the arrangement of the bridge to ensure a safe passage for pedestrians.
5.	<b>Jelamysh Borrow-pit</b>	Annex 14. Borrow Pit Management Plan	Development of Jelamysh borrow-pit is completed. Reclamation of the borrow-pit is required.	The contractor should prepare a design of borrow-pit reclamation and obtaining all approvals prior to actual reclamation works.	<b>Pending</b>	A borrow pit restoration plan will be made.  The borrow pit restoration plan will be ready until the end of the construction season.

No	The issue of non-compliance	Applicable Guide on Best Practices (No.)	Specific issue and location	Actions to be taken by the Contractor	Status	Period of execution
						Currently, the borrow pits is not used. The borrow pit restoration work is planned to complete the by the end of 2019.
6.	<b>Workers safety and use of PPE</b>	Annex 3. Plan For Safety, Health And Hygiene	Bridge over Sokuluk River. One out of three workers wore headpiece, no fall management equipment was used by workers.	Contractor should provide additional trainings of Safety measures during construction works, use of PPE.	<b>Done</b>	A new safety specialist will continuously monitor compliance with the necessary measures, as well as regularly instruct workers
7.	<b>Jantay Canal</b>	Annex 3. Plan For Safety, Health And Hygiene	Once construction works will re-start, bank slopes should be strengthened to reduce soil erosion.	Contractor should strengthen river bank slopes to reduce soil erosion and canal contamination at Jantai Canal	<b>Pending</b>	Deadline is difficult to specify. Work not completed.
8.	<b>The Contractor's warehouses are not maintained</b>	Annex 12. Land Protection Management	Currently contractor is using bitumen in sealed barrels instead of briquets. No oil or bitumen spills were observed, most of the barrels are placed on concrete platform, however, some of the bitumen barrels were stocked on the gravel.	Contractor should extend concrete platform for storing bitumen barrels or stockpile them on top of one another if it permitted by storage instruction;	<b>Completed</b>	The contractor has bitumen in iron barrels. All barrels are placed on a specially concreted site.
9.	<b>Dust formation on road</b>	Annex 11. Dust formation	Current weather condition prevents dust formation,	Contractor should consider revision of water sprinkling schedules and/or	<b>Comple</b>	Dust suppression at the site is satisfactory. The

No	The issue of non-compliance	Applicable Guide on Best Practices (No.)	Specific issue and location	Actions to be taken by the Contractor	Status	Period of execution
	<b>sections that are under construction</b>	Supersession Plan Annex 3. Plan for Safety, Health and Hygiene	however, during warmer month dust will become of the major issues that will have to be addressed by contractor	employ additional water sprinkling trucks. Road sections where culvert chutes were replaced should be cleaned as excess gravel poses a threat to cars and road safety.	<b>ed</b>	consultant is constantly monitored. Currently, given the hot weather, the technical equipment available to the contractor is coping with the spraying of water.
10.	<b>The problem of old asphalt crushing</b>	Non-compliance with technical specifications of the contract	From the contractor's side, the old asphalt is crushed into pieces that do not correspond to the specified size. According to the technical specifications of the contract, pieces of asphalt must be broken down to size 20x20.	The contractor must comply with the technical specifications of the contract.	<b>Completed</b>	Monitoring throughout the construction season, until the completion of the removal of old asphalt. The consultant continues to monitor these works. Contractor removes old asphalt. After that, a bulldozer and a grader are used at the place of laying / using the old asphalt to perform planning works.
11.	<b>Complaints from the local population regarding cracks</b>		3 complaints were received, two complaints from residents of the village of Petrovka (St. Central House No. 59 and Central House No. 117 and one petition from a resident of the village of Poltavka (Central House No. 129). All complaints regarding the cracks formed due to use of	At the local level of GRM, meetings were held with complainants and clarifications were given that the construction method was changed and the Contractor does not apply vibration, however residents insist on their version. The commission at the local level decided that it was necessary to involve the Institute of Earthquake Engineering under the	<b>Pending</b>	Currently, the Contractor is collecting the necessary documents and preparing a contract to attract specialists from the institute. All complainants were notified in writing that additional studies would be conducted and the issue would be discussed again.

No	The issue of non-compliance	Applicable Guide on Best Practices (No.)	Specific issue and location	Actions to be taken by the Contractor	Status	Period of execution
			vibration.	State Agency for Construction and Housing and Communal Services and obtain their opinion to clarify the issue of existing cracks. After receiving a report on the survey of 3 houses, additional consultations will be held with complainants to be able to resolve this issue at the GRM local level		
12.	Jelamysh river channel remains partially blocked		In September 2018, the construction of the bridge was completed. All construction waste formed during the construction of the bridge was removed. There was no water in Jelamysh River during the construction.	Currently, work on the Jhelamysh bridge is not completed, will be resumed after completion of the main asphalt laying works	<b>Pending</b>	Before the end of the construction season before the appearance of water in the river Jelamysh.
13.	Crushing plant irrigation system		EPTISA has reminded the contractor that the general conditions of the Contract - Technical Specifications clause 1.2.10 (j) states, "Crushing plants should only operate with dust control devices working".	The contractor indicates that spray nozzles are clogged, and the water supply line sometimes fails. Nevertheless, the contractor promises that he will strive to eliminate these breakdowns to ensure dust suppression during crusher operation.	<b>Pending</b>	Will be monitored throughout the construction season

### **3.5 Unanticipated Environmental Impacts or Risks**

94. The contractor indicated that it might be necessary to cut down additional trees, as local authorities raised the issue of transferring old power lines and communications and move these lines away from the road. This question is under consideration. There were no other unforeseen environmental impacts during the reporting period.
95. Given that now the contractor is responsible for instrumental monitoring, the consultant will carry out this work together. During the reporting period, instrumental monitoring has been limited, due to the long transfer of authority from the Consultant to the Contractor. On the part of the Consultant, insufficient work was carried out with the Contractor for the quick transfer of these functions. The consultant sent a letter to the Contractor and did not bother to check whether the contractor accepted the changes or not. After a reminder from the Customer, the Contractor received letters in which he asked the consultant to indicate the exact justification and indication of the expense item from which the Contractor has the right to use the funds. This situation led to the fact that in the reporting period there was no instrumental monitoring. Monitoring data is not available.

## 4 RESULTS OF THE ENVIRONMENTAL MONITORING

### 4.1 Overview of Monitoring Conducted during Current Period

96. In April of the 2019 construction season the environmental staff of the CSC were informed that all monitoring functions would be transferred to the contractor, and that CSC would be responsible for only the reporting using the data tables supplied by the contractor. This transfer included all air quality, noise, water quality and soil testing.
97. Since negotiations with labs, sampling designs and budgets had already been established CSC's environment staff handed over all information to the contractor, including an implementation schedule, and provided a briefing on how the work needed to be undertaken. A letter from the consultant to the contractor stating that the contractor will now be responsible for instrumental monitoring was sent at the end of April 2019.
98. The contractor has not initiated the labs and mobilized the field personnel to undertake the work. During the field visit by the international environmental specialist this issue was discussed and the contractor agreed to proceed with the monitoring and reporting work.

#### 4.1.1 Dust and Air Pollution

99. Dust formation has the main impact on the environment during the execution of earthworks. The engineer constantly monitors dust suppression activities and sends appropriate instructions to the contractor. The increased air temperature led to increase of dust formation in the road, Engineer given to the Contractor warnings on the need to increase the water sprinkling. In this regard, the Contractor was instructed to increase the intensity of road watering sprinkling, including shoulders, at construction sites from 6 a.m. to 20 p.m. without a break for lunch. The contractor has drawn up a schedule of water sprinkling of the road with an indication of the interval between water sprinkling 30 minutes.



Figure 26. Dust generation example. Dust suppression event example.



100. During the construction of culverts, the works on waterproofing culverts with bitumen (Figure 27). These violations include the burning of bitumen due to lack of firewood. After the CSC provided an explanation and instructed the contractor, firewood was transported to the work sites.



**Figure 27. Burning bitumen to heat bitumen during the waterproofing of culverts**

#### 4.1.2 Culverts

101. During the construction of the culverts at Km 16, excavation was done without taking into account the angle of gravel material's natural slope. The bank collapsed, leading to blockage of the culvert inlet. The contractor clear of all debris and water flows freely and on downstream without obstruction. (Figure 28).

**Figure 28. Debris almost totally blocking new culvert entrance**



102. The construction inspectors noted that this is quite common when culverts are extended (Figure 28). Therefore, inspections will be much more vigilant, and all new installed culverts must be checked against design specifications and certified to be clear of all obstructions both upstream and downstream of structure.



**Figure 29. The culvert with an extra section added and Jelamysh R. bridge blockage**

### 4.1.3 Bridges

#### *Jelamysh River Bridge.*

103. In September 2018, the construction of the bridge was completed. All construction waste formed during the construction of the bridge was removed. There was no water in Jelamysh River during the construction. However the river channel remains partially blocked (Figure 28). Therefore, inspections will be much more vigilant, and all new installed culverts must be checked against design specifications and certified to be clear of all obstructions both upstream and downstream of structure.

104. The June 17th, 2019 inspection recorded that track is not cleared. The contractor promises to perform clearance before the end of the construction season before the appearance of water in the river Jelamysh.

#### *Ak-Suu River Bridge*

105. The Contractor carried out works at the right bank of the river using bentonite and pile boring. The bentonite pit is located directly in the riverbed. At the end of October, the Contractor's equipment was taken out. Contractor complete removal of clay residues in early January 2019.

#### *Small Ak-Suu River Bridge (KM 44 +641)*

106. A large amount of construction waste is stockpiled at the northern side of the bridge under construction. A letter was sent to the Contractor on the need to take out the formed concrete waste to the designated places.



**Figure 300 Construction waste at the northern side of the bridge under construction**

107. The Contractor responded by indicating that the soil stockpiled at the northern side of the bridge would be almost entirely used for filling of the voids formed during the construction of the main bridge support structure. After completion of works on filling and compacting of the voids, the remaining soil and old concrete waste will be removed and disposed. Completion of construction of this bridge is planned during the construction season in 2019.

### 4.1.4 Borrow-pits

108. In 2017 the CSC prepared a SEMP focused on borrow pit management, which has been in the contractor's possession since then (IEE Annex 14). The SEMP provides details on pit operations but also on rehabilitation after closure. The contractor was reminded to use it.

#### *Ak-Suu 2 Borrow-pit*

109. In November, the old borrow-pit located at the right side of Ak-Suu River was reopened. The inspector recorded that the topsoil and unsuitable soil dumped by bulldozer into the

riverbed, which is a violation of environmental legislation. Another letter was sent to the Contractor on the need to remove all dumped soil from the riverbed. Later the soil was removed to the boundary of the borrow-pit. Further, the soil will be used for reclamation of the borrow-pit (Figure 311)



**Figure 311. Topsoil incorrectly stored at the river shore**

110. Dust suppression at the Ak-Suu pit is conducted quite intermittently which has led considerable dust in the area (Figure 322). In March and April 2019, the Consultant held additional discussions on the issue of dust suppression measures, in order to improve the situation, and also raise the issue of increasing the number of water transport vehicles. These discussions resulted in a commitment by the contractor to increase the frequency of water sprinkling. To confirm this commitment, inspection during July and August will be important.



**Figure 322 Dust formation during Ak-Suu borrow-pit mining**

*Jelamysh Borrow-pit*



111. During the reporting period no violations in works on development of borrow-pit were revealed (Figure 333). Currently, the extraction at this borrow-pit is complete. The contractor has been reminded of and is committed to fully rehabilitating the site during 2019, as defined in the IEE SEMP Annex 14. Prior to initiating any activity the contractor, must, under, KR regulations file a rehabilitation plan with the State Agency for Environmental Protection and Forestry.



**Figure 333. Jelamysh borrow-pit before (left panel) and after mining (right panel)**

#### *Kara-Balta Borrow-pit*

112. Development of Kara-Balta borrow-pit started in September 2018. Works on excavating, sifting and stockpiling of material in the spoil areas were carried out until the end of Nov. when it was suspended when the project closed for the winter season. During the reporting period, non-compliance with the requirements of the depth of borrow pit development, which were resolved by the Contractor after the Engineer relevant comments. (Figure 344. Kara-Balta borrow pit)



**Figure 354. Kara-Balta borrow-pit operations**

#### **4.1.5 Asphalt Plant Operations**

113. Bitumen issues – Since the September 2018 inspection by CSC auditors and the urgent call to stop the bitumen leakage, the contractor built an impervious concrete platform for bitumen storage. There is no more leakage of bitumen. It is now obtained in drums (about 11,500 tons between January and May 2019). Empty drums are stored in the asphalt plant (Figure 365) and are being used as safety barriers along road construction sites.



**Figure 365. Empty bitumen drum storage**

114. Starting in November 2018 bitumen was delivered to the asphalt plant in metal drums, and was stored in prepared impervious platform (Figure 376).



**Figure 376 Bitumen in metal barrels stored in the prepared platform**

115. During the operation of the plant, all soil around the tanks with chemicals inside must be protected from leaks and spills of hazardous materials with an impermeable protective coating. To that end, the Contractor has completed this work (**Figure 387**).



Before

After

**Figure 387 Chemical storage tanks with concrete platform allowing for easy clean up**

116. Also, considerable dust is being generated at the asphalt plant yet this plant, as with the aggregate crushing plant, has dust suppression sprinkler systems, but is not used.

#### **4.1.6 Aggregate Processing Plant Operations**

117. This plant has dust suppression equipment, i.e., an effective water sprinkler system, but often the system breaks down. Contractors are given instructions on the need for timely repair and proper maintenance of the water spray system. (Figure 398).

118. Several non-compliance letters were sent to the Contractor. The Contractor explained the situation by claiming a breakdown of the water pipeline to the facilities. EPTISA has reminded the contractor that the general conditions of the Contract - Technical Specifications clause 1.2.10 (j) states, "Crushing plants should only operate with dust control devices working".





**Figure 398. Dust in the aggregate processing plant and the asphalt plant**

#### **4.1.7 Tree Management**

119. Trees to make way for the electricity transmission line and communications line are being cleared. The number and location is being plotted on maps as, defined for the roadside clearing. In October - September this year, it is planned to carry out the first tree planting in areas where work with new sidewalks will be completed or in areas where planted trees will not interfere with the laying of sidewalks and drainage trays

#### **4.1.8 Workers' camps**

120. In 2018, the workers' camps at Ak-Suu, Sokuluk and Belavodsk villages were cleaned of household and construction waste, as well as cosmetic repair of premises was carried out, and living conditions were improved. All noted violations are eliminated. Garbage cans are installed. In the kitchen and living areas, there are fire extinguishers and fire extinguishing panels. Explanatory works with residents on the rules of residence, the need to keep the premises clean were conducted.

#### **4.1.9 Waste Management**

121. **Construction Waste:** Waste reinforced concrete is being generated during the dismantling of bridges and culverts. Since the beginning of construction work in 2017, almost 3,000 m<sup>3</sup> of reinforced concrete waste has been generated. This amount rose to 8000m<sup>3</sup> in 2018, but 2019 data have not been tallied.

122. A large amount of construction reinforced concrete and other construction waste accumulated during the removal of old asphalt, construction of culverts and dismantling of bridges. The District 9 Road Maintenance Unit (RMU9) refused to accept these waste, and due to this situation, the old reinforced concrete waste was taken out to the permitted areas. It was agreed with the contractor that for the 2019 construction season, the Contractor will present and approved (by the RMUs) disposal/waste-processing plan. More detailed information on waste management in the reporting period is described in Section 4.5.

123. Initially, construction waste was promptly taken out to areas for storage of old concrete products allocated by RMU-9. With the increase in the volume of construction work, there was a problem with the definition of storage for reinforced concrete waste. Currently, RMU-9 takes out only used reinforced-concrete pipes that can be reused. Currently, the Contractor has identified several areas agreed with the local authorities to which the removal of the remains of reinforced concrete is carried out. Basically, these are areas where there are holes and which local authorities plan to use for commercial purposes.

124. **Old Asphalt:** To date, the following volume of old asphalt have been removed; all requiring recycling, and as a last resort disposal:

- Section 1-1 – 12,123 m<sup>3</sup>;
- Section 3 -1 – 9,684 m<sup>3</sup>;
- Section 4-1 – 6,010 m<sup>3</sup>.

125. With the start of road works in areas 1.1 and 1.3, the contractor carried out the removal of old asphalt. The problem of crushing old asphalt remains partially solved. On the Contractor's side, the requirements of crushing old asphalt into pieces of size 20x20 are partially fulfilled. This issue is constantly discussed with the contractor. When scattering old asphalt on rural roads, the contractor rolled and smashed large pieces in place, which resulted in incomplete crushing of large pieces of old asphalt. At the request of local residents and local authorities, old asphalt is provided to fill existing pits and lay on roads that are in poor condition. These sites are usually located along the road and are used for commercial purposes (construction of shops, gas stations, etc.). In this case, the site owners level the asphalt on their own. After receiving the recommendations of the ADB, which indicated that in order to avoid harming the health of local residents, it is prohibited to transfer old asphalt to local residents for their own use. This requirement has been met and will be monitored in the current construction season.



**Figure 39. Old asphalt for backfilling of private areas at the request of the residents**

126. In 2018 after approvals were obtained from the local authorities and environmental authorities the old asphalt was taken to rural secondary roads. With every delivery a local official oversaw the placement of the crushed asphalt (Figure 400). If asphalt pieces were too large, the contractor brought in a compactor or other heavy machinery to break up large pieces.

127. Local authorities initially proposed more than 200 secondary roads to be provided with the waste asphalt. The Contractor's specialists conducted a preliminary analysis of all the proposed roads, eliminating those roads to remote from the main road<sup>2</sup>. Roads that did not meet these requirements were removed from the list. There are 89 roads left to be backfilled with old asphalt. During the past reporting period, the streets of five ayil okmotu were backfilled (Table 9). During this reporting period 6,590 m<sup>3</sup> of old crushed asphalt has been delivered to rural areas for use by local communities/authorities, but the actual sites have not been tabulated due to a change of the staff responsible. The contractor carried out the removal of old asphalt to separate streets inside the villages, and then carried out planning work. The consultant carried out monitoring to exclude the use of old asphalt exported by local residents for backfilling of courtyards/

<sup>2</sup> The auditors consider this unfortunate since it is the remote roads that likely need repair the most, yet have the least amount of resources to do this on their own.

128. At the same time, the problem of crushing old asphalt remains partially solved. Villages do not have equipment for levelling large pieces of old asphalt; therefore, the Contractor provides this service free of charge. On the contractor's side, the requirements for crushing old asphalt to small sizes (20 x 20 cm) are partially respected. After laying the old asphalt on minor roads, the contractor conducts the layout and compaction of his technique. The consultant will continue to monitor this work.



Figure 400. Old asphalt on local small roads and laneways

Table 9. List of streets backfilled with old asphalt in 2018

	District name	Name of person responsible	Approval date	Road width	Road length
Name of road				m	km
Lugovaya	Moskovskiy district Petorvskiy a/o	D.A. Astarov	24.05.2018 r № 482	6	0,95
Zavodskaya				6	0,3
141 raz'ezd				6	2
Besh Terek				6	0,5
Lomonosova				6	1
Zheleznodorozhnaya				6	0,6
Gor'kogo	Jayilskiy district Poltavskiy a/a	V. Kerimov	22.06.18 №805	4	
Komintern				4	
Partizanskaya				4	
Komsomolskaya				4	1,2



End of Orto Suu village				4	0,7
AVM area				4	
Klyuchevaya	Jayilskiy district Kyzyl-Duykanskiy a/a	A. Manapov	22.06.18 №805	4	
Frunze				4	
Sovetskaya				4	
Shevchenko				4	
Pogranichnaya				4	
Shkol'naya				Jayilskiy district Ak-Bashatskiy a/a	K. Umetaliev
Zelenaya	4				
Lugovaya	4				
Uzhnaya	4				
Krupskaya	4				
D.Bednogo	4				
Novosel'skaya	4				
Novosadovaya	4				
Moskovskaya	4				
Itw was	Sokulukskiy district Kyzyl-Tuyskiy a/a	Z. Nurmambetov			

Note: the change in staff responsible for these data has resulted in a reporting delay.

129. **Waste at the Asphalt Plant:** Waste in an asphalt plant. Waste is generated when bitumen is used in briquettes. Recently, the contractor has been using bitumen delivered in steel barrels and liquid bitumen brought in by special vehicles. The remains of plastic briquettes are currently scaled in special places to allow the use of bitumen residues during waterproofing applications.
130. The inner polyethylene bags, covered with bitumen residues, are stored in concrete bin, constructed near the plant. After separation / removal of bitumen residues, the plastic bags will be exported to a landfill authorized by SIETP.



Figure 411. plastic packaging bitumen packaged and transported in

131. **Household Waste:** Household waste is being generated at the main work camps housing around 66 people in total. Both solid and liquid household waste is generated, with the liquid being sewage and grey water from washing. Sewage and grey water are disposed of in a closed septic tank system that is periodically pumped, and the liquid waste

taken to a sewage treatment plant. During this reporting period about 640,000.00 L of sewage was pumped and taken to the STP (Table 10).

132. When pressed about sorting and recycling the contractor has indicated that the market for recycled waste and compostable foodstuffs does not exist and no services are available<sup>3</sup>.

133. Solid household waste consists of paper and plastic packaging materials, cardboard, dry waste, plastics and glass containers, as well as food waste, the latter pre-collected in plastic bags. That being said, the food waste ends up in bins mixed in with all other solid waste and disposed of (Table 10) at an existing and legally operating landfill.

**Table 10. Accounting list for disposal of household solid waste ( garbage)**

Locality	Year and Month	Number of garbage bins, sewage tank-loads	Disposal Cost (Som)
<b>2019</b>			
Sokuluk	January	22 garbage bins, 40 sewage tank loads	42800
Belavodsk	January	---	
		<b>Total:</b>	<b>42800</b>
Sokuluk	February	13 garbage bins, 29 sewage tank loads	29850
Belavodsk	February	8 garbage bins	2640
		<b>Total:</b>	<b>32490</b>
Sokuluk	March	22 garbage bins, 26 sewage tank loads	30900
Belavodsk	March	20 garbage bins	6600
		<b>Total:</b>	<b>37500</b>
Sokuluk	April	25 garbage bins, 41 sewage tank loads	44850
Belavodsk	April	10 garbage bins	3300
	<b>As per agreement</b>	<b>10 sewage tank loads</b>	<b>7000</b>
		<b>Total:</b>	<b>55150</b>
Sokuluk	May	31 garbage bins, 47 sewage tank loads	52350
Belavodsk	May	26 garbage bins	8580
	<b>As per agreement</b>	<b>10 sewage tank loads</b>	<b>7000</b>
		<b>Total:</b>	<b>67930</b>

## 4.2 Trends

134. While the total number of non-compliance issues is declining, the contractor is very slow to address the major concerns that have persisted and have grown since construction began in April 2019. For example most of the 13 significant issues raised during this reporting period are repeats from the previous period. The trending non compliance areas are:

1. Occupational and environmental health and safety
2. Prompt and total management of construction wastes
3. Dust suppression, and
4. Road traffic and safety management.

<sup>3</sup> The comment about recycling makes little sense since the garbage picking industry thrives throughout the country and garbage is regularly sorted at the bins and paper, glass, plastics and metals are recycled.

135. The IEE and SEMPS were translated into Russian and cross-referenced to every impact defined in the IEE's Environmental Management Plan. Despite three training sessions and a review of methods as well as the preparation of an environmental monitoring checklist for the contractor to use as reminder of what needs be respond for all requirements under SEEMP.
136. Since enforcement of all but the design specifications is not managed, the contractor realizes that environmental issues are of secondary concern and can be ignored, aside from the most obvious and visible issues. CSC has requested at least twice in writing and received confirmation from the contractor for a health and safety specialist to be appointed by the contractor. This has been done but the 'specialist' does not have the necessary equipment to do the work. As a result the OHS issues continue.
137. The division of responsibility among project management has split such that the construction monitoring is separated from the reporting on construction work related environmental issues. The contractor's environmental reports are not sent directly to the CSC, but rather through the contractor, thus details are regularly missing.
138. Finally, the contractor reported that between March 5th and June 24th 40 training sessions on construction safety were delivered to all workers.

#### **4.2.1 The Asphalt Concrete Formulation**

139. As recommended during the detailed noise study completed in 2018, MoTR, using the noise modelling results, and in consultation with EPTISA, agreed in 2018 to use the low noise asphalt formulation, yielding an average 3-dBA-noise reduction. During this audit exercise it was learned that MOTR reverted to the standard KR formulation (as defined by law) of GOST Standard 9128 Type A Mark I asphalt concrete. This formulation providing no noise attenuation value, except the fact that it is new and smooth, which has some benefits. As documented in the IEE, a strict speed control of between 50 and 70 kph in urban and rural areas respectively will reduce the noise levels at the sensitive receptors by about 1.3 dBA.

#### **4.3 Summary of Monitoring Outcome**

140. The monitoring during this reporting period underscored the reality that the contractor's response to environmental mitigation and monitoring is remedial, not proactive as defined in the IEE and its EMP. In other words corrective actions are taken only when the monitor send a non-compliance letter or IPIG instructs the contractor to take immediate steps.

- To reduce the chronic non-compliance another training workshop and instructions on the use the SEMPs and how to address the five areas listed in para. 141 should be delivered as soon as possible.
- The consultant will continue to monitor the main issues (dust suppression, road safety, removal of construction waste residues) which are currently less "acute".

#### **4.4 Material/ Resources Utilization**

141. During this reporting period 6,590 m<sup>3</sup> of old crushed asphalt was deposited and graded, with permission and oversight by local authorities, to rural streets and other areas. Another 3000 m<sup>3</sup> of soil was taken to a specially designated pit, authorized by local environment authorities. Based on earlier tests the soil contained unacceptably high levels of clay and sand.

##### **4.4.1 Current and Cumulative Resource Utilization**

142. The following is the accounting of resources used through the end of the past reporting period and this reporting period (Table 11)

**Table 11. Cumulative Resource Utilization; 05-2017-12 2018 & 01-06 2019**

Item	Unit of measure	Total Consumed May 2017-Dec.	Total required Jan-June 2019	Total Consumed; Jan-



		2018		June 2019
Base aggregate material	Tons	77,702.01	64,308.00	80,323.00
Sand	Tons	61,440.28	30,607.10	4,645.64
Crushed Stone 5-40mm	Tons	97,672.45	41,118.50	4,645.64
Washed Sand	Tons	15,655.06	2,843.90	3,257.46
Bitumen	Tons	2,783.18	3,234.50	3,647.49
Cement	Tons	7,986.48	1,482.00	2,427.84
Water	Million L	2.10	0.631	0.800
Electricity	Kw	840,000	420,000	432,200

Source: CREC June 20, 2019

#### **4.5 Waste Management**

143. The waste management issue has been addressed in detail in Section 4.1.10. In general it is adequately. Construction waste including old asphalt, concrete from bridge and culvert demolition sit along roadsides and sometimes block waterways. Debris had been found in newly constructed culverts.
144. All waste generated at all construction sites by people (66 residents in total, plus another 50-60 non resident workers) is discarded unsorted and thrown into garbage bins. For the reporting period approximately 155m<sup>3</sup> of garbage was discarded. In addition 640 m<sup>3</sup> or 640,000 L of sewage were pumped and disposed of at the District Sewage Treatment facility. The contract has a record of each transaction as payment is made per load.
145. Garbage is collected weekly in 1<sup>3</sup> bins by the Sokuluk DUC and taken to the District Landfill Site. Sewage and other liquid waste is stored in septic tanks and pumped into 3.5 m<sup>3</sup> tanker trucks, operated by the District PUC and taken to the sewage treatment facility.

#### **4.6 Health and Safety**

##### **4.6.1 Community Health and Safety**

146. No community health and safety issue were recorded during this reporting period. Regarding traffic accidents. Traffic accidents occurred however not due to the fault of the Contractor or traffic conditions. Minor traffic accidents occurred, but the culprits were drivers who did not comply with traffic rules and ignored warning signs.

#### 4.6.2 Worker Health and Safety

In 2018, during supervision of construction work on bridges, in the Jantai canal and the Ak-Suu R. mudflow channel, auditors noted that workers violated labour protection and safety requirements (working at height without personal protective equipment, lack of protective helmets) ( Figure 42). The contractor was asked to update the employees' understanding of occupational health and safety standards and, if necessary, retraining for OH & S. At the beginning of the construction season, the contractor recruited a new safety officer who is regularly at the site. The situation with the fulfilment of requirements by the contractor will be monitored



**Figure 422. Carrying out of works at height without PPE**

147. The Inspection of the plant in winter, as well as in June 2019, showed that the plant continues to work, but the equipment for dust suppression often fails (Figure 43) When dust forms, dust spreads throughout the plant, partially spreading outside. This situation occurs when the water spray system fails. The contractor names the cause of the breakdown, frequent clogging of the nozzles of the spray system and the breakage of the pipelines. The contractor is given instructions on the need to stop the operation of the crusher in the event of a water spray system failure.



**Figure 433 Operation of equipment without water sprinkling.**

148. The following additional safety issues were noted but seemed to be only minimally enforced:

- Securing deep trenches and drop offs at culvert construction sites
- Flimsy fencing, ribbons and signage, poorly visible at night
- Large piles of unmarked construction waste at roadside

149. During almost every field inspection by CSC, the contractor is reminded about the non-compliance issues and requirements not to allow this kind of violation.

## 4.7 Training

150. In early May 2018, the New Contractor's OH&S specialist gave lectures on Safety among workers at all construction sites. The CSC national environmental specialist gave four informal training sessions on EMP implementation and safety. The locations were Ak-Suu (2x), Belavodsk (1x) and Kara-Balta (1x). (**Figure. 46 Lecture lectures on Safety**)

151. Training is needed in safe large equipment operation and use of PPE.



**Figure 446. Lecture lectures on Safety**

152. In addition, between March 3rd and June 20th the contractor reported that (in tabular form) that 40 training sessions were delivered addressing machinery operation, project safety and general safety on the job to both CREC staff and Kyrgyz workers. This is an average of 13 per month or one every two days.

153. This intensive focus on OHS training should be reflecting in a dramatic reduction in non-compliance issues in the next monitoring report.

## 5 FUNCTIONING OF THE SEMPS and CEMWP

154. The CSC prepared 14 Annexes to SEMP, addressing each major specific potential environmental impact, ranging from emergency measure planning, tree replanting to borrow pit management and rehabilitation. These Annexes were translated into Russian handed over to the contractor after a ½ day training session in 2017. To assist with their use the CSC cross referenced the Annexes to the mitigation and monitoring actions defined in the EMP, thus provided additional resources for the contractor to refer to.

The Annexes were preceded by a the Construction Environmental Management Work plan (CEMWP) a form prepared by the contractor based on the EMP and designed to push the contractor to read the EMP and reinterpret its requirements into a set of activities to be completed. The compliance-monitoring checklist was created from the CEMWP, and the contractor has been filling it in since August 2018. The contractor's environmental specialist oversees the implementation of the mitigation and monitoring measures and CSC's environmental specialist supervises the activity, double-checking for compliance. If violations are recorded the CSC warns the Contractor orally or in writing about the need to eliminate this violation within the specified period.

155. During the reporting period, the main problems of compliance with the CEMWP measures were:

- dust formation;
- bitumen leakage when transferring bitumen from a bitumen truck to storage tanks;
- worker health and safety.

156. The specific works on the final levelling of shoulders, road slopes, bridges, chutes, pipelines and crossings in the streets adjacent to the road are not included in the CEMWP

however are addressed as rehabilitation of the entire construction area including replanting and landscaping

157. Final clean up and restoration of the roadsides and construction of sidewalks is essential and needs to be underscored to the contractor by the CSC Team Leader.
158. Although specified in Annex No. 10 to be done immediately after construction in one-section ceases, replanting of trees should be delayed until all services have been installed and road signs put in place. This approach will reduce the chances of trees being damaged or destroyed by on-going construction activities.
159. Given climatic conditions, seedlings are best planted in the autumn in November. However, by November of 2019, sidewalk construction will not have started thus further delaying tree replanting.
160. Based on consultation with the contractor, the Annexes to the SEMP are not being used. Even the contractor's environmental specialist is not using them. The CSC has reminded the contractor of their value and the fact that they are in the contractor's office and in Russian.
161. The compliance monitoring checklist is being filled in monthly by the contractor and submitted and reviewed by the CSC.
162. The CEMWP was being applied since the contractor prepared their own and submitted monthly compliance monitoring checklists (09,10,11, -2018, and 04 2019).

## **6 GOOD PRACTICE AND OPPORTUNITY FOR IMPROVEMENT**

### **6.1 Good Practice**

163. While non-compliance issues are being resolved and that record is improving, each reporting periods seems to see the same issue concerning safety, dust. This is an indication that the contractor reacts only when there is intensive oversight, and almost never based on single reminder.
164. The mitigation measures provided in the CEMWP are sufficient, effective and acceptable.
165. Despite the reduction in the number of unresolved compliance issues, overall the contractor is under performing in relation to environmental safeguard implementation, disregarding instructions given concerning non-compliance corrections, then committing the same infraction during the next monitoring period.
166. The two areas where good practice needs to be mentioned is a) the disposal of old waste asphalt and b) the methodical tree removal and replanting plan

### **6.2 Opportunities for Improvement**

167. The dust management during the dry months, from end of May through mid of September continues to poorly implement. For a project of this length and given that all sections of the 45.1 km will be worked, the six existing water trucks are not enough. If necessary, the contractor should attract additional watering machines for the timely implementation of dust suppression measures.
168. Secondly the OHS and construction site safety officer should be inspecting all worksites, especially bridge and culvert construction sites every day and be paid a fair rate for fuel and vehicle depreciation. At present the inspection is not sufficient.

## **7 SUMMARY AND RECOMMENDATIONS**

### **7.1 Summary**

169. During the reporting period, the Contractor implemented only those environmental measures repeatedly asked for by the CSC monitor. However, there were cases when some Contractor's specialists ignored the recommendations of EPTISA, most often related to workplace and construction site safety.
170. Some measures, such as dust control, should be improved. Despite the fact that the water-sprinkling schedule in every 30 minutes was agreed to by the contractor, dust suppression measures should be increased to avoid possible complaints or dissatisfaction of the local population. Contractor should improve maintenance and timely repair of the spray system on the crusher. It has been found that some times the plant operates without water sprinkling, polluting the site and the territory adjacent to the plant. Several written warnings were sent to the Contractor, but violations continued. The Contractor explained the situation as a breakdown of the water pipelines. EPTISA will further instruct the Contractor to ensure compliance with the schedule of road water sprinkling at all construction site and to continue water sprinkling from 06.00-20.00 every day in dry summer weather. This also applies to access roads to borrow-pit sites, to borrow-pits, to the materials production areas (aggregate, concrete and asphalt).
171. After using remaining bitumen reserves in plastic packaging and cleaning the area from leaks, a special concreted platform was prepared for bitumen storing. Currently, bitumen is delivered to the plant in metal drums that are stored under cover on a constructed platform. In addition, two bitumen pits are rented, from where bitumen is delivered to the plant by bitumen carriers
172. The problem of recycling old asphalt remains partially solved. The engineer will continue to monitor this issue.
173. Construction reinforced-concrete waste, generated during the dismantling of bridges and culverts was promptly taken out to areas for storage at sites allocated by RMU-9. With the increase in the volume of construction work, there was a problem with finding enough storage space. Currently, RMU-9 takes out only used reinforced-concrete pipes that can be reused. The contractor should work closely with local authorities to determine, if necessary, additional places for the placement of unsuitable material.
174. The contractor must, in accordance with local laws, develop a Borrow pit recultivation plan and try to carry out these works at Jhelamysh mine before the end of 2019.
175. Currently, the replanting program needs adjusting since the plans prepared in 2017 and 18 called for immediate replanting as construction in an area ends, and did not account for the lag time until utilities and signage is installed, in many cases disturbing the soil and potentially killing the newly planted trees.
176. In the course of supervision of construction works, violations of safety and health requirements by workers were identified, such as: work at height without personal protective means, the absence of protective helmets, respirators, and the absence of special footwear during welding, and others. These comments are partially met. The consultant will continue to monitor this issue.

### **7.2 Recommendations**

177. Recently (end of May 2019) the Contractor hired a qualified Occupational Health and Safety Specialist. To work effectively the specialist needs a vehicle allowing access to 4x4 tracks etc. On June 22 the contractor submitted a list of 40 training sessions given between March 6th and June 20th, on OHS and safe machinery operation. The record over the next six months will determine the value of these sessions, but in the mean time they should continue and involve the contractor's environmental specialist.



178. While the solution of providing old asphalt to communities for local use seems appropriate, the Contractor needs to crush old asphalt in order to meet technical specifications of not more than 20 x 20cm pieces, which is the size manageable by local communities, and there are over 85 presently asking for this material.
179. MoTR decided to apply the non-noise attenuating asphalt-concrete formulation, resulting in the IFC 3 dBA noise levels at sensitive receptors, likely not being met. If it hopes to mitigate the operating period noise conditions, MoTR needs to monitor operating period noises levels and develop appropriate attenuation options.
180. Dust during the dry months end of May through mid September, coupled with increase in the intensity of the work along the entire 45.1 km, the watering equipment on site is not enough. If necessary, the contractor will have to attract a sufficient number of water carriers to carry out the necessary dust suppression measures.
181. Tree replanting should be delayed until sidewalks and all electrical and communications lines, as well as bus platforms re laid out and construction is well advanced. This way newly planted trees and new landscaping will not be disturbed.

**ANNEX 1 PBMC COMPONENT**

**Project Number:** PBMC/BO/Phase 4/1  
**Grant:** Credit 3056/grant 0366-KGZ:

**Reporting period:** January 2019 - July 2019

**KYRGYZ REPUBLIC:**

**«REHABILITATION AND IMPROVEMENT OF THE CORRIDOR CENTRAL ASIAN REGIONAL DEVELOPMENT COOPERATION 3 (BISHKEK – OSH ROAD), PHASE 4, KARABALTA- SUUSAMYR (km. 61-129)»**

**(Funded by Asian Development Bank)**

**The Contractor: LLC «Mostdorstroy»**

## **Content**

### **Introduction**

1. Preamble
2. Basic information
3. **PROJECT DESCRIPTION AND CURRENT ACTIVITIES**
- 3.1 Project description
- 3.2 Project Contracts and Management
4. **Environmental Activity**
- 4.1 General description of environmental measures
- 4.2 Environmental safeguard measures
- 4.3 Emergency procedures and contingency plan
- 4.4 Traffic management plan
- 4.5 Audit of Construction sites
- 4.6 Unanticipated environmental impacts or risks
5. **Results of Environmental Monitoring**
- 5.1 Review of the monitoring conducted during the current period
- 5.2 Waste Management
- 5.3 Labor protection and Safety
- 5.3.1 Health and Safety of local community
- 5.3.2 Occupational of work and Safety of workers

### **List of figures**

- Figure 1 The Kara-Balta-Tunnel road section
- Figure - 2. Cleaning surfaces of the road in winter period
- Figure -3. Filling road with sand
- Figure -4. Clearing roads from debris and rockfalls
- Figure - 5. Current repairs of road clothes
- Figure - 6. Replacement of unsuitable parapets
- Figure - 7. Installing road signs
- Figure - 8. Road markers
- Figure - 9. Cleaning of culvert pipes
- Figure - 10. Collecting debris along the road

### **List of tables**

- Table 1 Volume of main construction works
- Table 2 Project contract and management
- Table 3 Patching work
- Table 4 Cleaning of culvert pipes
- Table 5 Audit of construction sites

## Abbreviations

ADB	- Asian Development Bank
EMMP	- Environmental Management and Monitoring Plan
ES	- Environmental Specialist
GKR	- Government of Kyrgyz Republic
MoTR KR	- Ministry of Transport and Roads of the Kyrgyz Republic
PBMC	- Performance-based Maintenance Contract
PC	- Public Consultations
PIC	- Project Implementation Center
PMC	- Project Management Center
SEE	- State Ecological Expertise
GCC	- General Contract Conditions
SHW	- Solid Household Wastes
IPIG	- Investment Projects Implementation Group
CEMWP	- Construction Environmental Management Work Plan

## INTRODUCTION

### 1. Preamble

1. This report presents a semi-annual review of environmental monitoring (SAEMR) for the rehabilitation and improvement of the Central Asian Regional Economic Cooperation Corridor 3 (Bishkek-Osh road), Phase 4, Performance-based maintenance contract, Kara-Balta-Suusamyр section (km. 61-129 km)
2. The purpose to sign a Contract is to ensure a physical condition of the roads that is acceptable to road users during the entire term of the contract.

### 2. Basic information

3. CAREC Corridor 3 Improvement project, Bishkek-Osh road: Kara-Balta-Suusamyр section, km 61- км 129, financed by a loan from the Asian Development Bank (ADB) Kyrgyz Republic (KR).
4. The road plays an important role in transport system of Kyrgyzstan, being only road that is open for transport movement during the all year, and which connects the northern part of the country with the capital Bishkek also southern part of country with the second largest city Osh. Therefore, good maintenance and operation of the road section to ensure the free flow of vehicles at any time of the year is crucial for the political and economic life of the Kyrgyz Republic.
5. The project road section is located mainly in the Chui intermountain valley, at the bottom of the mountains. The Kara-Balta-Suusamyр road determines the location in the latitudinal direction. The height of the project road varies from 800 m above sea level in Kara-Balta to 3,300 m in Suusamyр, at the entrance to the tunnel.
6. The project road is located in a high-risk seismic zone (9-point) and in combination with high soil erosion on steep slopes and extensive grooves per km. 97 - km.129 represents a constant environmental problem associated with the sliding of slopes due to landslides and earthquakes.
7. The project road is in a semi-arid zone, with a protracted cold season. Frosts in the mountainous region starts in October and hold on until the end of May. Annual precipitation along the project area is about 450 mm. In the mountainous area of the project site, the number of winter events (snowfall) is 60 days.
8. Land utilization in the impact zone of the Kara-Balta-Suusamyр road section, in particular, at the beginning of the project road section has an agricultural purpose. In the area of Kara-Balta, such crops as wheat, fodder and industrial crops, various types of vegetables, such as potatoes, bell peppers, carrots, watermelons, eggplant, and fruit plantations like apple and apricot are mainly cultivated.
9. In the mountainous region, human activity is limited to breeding horses and sheep. The landscape is changing closer to the steppes, the soil is covered with grass and low shrubs, such as saxaul. Chia is a common grass with whitish reeds like a reed, it is also a common type of grass.
10. The road corridor covered by the PBMC (Kara-Balta-Suusamyр) does not interfere with any watercourses, wetlands or other sensitive areas.
11. Sensitive zones - The project road section does not pass over, through or near any established sensitive ecological zones. The existing road passes through the village of Sosnovka, whose population is about 5,000 people. Since the road does not create a new traffic flow, new security measures are not provided, except to improve compliance with speed limits and ensure road sections. A speed limit of 40 km / h has been established inside the village, which should be observed even after the completion of road repairs.

12. In the Kara-Balta town, Sosnovka village and until the end of the project site, the existing road crosses the Kara-Balta river 22 times. Crossings across the river are carried out by bridges. According to the Decree of the Government of the Kyrgyz Republic dated September 7, 2009 No. 561 “On Fishery Development and Use of Natural and Artificial Reservoirs in the Kyrgyz Republic”, the Kara-Balta River belongs to fishery reservoirs. In other words, there is fish in the river and, most likely, the river is a place for recreational fishing. This category of river is assigned a level of protection that prohibits the maintenance of the development of aggregates near the river, the construction of obstacles, dams or the movement of water vehicles that hinder the movement of fish. Therefore, no work is carried out near the Kara-Balta River, except for works on erosion protection to minimize sediment load in the river.
13. In the course of rehabilitation of roadside drain ditches, the diversion of surface water, in order to prevent the entry into the river, is carried out on a roadside area covered with grass, which makes it possible not to pollute the river, which is a habitat for fish.

### 3. PROJECT DESCRIPTION AND CURRENT ACTIVITIES

#### 3.1 Project description

14. Performance-based maintenance contract, the Kara-Balta-Suusamyр section to the Too-Ashuu tunnel (km 61 - km 129). CAREC 3 Transport Corridor Improvement Project (Bishkek-Osh Road), Phase 4. Engineering and construction supervision is carried out by EPTISA Servicios De Ingeniería S.L./ Eptisa Muhendislik / RAM.
15. To ensure the smooth passage of vehicles on this route as needed, year-round proper maintenance and minor repair works are carried out.
16. In the course of maintenance of the site, road pavement repair work was carried, road safety was ensured, road signs were replaced, drainage structures were maintained, winter maintenance was provided, and the road surface is maintained in different weather conditions.
17. The total budget for the implementation of this component is 296,914 350 KGS.
18. Outside the existing carriage way and shoulders, work is not carried out. New construction or modification of the plan is not envisaged.

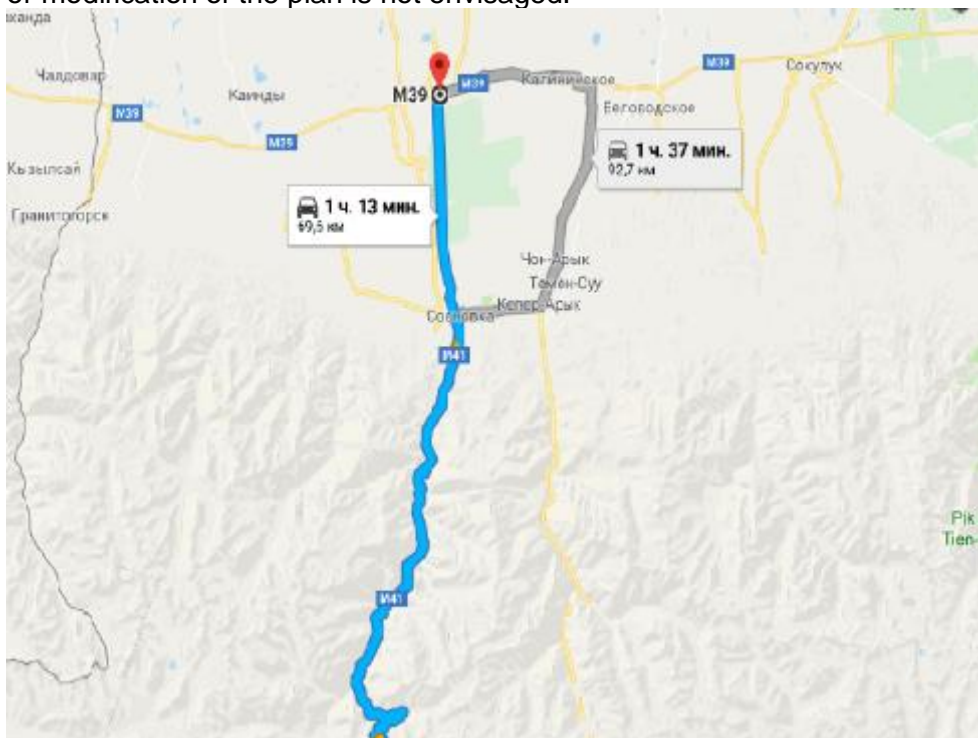




Figure 1. The Kara-Balta-Tunnel road section

19. Basing sites for workers and construction equipment are located in 2 places

Sosnovka village km 80 / number of workers - 15 people

Tunnel km. 118 / number of workers - 15 people.

20. Both on the 1<sup>st</sup> and 2<sup>nd</sup> bases the territory is rented from the Road Maintenance Unit №9 for the location of equipment and workers who will live in this territory, in rooms with the necessary conditions for living. In winter, preventive maintenance works were carried out to clean the roads from snow cover, as well as to fill the ice cover with sand and salt, the amount of material used is provided in the report on the fact.

### Supply of materials for construction and repair works

21. Asphalt and bitumen are supplied from the asphalt plant located in the Sokuluk district, Novopavlovka village, Vzletnaya rural settlement.

Sand - "Bashkarasu" Borrow-pit, PE Japaraliev

Concrete - Kara-Balta concrete plant

Table 1: Volume of main construction works

<b>Pavement works</b>				
<b>№</b>	<b>Name of works</b>	<b>Unit</b>	<b>Quantity</b>	<b>Done</b>
<b>General construction work</b>				
1	Concrete parapet	unit.	213	213
2	Gabion wall km. 89.9	m <sup>3</sup>	375	310
<b>Traffic signs</b>				
3	Standard triangle sign a = 90cm	unit.	179	61
4	Standard sign, circle and stop a=60cm	unit.	25	22
5	Standard sign rectangle 50 * 50 or 60 * 90	unit.	9	9
6	Guide signs, rectangles	unit.	6	0
7	Extra Table of Contents	unit.	6	0
8	Signpost	unit.	35	15
9	Guide pole	unit.	670	250
<b>Road markings</b>				
10	Thermoplastic white mark with reflective materials, standard width, full or fragmentary	M <sup>2</sup>	17550	13850

11	Cross or special markings	M <sup>2</sup>	0	0
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### 3.2 Project Contracts and Management

**TABLE - 2. PROJECT CONTRACTS AND MANAGEMENT**

Project	<b>Project to improve the CAREC transport corridor 3 (Bishkek-Osh road), Phase 4 Result-based contract. Plot of Kara-Balta-Suusamyr (km.61-129,5)-CAREC/C3/P4/ICB/WC2 Component 2</b>			
Contractor	:	<b>LLC «Mostdorstroy»</b>		
Section:	:	<b>61 km – 129,5 km, total length – 68,5 km</b>		
Donor :	<b>Asian Development Bank</b>			
Contract date	<b>18/12/2017</b>			
Executive body	:	<b>Ministry of Transport and Roads of the Kyrgyz Republic</b>		
Notification of the start of work	<b>05/01/2018</b>			
Date of completion	:	<b>January,1 2021</b>		
Time for completion-days	:	<b>36 months</b>		
Extension-days	:	<b>-</b>		
Warranty period - days	:	<b>180 days</b>		
Contract amount	:	<b>Kyrgyz som 296,914 349.28</b>		
Total prepayment amount	:	<b>10% of the accepted amount of the contract</b>		
Performance Guarantee Amount	:	<b>%15 of the accepted amount of the contract</b>		

#### **Construction works included:**

22. Road maintenance works throughout the road section include the following:

- Maintenance of the road in winter period (January-May): Preparation for the service in the winter period in accordance with the winter maintenance plan, placement of supports and preparation and operation of the winter maintenance places; Road patrols in winter; brushing excessive snow. Clearing the pavement from snow using salt and placing abrasive material and anti-icing fluid to achieve the required level of service during the winter season - 784.5 km
- Cleaning of the roadway and shoulders (auto-lift, loader) 61-129 km in the winter season. Constant cleaning of the roadside from snow was carried out, also work was done on the grading of the roadway. - 121-129 km



Figure - 2. Cleaning surfaces of the road in winter period

- Filling road with salt (mechanically and manually) 61-129.5 km



Figure-3. Filling road with sand

- Clearing roads from rubbish and rockfalls. 81-129.5 km. The road was constantly patrolling, cleaning road from rockfalls and debris.



Figure-4. Clearing roads from debris and rockfalls

- Current repairs of pavement (patching works, crack filling, cleaning); Section 76,500-101,00 km

Table - 3. Patching work

Patching work		
Section	Waste materials	Spoil area
76+500 km 101+00	Existing asphalt after cuttin	Sosnovka village to the spoil area



Figure - 5. Current repairs of the pavement

- Installing parapets Unsuitable, barrier fences as "Alarm" were replaced - 70 PCs, on the section 114-121 km



Figure 6 - Installing parapets BB-3. Unsuitables were replaced

- Cleaning and repairment/replacement road signs and ensuring road Safety measures;





Figure 7 Installing road signs

- Horizontal, marking works with reflective materials, a Christmas tree, painting of artificial road structures, auto pavilions, bridges, signal posts, kilometer posts, parapets were carried out.



Figure - 8. Road marking

23. *Cleaning and repair drainage structures* – In total, there are 96 culverts, which contribute to runoff and water drainage from one side to another, in the slope. In summer, these structures are free from water and there was construction without affecting the seasonal water flow. Pipes are precast concrete pipes that are manually cleaned. For the repair work of each construction requires a small amount of material (about 20-50 kg), which is mixed manually or using a small mixer, applied and finished completely by hand. All the pipes are in the ground/soil ditches. The work consists of removal of dirt and debris to ensure unobstructed flow of water. Cleaning of culverts 61-129 km (96 PCs)

24. Construction of new culverts is not expected. Cleaning along parapets  
 - cleaning and minor repair of structures; Clearing of waste 61-129,5 km.

**Table-4. Cleaning of culvert pipes**

Cleaning of culvert pipes		
Section		Amount
61+00km 129+00	waste removal. Partly is completely clogged.	96PCs



Figure - 9. Cleaning culvret pipes



Figure-10. Collecting debris along the road

25. *Vegetation control* - On the road sections along the road corridor with green spaces that interfere with the maintenance / service of the road or require their removal.
26. On flat roads between km 61 and km 85 (between Kara-Balta and Sosnovka) the road is on a small embankment about 0.5-1m high, next to agricultural land. There are dirt roads, berms and slopes covered with natural vegetation. Cause of the climate and types of mountain flora, vegetation, as a rule, does not grow above 30 cm, which does not require any intervention. In places where grass height exceeds this value, grass is mowed by hand, by contractors or owners of adjacent fields. Such vegetation is usually used as animal feed. Herbicides are not used there.
27. Rehabilitation of bridges is not provided

#### 4. ENVIRONMENTAL ACTIVITY

##### 4.1 General description of environmental measures

28. In accordance with clause 24 of the General Conditions of Contract (GCC), the Work Execution Program includes a Health and Safety Management Plan. The aim of the Health and Safety Management Plan is to create a responsible attitude towards occupational health and safety and compliance with existing regulations.

29. During the reporting period, regular visual monitoring of compliance with environmental requirements during construction work in all road sections was carried out by the local environmental specialist EPTISA, the environmental specialist of the Investment Project Implementation Group of the MoTR KR, and the environmental specialist of the Contractor.



## 4.2 Environmental safeguard measures

30. The EMP provides a description of the various measures proposed by the project, which are intended to prevent, mitigate or compensate for the negative environmental impacts that may arise as a result during realization of project. At the end of each month, a report is submitted according to the Construction Environmental Management Work Plan (CEMWP).

## 4.3 Emergency procedures and contingency plan

31. The work program includes emergency procedures and the Contingency Plan, which establishes the roles, activities and procedures for specific types of emergencies presented in contingency plans that close roads. Emergency procedures and the Emergency Action Plan are prepared by the Contractor and agreed with the Project Manager and other stakeholders.

## 4.4 Traffic management plan

32. The work program includes a traffic management plan. The traffic management plan determines the traffic management procedures at the work sites and during winter weather events. The traffic management plan was developed by the Contractor and agreed with the Project Manager. The traffic management plan is submitted by the contractor and approved.

33. Contractor's camp is located at 80 km. Kara-Balta – Sususamyr road. In the camp there is a dining room, office, and sleeping places for Contractor's employees. The camp is provided with clean drinking water, sinks and trash cans are installed. Fire-fighting accessories are installed in the required places. Opposite the camp there is a parking for cars and equipment of the contractor. Storage areas are located at the back of the camp and there is enough storage space.

## 4.5 Audit of Construction sites

Table-5. Audit of Construction sites

No p/p	Date	Full name of auditors	Audit's purpose	Summary of any important audit notes
1	18.01	B. Sydykbekova – the Contractor's environmental specialist, together with the project manager - Maksat uulu Iskender	Compliance with environmental regulations, road safety and compliance with the norms of the winter maintenance of the road.	It is noted that the winter maintenance of the road is respected. Road filling was performed mechanically and manually(61-129km)
2	16.02	B. Sydykbekova – the Contractor's environmental specialist, together with the project manager - Maksat uulu Iskender	Compliance with environmental regulations, road safety and compliance with the norms of the winter maintenance of the road.	It is noted that road signs are installed for road safety purposes. Clearing of waste and stones is carrying out at section km 61-129
3	19.03	B. Sydykbekova – the Contractor's environmental specialist, together with the project	Compliance with environmental standards, compliance with standards for winter road	Road filling was carried out mechanically and manually (61-129 km)

		manager - Maksat uulu Iskender	maintenance, road safety.	Clearing of waste and stones is carrying out at section km 61-129.5
4	23.04	B. Sydykbekova – the Contractor’s environmental specialist, together with the project manager - Maksat uulu Iskender	Compliance with environmental regulations, road safety.	It is noted that road signs are installed for road safety purposes.
5	25.05	B. Sydykbekova – the Contractor’s environmental specialist, together with the project manager - Maksat uulu Iskender	Compliance with environmental regulations, road safety.	Clearing of waste and rockfalls was carried out at section at km 61-129,5
6	12.06	B. Sydykbekova – the Contractor’s environmental specialist, together with the project manager - Maksat uulu Iskender	Compliance with environmental regulations.	Clearing of waste and rockfalls was carried out at section at km 61-129,5

#### 4.7 Unanticipated environmental impacts or risks

34. At sections km 86.9 - 88.7 and km 98, rockfalls occur due heavy rains. Boulders that fell on the road with parapet damage were noted. Also in this area there are large pieces of rock hanging over the road, representing the threat of spalling and falling onto the road, representing a danger to passing vehicles. A commission was created with the participation of the Ministry of Emergency Situations to survey this site in order to make a decision on eliminating this threat.





Figure 11. Danger of rockfalls

## **5.RESULTS OF ENVIRONMENTAL MONITORING**

### **5.1 Review of the monitoring conducted during the current period**

#### **Instrumental monitoring of the environment**

35. According to the IEE/EMP instrumental measurements of water, air and noise parameters are not provided. Environmental impact of pollutants is not expected.

##### Water quality monitoring

36. According to the IEE/EMP, instrumental measurements of water quality are not provided for this Project. The project has no impact on water bodies, as all works will be carried out at a sufficient distance from water sources.

##### Air quality monitoring

37. According to the IEE/EMP, instrumental measurements of air quality are not provided for this Project.

38. There were no significant dust emissions during the reporting period. Emissions from trucks during the transportation of cement, gravel and concrete were minimal, the movement of trucks was limited (except for the transportation of equipment to the site).

##### Noise and vibration monitoring

39. Regular monitoring of noise and vibration is not envisaged for this Project according to the IEE/EMP. However, workers wear ear protectors if necessary.

### **5.2 Waste Management**

40. Removed old asphalt can be reused for unpaved shoulders or as an embankment for other rehabilitation works. It can also be used for backfilling of borrow-pits and covered with a layer of soil on top. Asphalt can be laid on adjacent roads as a surface layer or used as a material for patching with compaction. The resulting solid household waste (SHW) in the construction camp is disposed of in ayil okmotu of Sosnovka village, according to the terms of the contract.

41. Cleaning and repair of drainage facilities - There are a total of 96 culverts on the site, which contribute to the drainage and drainage of water from one side of the road to the other, on a slope. In the summer, these facilities are free of water, and repairs can be carried out without affecting the seasonal drain. Pipes are precast concrete pipes that have been cleaned by hand. Small concrete repairs may be required at the pipe outlets (in case of erosion) or inside the pipes (at the joints between the links). For the repair work of each facility, a small amount of material was required (about 20-50 kg), which was mixed manually or with a small concrete mixer, applied and finally finished manually. All cuvettes are earth / soil cells. Work consists of

removing dirt and debris and ultimately, leveling to ensure a smooth flow of water. If the culvert pipes are not serviced, they can become clogged, leading to filling, flooding of the road surface, erosion, and possibly road congestion. Therefore, this work had a purely positive impact.

42. Repair works on bridges is mainly related to safety, i.e. restoration of safety barriers after accidents or collisions. Work in the river beds should be limited to clearing the watercourse from debris that, if released into the water stream, can lead to congestion, spillage and erosion. Concrete repair works are not included in the scope of work of a maintenance / maintenance contractor, however, they can sometimes be carried out after an emergency, if for example structures are damaged due to sudden floods or accidents.

### **5.3 Labor protection and safety**

#### **5.3.1 HEALTH AND SAFETY OF LOCAL COMMUNITY**

43. The traffic management plan has been agreed with the authorities of the Main Directorate for Road Safety of the Ministry of Internal Affairs of the Kyrgyz Republic. The recording is kept at the construction camp office.

#### **5.3.2 OCCUPATIONAL HEALTH AND SAFETY OF WORKERS**

44. Workers are provided with all necessary equipment, as well as basic training on the use of protective clothing and personal protective equipment. Workers are provided with PPE such as: vests, hard hats, gloves, shoes. Safety Instruction held in the camp, there is a log of registration  
No night work.

45. The camps are equipped with disinfectant sanitation and drinking water. The camp has a container for collecting MSW. Drawn up a contract for the export of solid wastes with local government. There are no hazardous materials on the territory of the construction camp.