


Environmental Monitoring Report

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Kyrgyz Republic CAREC Transport Corridor -1 (Bishkek – Torugart road) Project 3 SECTION KM479 to 539

Prepared By the Ministry of Transport and
 Communications of the Kyrgyz Republic



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This report is prepared to update the status of all project components and their implementation progress. It is designed to feed ADB's internal Project Progress Report and will form the basis of the draft Project Completion Report upon project completion.

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Abbreviations

ABPMP	Amended Borrow Pit Management Plan	Appendix 9 of the EIA
ADB	Asian Development Bank	
AQP	Air Quality Plan	
BPAP	Borrow Pit Action Plan	Prepared by Contractor
BPMP	Borrow Pit Management Plan	Appendix 9 of the EIA
BPMRT	Borrow Pit Monitoring and Response Team	
BNT3	Bishkek-Naryn-Torugart Road – Project 3	The Project
CAREC	Central Asia Regional Economic Cooperation	
CCP	Plan for Construction Camps	
CRBC	China Road and Bridge Corporation	The Contractor
EA	Executing Agency	## <i>Not Environmental Assessment</i>
EIA	Environmental Impact Assessment	
EMP	Environmental Management Plan	
ERP	Emergency Response Plan	
EcolRP	Ecological Response Plan	
GRM	Grievance Redress Mechanism	
HDDV	Heavy Duty Diesel Vehicles	
HSP	Health and Safety Plan	
IPIG	Investment Projects Information Group	Agent for Executing Agency
KJSNR	Karatal-Japaryk State Nature Reserve	
KR	Kyrgyz Republic	
LARP	Land Condemnation and Land Acquisition and Resettlement Plan	
MOTC	Ministry of Transport and Communication	The Executing Agency
MPC	Maximum Permitted Concentration	
OVOS	Assessment of Environmental Impacts	<i>Russian Acronym</i>
PM	Project Manager	
PRC	People's Republic of China	
SAEPF	State Agency for Environmental Protection and Forestry	
SSEMP	Site Specific Environmental Management Plan	Prepared by CRBC
TAEPF	Territorial Agency for Environmental Protection and Forestry	
TERA	TERA International Inc.	The Engineer
WMP	Waste Management Plan	

Part I Overview

The Project and Function of this Document

1. The Bishkek – Naryn – Torugart Road - Project 3 (BNT3) is an Asian Development Bank financed Project to upgrade the road from Km479 up to the People's Republic of China (PRC) border at Km539. The alignment passes through the Karatal-Japaryk State Nature Reserve (KJSNR)¹ from Km501 to the border control holding area at Km531. The KJSNR contains Lake Chater Kul; a recognized RAMSAR site.
2. This six monthly Environmental Monitoring Report is the fifth for the Project, covering the second half of the 2015 construction season. It reports on environmental monitoring and performance of the Project².

Physical Characteristics of the Project

3. The starting point of the road is located beyond the Ak Beit Pass in the Arpa Valley at Km479, just past a border control point at Km478. From this point the road runs across a plain until around Km500 at the existing road maintenance facility where it rises to the Tuz Bel Pass where the Construction Camp is located (Km501). At this point the road enters the KJSNR and the alignment skirts Lake Chatyr Kul on its western and southern sides. Beyond the lake, the road enters a border control holding area at Km531. At this point there are vehicle parking areas and trailers that provide rudimentary accommodation and catering facilities. Beyond this border control holding area and checkpoint there is a further 8km to the official border with the People's Republic of China (PRC) at Km539, the end of the Project.

Overview of Activities

4. During the second half of the 2015 construction season the alignment was surfaced with asphalt up to the border with PRC (Km539). The 2015 working season commenced on 4th May 2015 and work formally ended on site on Friday 30th October 2015 as the winter closed in. The situation at the end of October 2015 is that:

- The alignment is asphalt surfaced from Km479 to the PRC border (Km539);
- Culverts and bridges are in place from Km479 to the PRC border (Km539);
- Pre-cast concrete parapets are being placed on the edges of the road at critical locations;
- Central road marking has been laid upto Km 500.
- Borrow pits 10 (Km 514), 11 (Km 518) and 12 (Km 528) within the KJSNR have been reprofiled and topsoil re-laid in preparation for final restoration in 2016;
- The asphalt plant and manufacturing area has been decommissioned for winter closedown;

¹ The name of the State Reserve was adjusted in April 2014 to Karatal-Japaryk State **Nature** Reserve (KJSNR)

² This Report is for July to December 2015, there was no construction activity on site from November 2015 to year end.



Figure 1: View from Camp on 29 Sept 2015 - note asphalt surface



Figure 2: View from Camp on 10 June 2015



Figure 3 View from Camp on 5 May 2015 – Start of 2015 season – snow thawing out



Figure 4: View from Camp on 29 October 2014 – End of 2014 season, winter snowfall



Figure 5: View from Camp on 22 October 2014 (am) – after overnight snow



Figure 6: View from Camp on 21 October 2014 (pm) – site clear of snow



Figure 7: View from Camp on 27 May 2014 – Site clear of snow



Figure 8: View from Camp on 8 May 2014 – Start of season with snow on ground

Construction Camp at Km501 and Manufacturing Area

5. In 2013 the Contractor established a dedicated construction camp at Km501, on the west side of the existing road (Figure 9 at Tuz Bel Pass). The camp is located outside the border of the Karatal-Japaryk State Nature Reserve (KJSNR). The Camp comprises site offices for Contractor and Consultant and accommodation, canteen and first aid facilities for staff working on the Project. There are mobile phone connections available at the camp but

no internet connection is available. The camp includes a maintenance yard, laboratory and refueling facility.



Figure 9: Construction Camp at Km501 - Looking South across Tuz Bel Pass
(June 2014)

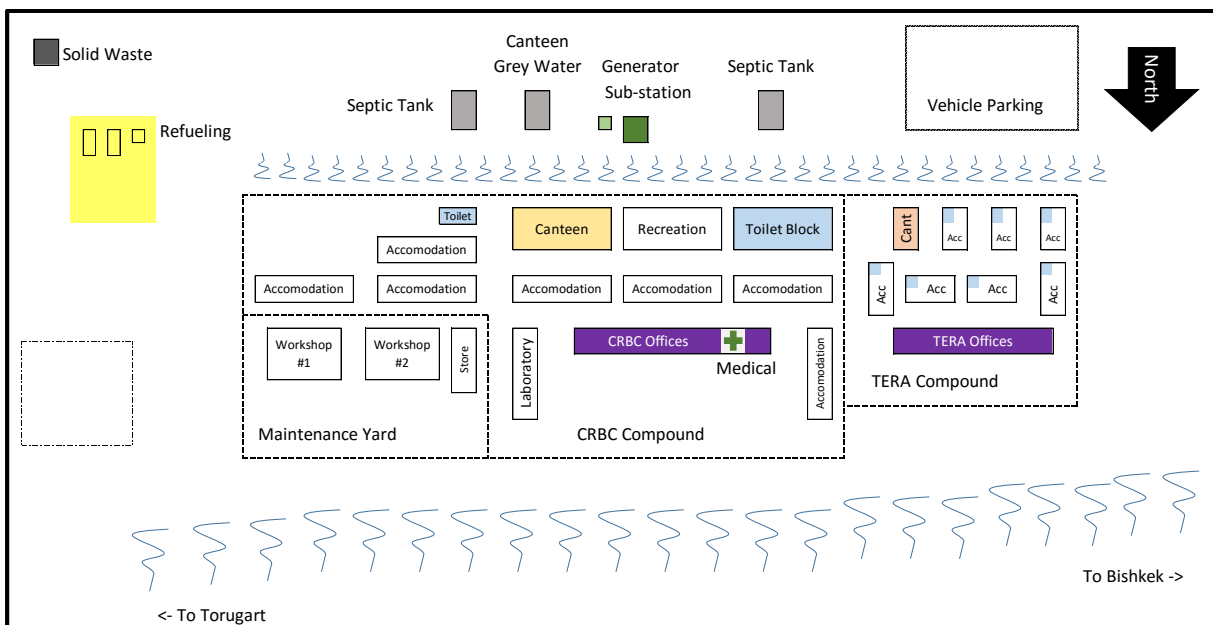


Figure 10: Schematic of Km501 Camp

6. Freshwater is available at the camp and there is a dedicated sewerage system directed to two septic tanks. There is a grey water soak-away with fat trap to collect and treat surplus liquid waste from the canteen (Figure 10). Septic tank and solid waste are regularly collected for disposal at an approved site.

7. A Manufacturing Area currently comprising one rock crusher and grader³, stockpiles, asphalt plant and precast yard is sited around 3km south of the Camp, immediately east of the Muz Tor River. The asphalt plant was de-commissioned in October 2015 for winter shutdown and will be re-commissioned in May 2016.

³ A second crusher was removed during the latter part of the 2015 construction season. The third crusher was removed during the latter part of the 2014 construction season



Figure 11: Manufacturing Area north-west from Asphalt Plant across Muz Tor (May 2015)



Figure 12: Manufacturing Area looking north-east from the Asphalt Plant (May 2015)

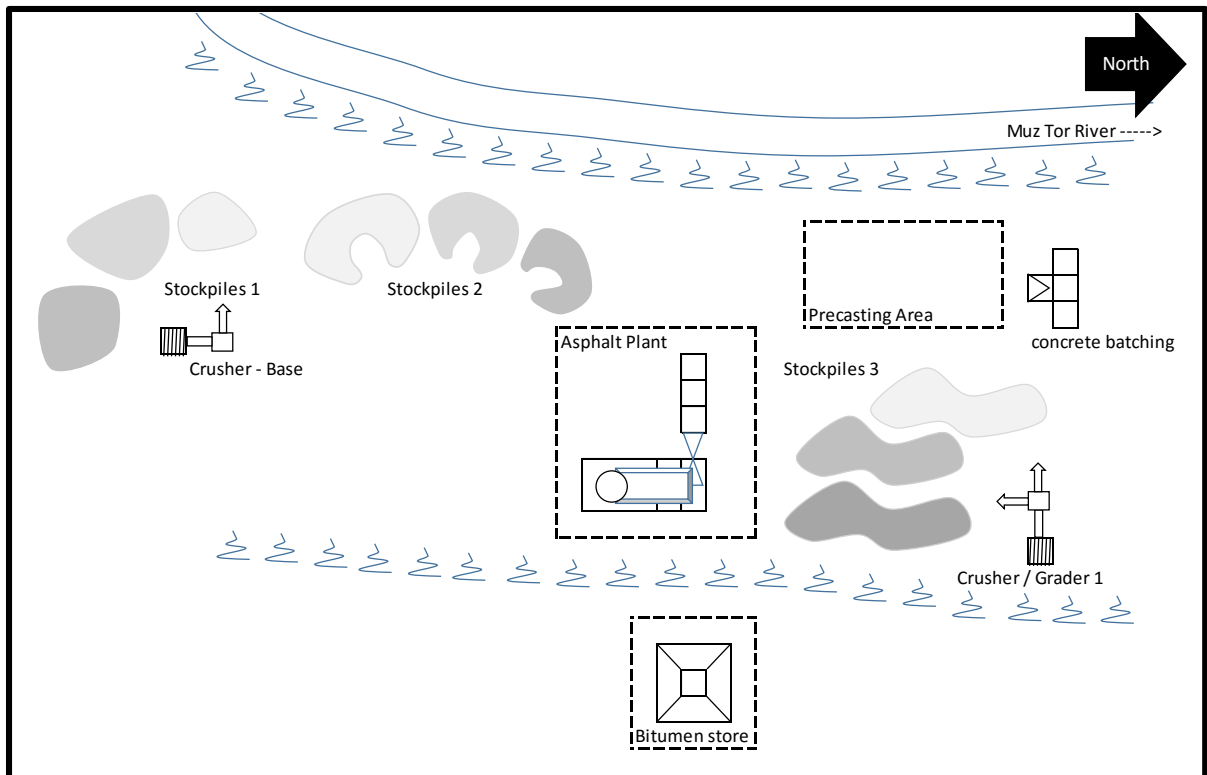


Figure 13: Schematic of Manufacturing Area

Environmental Improvements attributable to Project

8. Monthly monitoring of noise has been carried out in the 2013, 2014 and 2015 construction seasons. Since the laying of base course in the latter part of the 2014 construction season there has been a marked reduction in noise generated by road traffic (65dB to 45dB). This is partly attributable to vehicles running on a smoother running surface. It is noted that in July 2015 the noise levels recorded at the barracks were elevated due to increased road construction activity in this area. The August 2015 data shows that pre-construction noise levels have returned and this trend continued until the end of the 2015 construction season. The figure below illustrates this improvement.

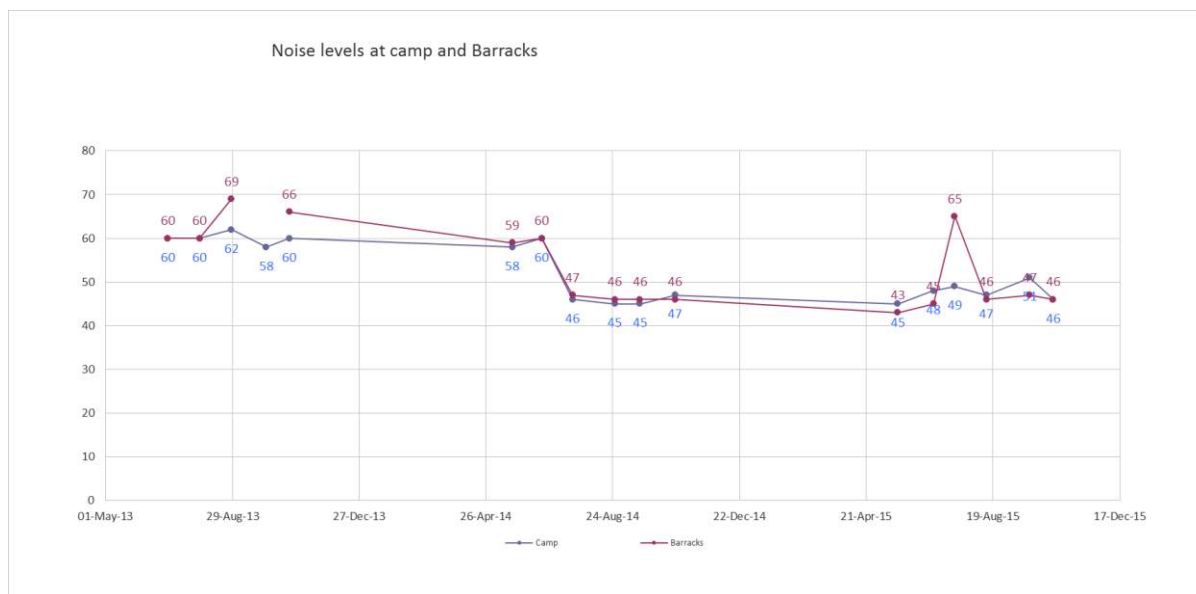


Figure 14: Noise Levels at the Camp and Barracks (May 2013 to Oct 2015)

Project Activities

9. This section summarizes Project activities during the second half of the 2015 construction season, July to December 2015. Work formally ended on site on 30th October 2015.

10. Road reconstruction works focused on three main areas: (i) asphaltting from Km508 upto the PRC border (Km 539); (ii) completing culverts and bridges; (iii) re-profiling borrow pits 1 to 7 (outside the KJSNR) and BP10, 11 and 12 (inside the KJSNR); and (iv) road safety elements - fixing pre-cast concrete parapets on road edges and painting white centre line markings.



Figure 15: Km 534 beyond border holding area looking back towards Chatyr Kul



Figure 16: Asphalt upto the PRC Border (Km 539)

11. The crushing and screening of material and the manufacture of precast concrete sections was carried out at the Manufacturing Area at Muz Tor.
12. The asphalt plant was de-commissioned at the end of the 2015 construction season and will be re-commissioned at the start of the 2016 construction season (~May 2016).
13. There were snow events during each month during the reporting period but snow started to fall with increasing frequency in October and daytime and overnight temperatures were often below zero centigrade.

Work within the KJSNR

14. A critical element of the construction programme has been the operation of borrow pits within the KJSNR. The sensitivity of the KJSNR and the potential impact from borrow pit operation is acknowledged.
15. A Borrow Pit Action Plan (BPAP) was prepared by CRBC and is incorporated into the Amended Borrow Pit Management Plan (BPMP) and incorporated in the endorsed Environmental Impact Assessment for the project (March 2015). Approval for the use of borrow pits inside the KJSNR has been approved by the appropriate authorities.
16. On 10 June 2015 a workshop was held in the TERA offices at the Camp attended by the CRBC Borrow Pit Monitoring and Response Team (BPMRT), CRBC engineers, KJSNR and TERA. (notes of the workshop are attached as Annex 5). This workshop went over experiences of the 2014 season with a key outcome being revision of checklists used by the BPMRT for monitoring of borrow pits.
17. In 2013 a dedicated Borrow Pit Action Plan (BPAP) was prepared by CRBC for the 2014 construction season (including the development of Borrow Pits BP9, BP10, BP11 and BP12 within KJSNR). The BPAP was approved by ADB and the BPAP was incorporated into the Borrow Pit Management Plan in the endorsed EIA for the project. Subsequently, BP 9 was not developed due to discontinuity of useful deposits. In 2014 a potential shortage of aggregate in the other borrow pits (BP10, 11 and 12) within the KJSNR was identified. The shortage was due to an increase in the borrow materials needed as a result of changes in the road design. CRBC applied for and received approvals from the State and Regional authorities for extension of the three existing pits and development of three additional pits. This information was included in a CRBC revised Borrow Pit Action Plan (BPAP). However, during preparation of the Amended Borrow Pit Management Plan (ABPMP) a new Borrow Pit proposed at Km 508+600 (LHS) was found to be potentially ecologically sensitive and was subsequently not endorsed by ADB. The ABPMP was included in a revised EIA (March 2015) as Appendix 9.1 without inclusion of the Borrow Pit proposed at Km 508+600 (LHS).

18. During the reporting period, July to September 2015, extraction of material for road construction was completed and the contractor has carried out reshaping of borrow pits and replacing of stored topsoil ready for final restoration in 2016. The following figures show steps in the restoration process.

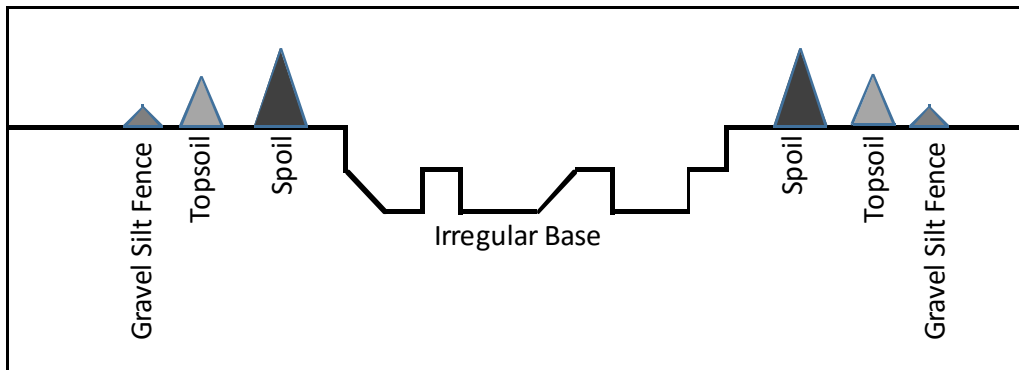


Figure 17: Section through a typical borrow pit on completion of extraction

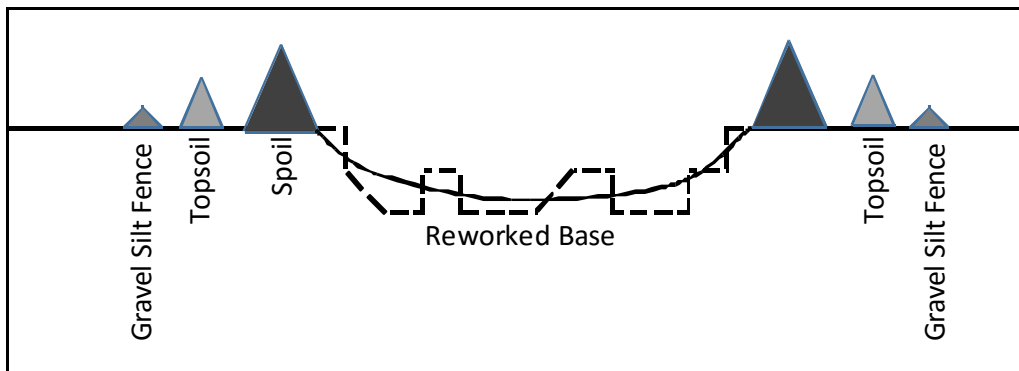


Figure 18: Rough grading to remove vertical and horizontal faces

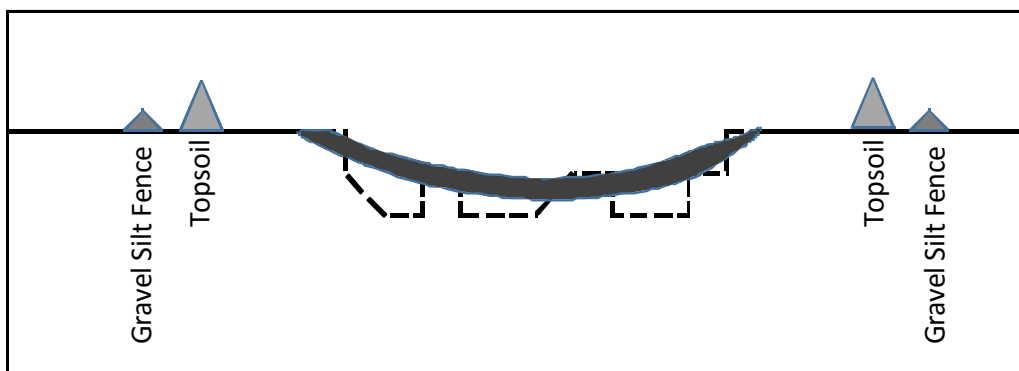


Figure 19: Spreading spoil (material not used in road construction) over the prepared base

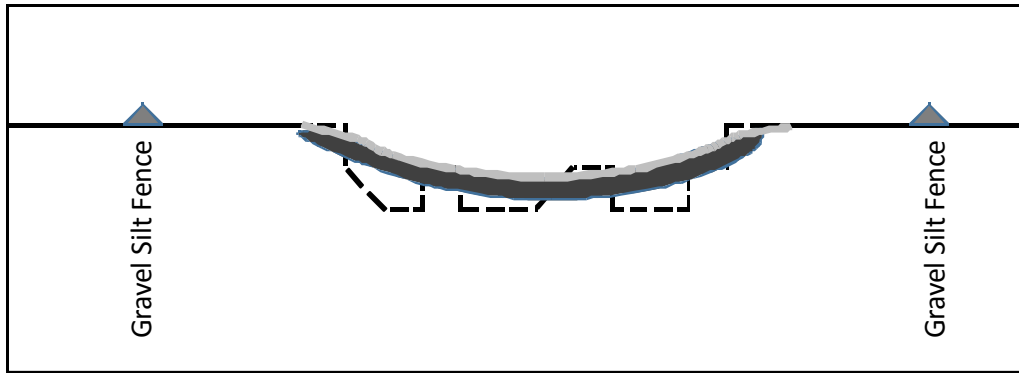


Figure 20: Returning topsoil layer to the borrow pit

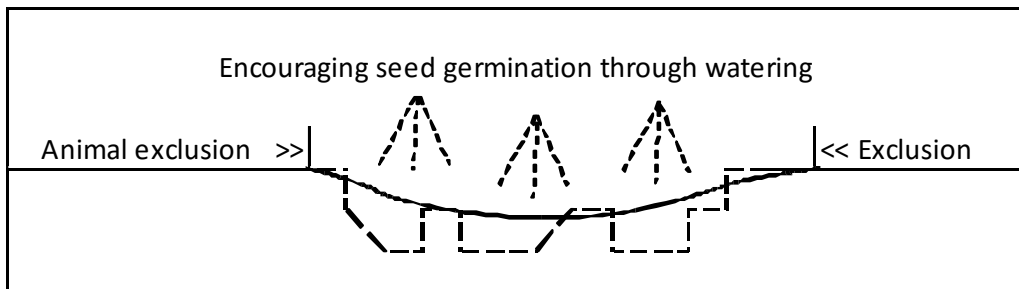


Figure 21: Seed germination through regular watering and exclusion of animals

19. The current progress on the restoration is indicated in the following table

Table 1: Progress of Borrow Pit Restoration within KJSNR

	Borrow Pit	Main extraction complete	Re-profiling	Spread Topsoil	Seed germination	Condition at the end of construction in October 2015
Outside KJSNR catchment	BP1: 480+750 R	Yes	Completed	Completed	Spring 2016	Ready for seed germination in spring 2016
	BP2: 484+400 R	Yes	Completed	Completed	Spring 2016	
	BP3: 489+750 R	Yes	Completed	Completed	Spring 2016	
	BP4: 491+100 R	Yes	Completed	Completed	Spring 2016	
	BP5: 493+000 R	Yes	Completed	Completed	Spring 2016	
	BP6: 495+500 R	Yes	Completed	Completed	Spring 2016	
	BP7: 497+500 R	Yes	Completed	Completed	Spring 2016	
	Q8: 499+000 R (Muz Tor River)	Yes	No	N/a Stream bed		Will be part of the restoration plan for the Manufacturing Area, scheduled for 2016
	BP new 2015: Km499 +300 L	Yes	Completed	Completed	Existing turf reused	No further work planned
Inside KJSNR	BP new 2015: Km506+600R	Yes	Completed	Completed	Spring 2016	Ready for seed germination in spring 2016

BP09: Km 507+600L	N/a. No extraction				Not developed – no action required
BP10: Km514 + 600L (inc extension)	Yes	Completed	Completed	Spring 2016	Ready for seed germination in spring 2016
BP11: Km518 + 000L (inc extension)	Yes	Completed	Completed	Spring 2016	
BP12 Km528 +200L (inc extension)	Yes	Completed	Completed	Spring 2016	

20. Regular environmental Site Inspections have been carried out by the CRBC BPMRT and audits have been carried out by TERA with cross checking by IPIG. The audits confirm that environmental protection measures were in place. For work within borrow pits in KJSNR “drip trays and waste bins” were in place on site and “topsoil” was being stored on the edges of borrow pits within the “gravel silt fence” as prescribed in the BPMP.

Interaction with the KJSNR

21. Regular meetings have been held with the KJSNR to: inform them on progress of the project; receive KJSNR views; and encourage participation in training and information sharing. The following table identifies ongoing interaction between the project team and the KJSNR.

Table 2: Briefing and Training Sessions with the KJSNR

	Date	Event	Objective	Attending
Previous reporting periods	12 Nov 13	Stakeholder meeting between implementation team (IPIG / TERA) and KJSNR	Approach to capacity building in KJSNR through the project	KJSNR, IPIG, TERA
	7 May 14	Equipment procurement and Ecological Response Plan	Presentation of the draft Ecological Response Plan (EcolRP) identifying capacity building programme including equipment procurement	KJSNR, IPIG, TERA
	14 May 14	Borrow Pit Monitoring and Response Team workshop	Briefing on the importance of the KJSNR and environmental controls on construction activities within KJSNR	KJSNR, IPIG, TERA, CRBC
	14 May 14	Equipment Procurement	Discussion on the equipment to be procured through the project.	KJSNR, ADB, IPIG
	8 Oct 14 (on site)	Operation of Borrow Pits within KJSNR	Visits to all borrow pits identified for operation within KJSNR	KJSNR, IPIG, TERA, CRBC
	9 Oct 14	Presentation of Ecological data and update on Ecological Response Plan	Presentation of ecological data collected on site, opportunities for ecological management using data. Included visit to the new KJSNR laboratory building in Naryn	KJSNR, SAEPF, IPIG, TERA
	21 Oct 14	Informal discussion on equipment procurement	Vehicle, lab equipment, NVAC equipment, trailer accommodation and boat specifications.	KJSNR, TERA

	29 Oct 14	Closeout meeting for the 2014 season	Update on procurement and outline plan for 2015	KJSNR, TERA
	1 Jun 15	Construction season commencement briefing	Briefing KJSNR on equipment procurement progress and proposed training activities for 2015	KJSNR, ADB, IPIG, TERA
	10 June 15	Borrow Pit Monitoring and Response team workshop	Briefing on the importance of the KJSNR and environmental controls on construction activities within KJSNR	KJSNR, TERA, CRBC
This Reporting period	Aug 15	Classroom briefing - ornithological monitoring	Briefing KJSNR on scientific data collection and data processing	KJSNR, TERA
	8 Sept 15	Briefing on equipment procurement	Update KJSNR on the progress of vehicle, boat and trailer (accommodation unit) procurement.	KJSNR, TERA
	16 Sept 15	On-site - ornithological monitoring	To provide site training in scientific data collection.	KJSNR, TERA
	5 Oct 15	Vehicle handover	Twin cab, 4WD flatbed vehicle handed over to KJSNR	KJSNR, IPIG, TERA

22. To facilitate capacity building of the KJSNR, equipment was identified in the EIA and confirmed with KJSNR during the 4th May 2014 workshop and at subsequent meetings attended by KJSNR, MOTC – IPIG, TERA and ADB. The provision of equipment is identified in the contract under provisional sums and is subject to MOTC / ADB approval. Approval has been granted and procurement is underway. Major capital items include provision of a vehicle to allow KJSNR better access to the Reserve. The following photograph shows the 4WD vehicle handed over to the KJSNR on 5th October 2015.



Figure 22: The 4WD, twin cab, flatbed at handover to KJSNR on 5th October 2015

23. On other equipment TERA has field equipment for handover to the KJSNR. Outstanding major capital items are provision of: (i) Boat (ii) trailer (field accommodation unit); and (iii) water quality monitoring equipment. This equipment will be procured and handed

over to KJSNR in 2016, together with the provision of appropriate training. Invitation documents will be prepared in early 2016 with Tender in early February, (6 week tender period). Approval and shipping through March and April so equipment will arrive in early May 2016

24. **Boat** – In the 2015 construction season TERA prepared a specification for the boat (including road trailer and safety and operating equipment) and sought to identify suppliers. From different hull types a rigid Inflatable Boat (RIB)⁴ was identified as the most suitable but KJSNR they stated a preference for a solid hulled vessel (aluminium). Searches in the Kyrgyz republic could not identify any boat suppliers. TERA made a visit to Lake Issyk Kul, where there are boating activities and visited the only boat marina on the north shore at Cholpon Ata⁵ where there were a number of inboard and outboard powered pleasure boats and sailing boats moored. The marina manager advised that all boats had been personally imported from Russia, Europe and the United States and that there were no recognised boat dealers / importers based in Kyrgyzstan. TERA has identified a potential supplier in Kazakstan and New Zealand and initial enquiries have been positive. Suppliers in China, Europe and Scandinavia are also being contacted.
25. **Trailer / Field Accommodation Unit** – A specification has been prepared based on discussions with KJSNR about their preferences. Safety is a paramount issue for the supply of this item in particular the type of heating and ventilation used. As there are a disturbing number of carbon monoxide poisoning incidents in enclosed spaces with inadequate ventilation. A specification has been developed and suppliers in China, Europe and Kazakhstan are being contacted.
26. **Lab (Water Quality Monitoring) Equipment** A specification for the equipment has been prepared and suppliers in China, Europe and the United States are being contacted to determine willingness to submit proposals. A point of issue is our project requirement for manuals, displays and keypads to be in Russian language and the ability to provide on-site training. Invitation documents will be prepared in early 2016 with Tender in early February, (6 week tender period). Approval and shipping through March and April so equipment will arrive in early May 2016 with training scheduled for May / June.

Road Maintenance Unit

27. The Road Maintenance Unit (RMU) have responsibility for attending to accidental spills that occur on the alignment. As part of the project, additional interception drains are identified within the KJSNR to intercept spills due to incidents on the road⁶. As part of the BNT3 project provision of equipment and training in use are identified. The spill response equipment, including Personal Protection Equipment (PPE) and clean up materials have been identified, and procured. Currently MOTC is carrying out internal procedures to hand over the equipment. Initial training for RMU957 was carried out at the RMU At Bashy facility on 22nd Sept 2015 attended by the Director and nine members of the At Bashy, Akbek and Tuz Bell facilities. The initial training covered background items: lines of reporting; personal safety; steps in handling

⁴ A rigid-inflatable boat (RIB) is a lightweight but high-performance and high-capacity boat constructed with a solid, shaped hull and flexible tubes at the gunwale. The design is stable and seaworthy. The inflatable collar allows the vessel to maintain buoyancy if a large quantity of water is shipped aboard due to bad conditions. The RIB is a development of the inflatable boat (source Wikipedia).

⁵ KruiZ Yacht Club

⁶ This spill response does not include incidents associated with escorted loads of dangerous good.

a spill; etc. Training in May / June 2016 will focus on practical training on the use of spill equipment procured under the Project. See Annex 6 for details of the training material.



Figure 23: Spill Training at RMU (22 Sept 2015)

Training for 2016

28. Based on the current programme, 2016 is scheduled to be the last full construction season. The KJSNR will require training in the use of the boat to be provided under the contract and in the use of hand held water monitoring equipment. In addition the RMU of MoTC will need to attend practical training in the use of spill control equipment. The following table sets out the proposed training programmes for 2016.

Table 3: KJSNR and RMU Training in 2016

Element	Attendees	Training module	Provisional date	Delivery by	Procurement issues
Spill Response	RMU	Practical module building on classroom workshop in October (See Annex 6)	May / Jun 2016	Dr Green (IPIG) assisted by A Taylor (TERA)	Equipment has been procured in 2015.
Use of Boat	KJSNR	Two modules: (i) Basic boat safety; and (ii) Basics of outboard engine maintenance	May / Jun 2016	Supplier (tbc) or A Taylor (TERA) ⁷	Boat and support equipment to be procured before commencement of 2016 season
Water Quality	KJSNR	How to calibrate use and maintain equipment	May / Jun 2016	Supplier (tbc) or Dr Green (IPIG) assisted by A Taylor (TERA)	Equipment to be procured before commencement of 2016 season

ADB Visits

29. ADB visited the site on the 6th August 2015 as a component of RETA 7548, a Regional conference on the Exchange on Good Practice of Environmental Safeguards Management. The site visit allowed Conference participants from Central Asian and Caucasus countries to

⁷ Mr Taylor has attended and passed the Royal Yachting Association (UK) Day Skipper course delivered at the Department of Navigation, Riversdale College of Technology, Liverpool (UK) and holds a Certificate of Competency for the Operation of Pleasure Vessels at Master Grade II [vessels upto 13.7m] and Engineer Grade 2 (Type 1 & 2 [inboard engines] & 3 [outboard engines upto 160hp]) issued by the Marine Department (HK) under the Shipping and Port Control Ordinance of Hong Kong.

view good site practice elements of the project, as well as environmental challenges that need to be addressed to satisfy full compliance with ADB safeguard requirements.



Figure 24: Regional conference participants on project site (6 Aug 2015)



Figure 25: Regional conference participants briefing at project site (6 Aug 2015)

30. A Country Safeguards Review meeting was held on Saturday 26th September 2015 attended by Tran T. Thanh Phuong (ADB - Senior Environment Specialist) Almaz Asipjanov (ADB - Environmental Safeguards Consultant), Dr David Green (IPIG – International Environmental Specialist), Mr Jim Rizer (TERA - Social Expert) and Mr Andrew Taylor (TERA - Consultants Environmental Specialist) in the offices of TERA. Topics covered included: provision of toilets at the border control area, borrow pit, manufacturing and camp sites rehabilitation (including plans), procurement and transfer of equipment for the KJSNR, spill controls and training of RMU and ecological training for KJSNR. The senior safeguards

specialist of Central and West Asia Department, ADB, gave the recommendations on environment compliance during project implementation.

31. An ADB mission meeting was held on 7th October 2015 in the offices of MOTC attended by ADB, MOTC-IPIG, CRBC and TERA. In terms of environmental issues, progress on borrow pit restoration and progress on spill retention ponds within KJSNR were discussed. In addition it was agreed that with the winding down of construction activity monthly environmental monitoring of noise, vibration, air and water quality would not be required in 2016 due to the absence of significant construction activity. A final monitoring set will be collected in June 2016.

Contaminated Material

32. No contaminated material has been identified within the project boundary to date. If contaminated material is encountered it will be subject to investigation to determine type, extent and quantity and final disposal. The closest disposal area is a town dump in At Bashy.

Project Organisation

33. The primary environmental stakeholders in the Project are the Loan Authority (ADB), the Executing Agency (MOTC) the Implementing Agency (IPIG) the Supervision Consultant (TERA), the Contractor (CRBC) and supporting Government Agencies. They are identified in the following figure.

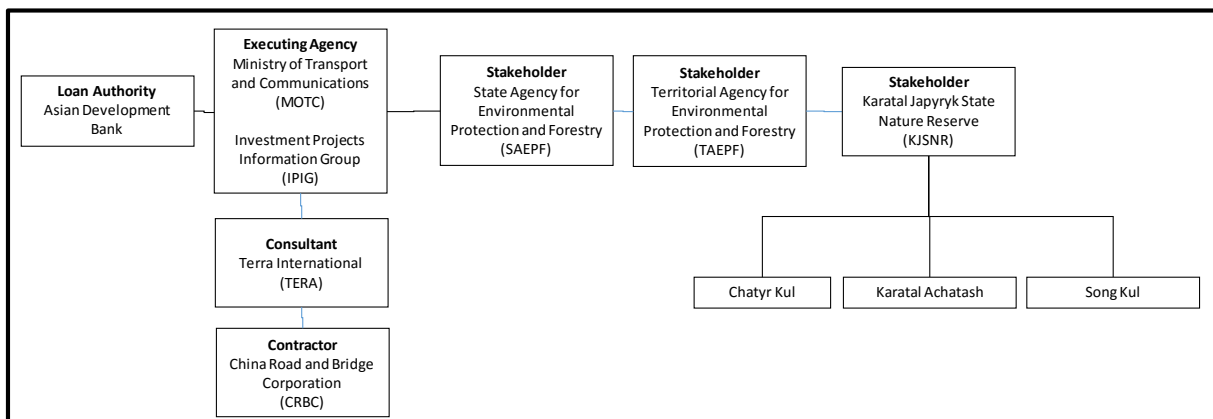


Figure 26: Environmental Stakeholders in the Project

34. There have been no changes in Project organization but there have been changes in the environmental management team. Mr Uvasip Omurbek, the original TERA National Environmental Specialist, resigned his post due to health issues in 2014 (working at altitude). With the assistance of IPIG, TERA identified Mr. Eric Shukurov as a replacement and following the approval process he commenced work at site on 18 August 2014. He was based at site for the 2015 construction season.

35. Dr David Green the International Environmental Specialist of MOTC-IPIG was based on the project in KGZ from 15th to 29th September 2015.

36. Mr Andrew Taylor the TERA International Environmental Consultant was based on project in KGZ from 25th August 2015 to 8th October 2015.

Stakeholder Relationships

37. Relations between the Executing Agency (EA), the Consultant (TERA) and the Contractor (CRBC) have been satisfactory, and a good working relationship has developed. Representatives of the KJSNR have become engaged with the Project after strong effort on the part of TERA and IPIG; through workshops and participation in project environmental and ecological monitoring including classroom and site ornithological monitoring exercises with TERA. This will be strengthened in the 2016 construction season with KJSNR attending training exercises with TERA, IPIG and specialist environmental monitoring equipment suppliers. Attendance will add data collection and management skills to the KJSNR.

Other Environmental Reporting

38. Monthly reports are prepared that include environmental test results for air quality, water quality, noise and vibration. In addition, camp and road safety audits are performed.

39. The preparation, by CRBC, of a Site Specific Environmental Management Plan (SSEMP) is a requirement of the Project EIA. A draft SSEMP has been prepared by CRBC and was submitted to IPIG in November 2013. A revised version was submitted in February 2014 and ADB offered comments in March 2014. A revised draft SSEMP has been discussed between CRBC, TERA and MOTC-IPIG and environmental checklists, in English and Russian, designed to check and audit environmental performance based on the SSEMP have been prepared and tested on site (See Annex 5 BPMRT workshop, for examples of the checklists). The latest version of the draft SSEMP is being used on site. The site tested version of the SSEMP was formally submitted by CRBC on 30 August 2014 for approval by TERA and by MOTC-IPIG for the 2015 construction season.

40. The site specific Borrow Pit Action Plan (BPAP) prepared by CRBC was originally included as an Appendix to the Borrow Pit Management Plan (BPMP) that forms Appendix 9 of the EIA. A need for extension of borrow pits within the KJSNR has been identified and an amended BPMP (ABPMP) has been prepared. The extensions have been discussed with the Contractor, IPIG, TERA and KJSNR and the results of the consultations are summarized in the revised ABPMP; completed in January 2015. The revised EIA, containing the ABPMP was presented on the ADB⁸ and MOTC⁹ websites in March 2015.

Part II Environmental Monitoring

Affected Persons

41. The Project alignment does not pass through any recognized villages or built up areas so there are no identified Affected Persons (AP). In addition to the CRBC construction camp at Km501, there are two isolated official facilities close to the alignment: (i) a Road Maintenance Unit building at the Tuz Bel Pass, immediately north-east of the Construction Camp at Km501; and (ii) Barracks at Km520 for personnel manning the border facilities (right side). In addition there are a number of trailer units providing basic accommodation and refreshment facilities immediately west of the border holding area (Km531).

⁸ <http://www.adb.org/sites/default/files/project-document/156487/42399-023-eia-08.pdf>

⁹ <http://www.piumotc.kg/ru/safeguard/148/>

Grievance Redress Mechanism

42. A Grievance Redress Mechanism (GRM) has been formally established on site and training and orientation was provided in July 2013. A meeting of the Grievance Redress Group was held in Naryn on 4 July 2013. The TERA Team Leader is the contact person for the GRM. Arrangements for a Grievance Redress Consideration Group are set out in Appendix 10 of the Project EIA.

43. Community and stakeholder interactions are monitored and the formal GRM is now established based on instructions from IPIG and ADB. A Grievance Redress Mechanism log is maintained in the Consultants office at the camp.

Compensation Claims

44. In the 2015 construction season, to date, there have been no compensation claims for loss of livestock, trees, crops, structures or any other items. There have been no complaints or environmental grievances filed in the reporting period.

Monthly Environmental Monitoring

45. Monthly monitoring has been carried out in 2015 for:

- noise and vibration at borrow pits within KJSNR, the camp, the manufacturing area and barracks;
- air quality at borrow pits within KJSNR, the camp, the manufacturing area and barracks; and
- water quality at sites within KJSNR and the Muz Tor river.

46. The monitoring sites are indicated in Figure 27 and the monitoring data are included in Annex 1: Monitoring Results – Air, Noise & Vibration and Water Quality. Annex one includes both data and graphical analysis over the two and a half years of site monitoring.

47. The monthly environmental monitoring programme focuses on operations within KJSNR and on “upwind and downwind” (upstream/downstream) monitoring to assess impact of construction work on air quality, noise and vibration and runoff on water quality.

Table 4: Noise & vibration, water and air quality monitoring points – 2013, 2014 and 2015

2013 Monitoring Season					2014 & 2015 Monitoring Seasons		
No.	Location	Chainage from Bishkek	R/L road	From c/ (metres)	No.	Location	Comment
Noise and Vibration							
NV 1/2	Construction camp	500km +000	R	100	NV 1/2	Construction camp	Target impact of BPs
NV 3/4	"Small Stream"	Km511	R	50	NV 3/4	"Small Stream"	
NV 5/6	Barracks	Km518	R	400 tbc	NV 5/6	Barracks	
NV 7/8	Narzyn Spring	Km525	L	200 tbc	NV 7/8	Active Borrow Pits inside the KJSNR	
NV 9/10	Trailers	Km531 +000	L	100 tbc	NV 9/10		
NV 11/12	Border Area	Km532 +000	L	100 tbc	NV 11/12		
Water Quality							
WQ1	Muz Tor River	499km +000	R	6000	WQ1	Muz Tor River	Chatyr Kul, infrequent
					WQ1a	Chatyr Kul (int)	
WQ2	Kosh Kor Lake	Km520	L	600tbc	WQ2	Kosh Kul	
WQ3	Narzyn Spring	Km525	L	400	WQ3	Narzyn Spring	
WQ4	"Small Stream"	Km511	L	100	WQ4	"Small Stream"	
Air Quality							
AQ1	Borrow Pit 1	480km +750	R	200	Due to low activity levels, these borrow pits outside the KJSR were not routinely monitored in 2015		
AQ2	Borrow Pit 2	484km +400	R	150			
AQ3	Borrow Pit 3	489km +750	R	200			
AQ4	Borrow Pit 4	491km +100	R	200			
AQ5	Borrow Pit 5	493km +000	R	100			
AQ6	Borrow Pit 6	495km +500	R	100			
AQ7	Construction camp	500km +000	R	200	AQ3	Crusher / asphalt	Upwind & downwind
AQ8	Crusher / Asphalt	499km +000	L	6000	AQ4		
AQ9	Borrow Pit 10	514km +600	L	200	AQ1 /AQ2 & AQ5 / AQ6	Active Borrow Pits inside the KJSNR	Upwind and downwind station
AQ10	Borrow Pit 11	518km +600	L	150			
AQ11	Borrow Pit 12	528km +200	L	100			
AQ12		Km511	L	50	AQ7	Roadside	Each side of the road
AQ13			R	50	AQ8	Roadside	



Figure 27: Location of the noise & vibration, air quality and water quality monitoring stations

Noise and Vibration

48. **Noise:** (Annex 1, Table 10, page 42) and vibration (Table 10, page 42) testing has been carried out at the camp, at the manufacturing area, borrow pits within KJSNR; and the barracks housing personnel manning the frontier post (Km518). Review indicates that the maximum permissible level (MPL) has not been exceeded.

49. **Vibration:** results indicate that the maximum permissible level (MPL) has not been exceeded.

Water Quality

50. **Water quality:** The parameters pH, chlorides, nitrates, sulfates and oil products, are tested at four locations to detect impact on sensitive water bodies within the KJSNR and at the Mus Tor River; close to the Construction Camp. The locations are:

- Muz Tor River, outside KJSNR, close to the asphalt and crushing plant and Camp;
- Chatyr Kul, inside KJSNR – a sample is collected from Chatyr Kul at a point closest to an operating borrow pit when considered appropriate – infrequent monitoring;
- Kosh Kul (Lesser Lake) – representing the closest open water to the alignment;
- Narzan Spring (around Km526); and
- Unnamed Stream (around Km511) – on south side of Lake Chatyr Kul.

51. The results for pH (Table 14, pg50), sulfates (Table 15, pg52), suspended substances (Table 16, pg55), chlorides (Table 17, pg57) and dissolved oxygen (Table 18, pg60) are all within permissible levels. The current works are unlikely to be having any impact on water quality in the lakes due to the distance from works areas. It is noted that results of nitrate and oil product testing were compliant and below detection limits. The current results indicate that project activities including the asphalt and crushing plants and camp have had no impact or at most limited localized impact on water quality.

52. There was some monitoring of the lake margins of Chatyr Kul in the first and second construction seasons. This was suspended due to safety concerns (working at a remote location on marshy ground at the lake edge). On lake sampling can be carried out when the boat for the KJSNR has been procured and the sampling regime confirmed (as part of training scheduled for May / June 2016)

Air Quality

53. **Air quality:** suspended particulates, carbon monoxide and sulfur dioxide are sampled and tested at operating borrow pits. Test results for Sulphur di-oxide (Table 12, Pg46) and Carbon monoxide (Table 13, Pg48) were below the MPL. Monitoring has been amended to test upwind and downwind of the manufacturing area and active borrow pits in KJSNR.

Site Monitoring and Audit

54. To assist in the monitoring of environmental performance on site TERA has prepared site inspection checklists for CRBC, TERA and others to guide environmental inspections and audit (See Annex 5). The checklists are based on environmental documentation including the EIA, EMP, SSEMP and the BPAP. Checklists have been prepared and are being used on site for:

- KJSNR - Borrow Pit Setup;

- KJSNR - Borrow Pit Operation;
- Camp – Manufacturing Area (Asphalt Plant, Crushers, Stockpiles and Precast yard);
- Camp - Fenced compound (including offices, living areas and canteens);
- Camp – Maintenance area (including compound, workshops and parking);
- Camp – Management & Community (affected persons, workforce and documentation);
- Worksites – General checklist for Road foundations, Asphaltting and Culverts.

55. Sample checklists are included in Annex 5: . The checklists for the 2015 construction season were modified as an outcome of the 2015 Borrow Pit Monitoring and Response Team Workshop held on 10 June 2015 (Annex 5). In particular the adoption of an amended method of documenting Environmental Incidents in terms of three Levels of Non Compliance of “observation”, “opportunity for improvement” and “non compliance”, described in Attachment II in the workshop notes.

Ecology - Flora and Fauna

56. Monitoring of ecological indicators (birds, insects, mammals, vegetation, etc.) in KJSNR was carried out in 2014 in June, August and September. The methodology and approaches are identified in the Ecological Response Plan prepared by MOTC-IPIG. Results are reported in the BNT123 Ecological Monitoring Report for 2014 (Final Report Jan 2015).

57. The ecological surveys in 2014 provided schedules of quantitative surveys as the follow up step to the qualitative observations conducted under the EIA. The range of species present in the KJSNR and Chatyr-Kul Ramsar area have now been broadly established with estimates of the relative dominance and rarity of the species identified. In addition some simple statistical measures of species richness and community diversity in the different bird habitats have been calculated. This statistical approach will be developed for use by KJSNR through ongoing monitoring and training sessions scheduled from May to the end of October 2016 and; as another ecological response tool to assist in providing strengthened capability for long term monitoring of the protected areas. The calculations can be repeated year on year to further consolidate monitoring that can support and guide management decisions for the protected areas in order to improve ecological protection in KJSNR.

58. The ecological data collected in 2014 has been reviewed. One of the outcomes was an updated proposal for ecological studies in 2015 and beyond. The surveys of the five vegetation and animal groups made in 2014 have led the ecological surveyors to suggest that resources need not be expended to monitor all groups every year. The ecological survey team have suggested that significant changes are not likely to be observed year on year and it will be sufficient to check most animal groups versus baseline conditions on a two or three year cycle; depending on available resources. This should be sufficient as a check on the impact of upgraded road and other impacts such as from traditional grazing activities in the KJSNR. The exception to this case is the bird populations that visit the Chatyr-kul Lake either to breed or as a stop-over during longer migrations which are recommended to be monitored more frequently. Therefore there has been a focus on bird surveys, conducted by the TERA National Environmental Specialist and classroom and practical training for the KJSNR in ornithological monitoring techniques. This will continue through 2016.

59. KJSNR have attended classroom (August 2015) and onsite monitoring training (16 September 2015) and this will continue through 2016. It would have been desirable for KJSNR to attend site monitoring more frequently in 2015 but access has been an issue. The provision of the vehicle to KJSNR in October 2015 will aid their ability to provide a more active role in the onsite monitoring. The resident TERA National Environmental Specialist Mr Eric Shukerov (Ornithologist) will be on hand to provide and assist in training and data collection through the 2016 season.

60. The local pastureland authorities permit grazing (mainly cattle and goats) and many thousands of livestock are allowed to graze both in the KJSNR and elsewhere along the alignment. Grazing has been identified by botanists as a major impact on the botanical ecology of the area; but this is outside control of the Project. Likewise solid waste and debris from herders left around temporary accommodation in the summertime is an eyesore and a significant detraction from the natural habitat. Waste disposal relies on the goodwill of the herders concerned who in many cases do not take their waste garbage with them when they leave the area. On the contrary the Contractor has collected up all working materials and waste from near to the alignment in 2014 and 2015 (see Figure 1 to Figure 6).

Road Safety

61. Road accidents have been monitored. There have been no accidents reported to the Project during the reporting period.

62. Similarly, accidents concerning worker safety are monitored and none have been reported during the reporting period. It was noted in para 34 that the TERA National Environmental Specialist resigned his post due to health issues, working at altitude. There have been other instances where project staff have resigned due to health problems associated with working at altitude. The construction camp is located at an altitude above 3,500m.

Road Signage

63. **Temporary road signage** has been noted as a potential issue. In the 2015 construction season signage was considered satisfactory.

64. **State reserve marker boards** has been erected to warn road users that they are entering the KJSNR. Locations have been agreed between MOTC-IPIG and KJSNR and two sets of information boards have been located at Muz Tor Pass (Km501) and the Torugart customs area, advising entry into: (i) Karatal-Japaryk State Nature Reserve; and (ii) Chatyr-Kul Reserve Wetlands of International Significance". In addition five signs have been placed along the road alignment on the left side between Km502 and Km 528 and five will be placed on the north side of the lake advising "Reserved Land Chatyr-Kul, Entry Denied!"

Traffic Surveys

65. A traffic survey was conducted in 2011, which indicated that traffic, especially of heavily-loaded large trucks is increasing. A supplementary Traffic Survey was carried out in 2014. Findings were not yet available during the compilation of this report, but will be reviewed and, if relevant to environmental monitoring of the Project, will be included in the next report.

Part III Environmental Management

Introduction

66. This section addresses compliance with the Project Environmental Management Plan (EMP) and other contractual obligations relating to the environment and health and safety issues.

67. The main concern of the ADB in relation to the project is that it should not “result in any net loss of ecological function or degradation of the Chatyr Kul protected area, which is considered to be a critical habitat due to its designation under the Convention of Wetlands of International Importance, also known as the RAMSAR Convention”.¹⁰

68. The Environmental Management Plan (EMP) contained in the Project EIA (Chapter 8) comprises a two track strategy of:

- Pollutant control and monitoring; and
- Receptor Protection.

69. The EMP is considered to be a dynamic document and will be adjusted in line with new information, contractor’s performance and monitoring results. IPIG will identify and include any modifications in the EMR document¹¹.

Project Resources for Environmental Management

70. The **Contractor**, CRBC, works under a Design and Build contract to construct the road between Km479 to Km 539, this work includes all development associated with the road. In carrying out the work the Contractor follows the environmental requirements of the Project EIA, with particular emphasis on the requirements of the EMP as updated from time to time. In carrying out the work in line with the EMP the Contractor has prepared a Site Specific Environmental Management Plan (SSEMP) that identifies how environmental controls will be implemented. The contractor is working to the SSEMP.

71. The Contractor is responsible for ensuring that all workers engaged on the Project (including Sub-contractors) are suitably trained and perform their duties in an environmentally responsible manner.

72. For the Contractor, the Project Manager is responsible for ensuring that the requirements of the EMP have been implemented. Implementation of the EMP and SSEMP on a day to day basis is monitored through an Environmental Officer and a Deputy Environmental Officer. For development of Borrow Pits the Contractor has prepared a Borrow Pit Action Plan (supplementing the Amended Borrow Pit Management Plan in the Project EIA) and for borrow areas within KJSNR a dedicated Borrow Pit Monitoring and Response Team (BPMRT) has been formed and re-trained for the 2015 construction season.

¹⁰ Extract from the Project EIA Section 2.6 ADB safeguards (para39).

¹¹ from Project EIA Chapter 8, para 384.

73. The **Consultant** (TERA) is responsible for monitoring the performance of the Contractor on site, reviewing and approving environmental reports generated by the Contractor (in particular the SSEMP) and submitting environmental material to the Executing Agency (MOTC). The Consultants working team is under the direction of the Team Leader and comprises an International Environmental Consultant and a National Environmental Consultant. They are supported on site by the Consultants engineering supervision team.

74. The **Executing Agency** (MOTC) is responsible ensuring for the delivery of the project in line Kyrgyz Republic and ADB environmental requirements. The MOTC report directly to ADB. IPIG including a team of Environmental and Social Safeguard Specialists is responsible for the delivery of safeguard activities on a day to day basis.

75. An organisation chart showing the interactions between Executing Agency, Consultant, Contractor and the identified monitoring teams and the identified individuals is shown in Annex 4 on Page 90.

Health, Safety and Environmental Monitoring Progress Reports

76. The Contractor has submitted monthly Health, Safety and Environmental Monitoring Progress Reports (HSEMPRs) as required under the contract. All necessary approvals for borrow pits, camps and work sites have been received as noted in these reports. These reports also indicate that the required training in safety and provision of safety equipment have been undertaken. In addition, medical exams have been given, condoms distributed, and HIV/AIDS training provided. Bubonic plague has been linked to marmot colonies, though not in the Project Area. However CRBC took a precautionary approach and provided inoculation for bubonic plague in May 2014.

77. With respect to audits and site visits, camp and road safety audits are conducted weekly and work sites are visited daily. Collectively, the audits and site visits provide the basis for identifying non-compliance with the EMP.

Site Specific Environmental Management Plan

It is a requirement of the project EIA that a Site Specific Environmental Management Plan (SSEMP) is produced by the Contractor to provide a guidance document for staff on the site of their requirements and responsibilities. This document has been drafted by the Contractor. The SSEMP is the primary environmental document for the implementation phase of the Project that is supported by other environmental plans identified in Table 8.1 of the EIA¹² and indicated in the following figure.

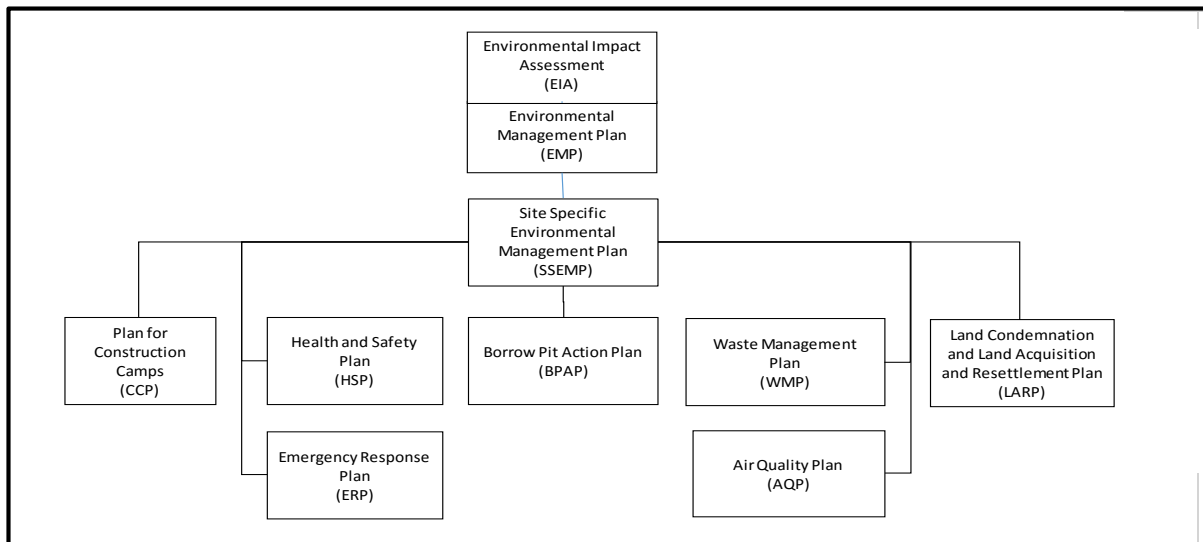


Figure 28: The SSEMP and its supporting documents

78. The supporting documents are:

- Borrow Pit Action Plan (BPAP);
- Health and Safety Plan (HSP) and Emergency Response Plan (ERP);
- Plan for Construction Camps (CCP);
- Air Quality Plan (AQP) and Waste Management Plan (WMP); and
- Land Condemnation and Land Acquisition and Resettlement Plan (LARP).

Borrow Pits

79. **Borrow Pits.** There are a total of twelve borrow pits identified for the Project. The Contractor has received approvals from the local authorities and the local territorial ecology department and the State Agency for Environmental Protection and Forestry to utilize all twelve borrow pits. The Contractor has also received approvals of areas for disposal of spoils. Towards the end of the 2014 season the Contractor requested and received statutory approvals for extension of three borrow pits and also to open two new borrow pits. This activity is reported in the Amended Borrow Pit Management Plan (ABPMP).

80. Borrow pits from Km501 to Km532 in the Karatal-Japaryk State Reserve (KJSNR) are environmentally sensitive and the Contractor has prepared a Borrow Pit Action Plan (BPAP) for borrow pit operations. The BPAP specifically identifies the requirements for a dedicated Borrow Pit Monitoring and Response Team (BPMRT) for borrow pit operations inside KJSNR.

¹² EIA Table 8.1 – Mitigation Plan at the Pre-Design Stage.

The BPMRT is responsible for daily monitoring of each operating borrow pit and responding to any environmental incidents. The BPAP has been incorporated as an attachment to the Amended Borrow Pit Management Plan (ABPMP) that Forms Appendix 9 of the EIA for the Project.

81. Multiple pits, operating simultaneously, are needed to provide enough suitable material for sections at different stages of road upgrading. The Contractor has stated that at completion of operation, they will restore all the borrow pits and spoil areas and rehabilitate in line with plans approved by SAEPF. Photos for each borrow pit are included in Annex 3: Status of Borrow Pits.

Table 5: Location, Characteristics and Status of Borrow Pits

Borrow Pit	Location (km) (L=left side of road to Torugart; R=right)	Volume to be Removed (m ³)	Dimensions (m x m)	Area (ha)	Distance from Road (m)	Distance from Lake Chatyr Kul (m)	Status
B1	480+750 R	150,000	100 x 600	6	200	Outside Lake Chatyr Kul catchment (CKC)	In use in 2014
B2	484+400 R	240,000	600 X 200	12	150		In use in 2014
B3	489+750 R	120,000	300 x 200	6	200		In use in 2014
B4	491+100 R	480,000	800 x 300	24	200		In use in 2014
B5	493+000 R	120,000	300 x 200	6	100		In use in 2014
B6	495+500 R	120,000	300 x 200	6	100		In use in 2014
B7	497+500 R	160,000	400 x 200	8	100		Not used in 2013 / 4
Q8#	499+000 R	3,000,000	750 x 2,000	150	6,000		Streambed. In use 2014
	499+300 L	120,000	2000 x 60	12	40		
B9	507+600 L	225,000	450 x 250	11.25	200		3.1km
B10	514+600 L	250,000	500 x 250	12.5	400	2.3km	In use in 2014
B10 ext	514+600 L	325,000	850 x 250	21.25	100	2.3km	In use 2015
B11	518+000 L	325,000	650 x 250	16.25	400	3.0km	In use in 2014
B11 ext	518+000 L	400,000	850 X 250	21.25	100	3.0Km	In use 2015
B12	528+200 L	325,000	650 x 250	16.25	160	3.4km##	In use in 2014
B12 ext	528+200 L	437,500	950 X 250	23.75	160	3.4Km##	In use 2015
New	506+430 R	120,000	1000 X 100	10	100	>5Km	In use 2015
New	518+600 R	240,000	250 X 200	5	100	>5Km	In use 2015

N.B Q8 is the quarry located next to the rock crusher and asphalt plant some 6km from the road.

B12 is 1.38KM from a small lake flowing into Chatyr Kul called Kosh-Kul.

Source: Amended Borrow Pit Management Plan (ABPMP), Appendix 9 of Environmental Impact Assessment (EIA) March 2015.

Audits and Meetings

82. Periodic audits of the construction base camp, worker camp and construction sites have been conducted during the construction period, using checklists that are included in the Site Specific Environmental Management Plan. Audits indicate improving conditions at the camps and sites. Camps and sites have been monitored throughout the construction season and particular focus was given to works within KJSNR.

83. Formal monthly meetings and reporting between the Contractor's Project Management Staff and the Consultant consolidate weekly Friday progress meetings held to discuss the Project, including road and other safety issues and camp cleanliness. The Contractor team responds positively to the concerns raised at meetings; resulting in improved environmental performance. The Consultant will continue to audit construction sites and camps to ensure that issues are resolved in a timely and appropriate manner.

Consultations and Complaints

84. In terms of consultations and complaints, there have been no formal complaints received and recorded during the reporting period.

Performance measured against Environmental Management Plan

85. An Environmental Management Plan (EMP) is included as Chapter 8 of the Project EIA. The EMP identifies environmental mitigation plans for the pre-design, design, construction and operations & maintenance phases of the project (EIA Tables 8.1 to 8.4). Table 8.3 of the EIA – Mitigation Plan for the Construction Stage is the most applicable to this report and is summarized in Table 6, below together with a review of the contractor performance in the reporting period.

86. During the reporting period the project has been implemented in accordance with the ADB Environmental Safeguards Policy, but there has been some delays in project level implementation of (i) spill prevention controls (ii) monitoring equipment procurement and (ii) the ecological monitoring programme. These elements are identified in Section 8.9 of the EIA – Institutional responsibilities for EMP implementation. Table 7 (Status of Actions) and Table 8 (Corrective Action Plan) note the progress on these actions identified in the EIA.

Table 6: Project Adherence to the Environmental Management Plan in the EIA

Area	Potential impact	Mitigation measures	Observed on-site October 2015	Overall Evaluation
Air quality	Open burning of wastes	Contractor will not burn wastes or other materials without approval by Engineer.	During inspections there was no observed instances of on-site burning.	Performance satisfactory.
	Smoke from burning	Contractor will not install burners, boilers or similar equipment fed by any type of fuel that might generate polluting substances without due approval by Engineer.	Equipment subject to Engineer approval – Asphalt plant operational in 2015.	Performance satisfactory.
	Exhaust fumes from construction equipment	Contractor will maintain and service construction equipment to keep it in proper technical condition to control emissions. Such equipment (including controlling equipment) are subject to regular inspections by Engineer. Such inspections shall be registered in the Log Book as part of the monitoring activity. Contractor shall: <ul style="list-style-type: none"> • Avoid equipment running idle; • Prohibit housing equipment and tools in the open areas which emit visible smoke 	The Contractor has supplied new construction plant and equipment for the Project. It appears to be well maintained and adverse impact from inefficient engine operation is not anticipated and has not been identified during inspections.	Performance satisfactory.
	Volatile pollutants from asphalt plants and borrow pits.	Contractor will allocate conveyor belts against the wind protection fencing (borrow pit areas); discharge chutes of hoppers shall be covered to avoid dust blowing off. All the dust-generating conveyor material must be covered.	Borrow pits on the alignment are protected from the wind by barriers formed of topsoil stockpiles and by topography when the pit develops below ground level.	Performance satisfactory.
	Dust from unpaved roads, open soil and stockpiles.	<ul style="list-style-type: none"> • Contractor ensures measures of dust control: The beds of the trucks hauling material shall be covered either by tarp or other material (fixed) to prevent dust blowing off the trucks; • Waste collection sites must be tamped to avoid formation of dust. • In the places of regular vehicles movement the roads shall have hard surface, and • Contractor ensures water sprinkling (on the roads, construction sites and unpaved road sections) at least twice per day, or more, as Engineer may deem necessary) 	<p>Critical source of dust is from vehicles running on dry surface.</p> <p>Coverage of loads with tarp during transport not generally followed but metal sieve grilles installed limit dust blow.</p> <p>Waste generally collected and handled to avoid dust blow. Good attention to providing hard vehicle running surfaces.</p> <p>Regular watering of access between borrow and active working zones.</p>	Performance satisfactory.

Topography	Cuts and fills	<p>Contractor ensures:</p> <ul style="list-style-type: none"> Any excess of dump soil may not be used; its utilization in rivers/tributaries or water courses may not be allowed. In case of accumulation of the excess material (if not provided for by the project design), this shall be reported to Engineer to identify designated place for its storage/utilization. Temporary and permanent material storage areas shall be on state-owned lands, and by no means can be dumped on to agricultural, fertile lands or lands of protected areas, or other water courses. In case construction wastes dumped on to designated place, or the silt is washed out then such a pollutant or wastes shall be removed and the land and storage area to be restored to its initial state as Engineer may deem expedient. 	<p>No dumping observed.</p> <p>Excess unsuitable material stored in borrow pits.</p> <p>No remote temporary or permanent material storage observed on non-defined areas.</p> <p>Not applicable</p>	Performance satisfactory.
	Slopes stabilization	<p>Contractor will ensure:</p> <ul style="list-style-type: none"> Final shaping-up of slopes will be done in the locations identified by Engineer and as soon as possible after their filling up with soil. Where necessary, Contractor will make ditches on slopes for re-vegetation of aboriginal plants. Construction works in the areas prone to erosion or flooding shall be done only in dry season. 	No final slope stabilization and shaping is being carried out currently. At borrow pits topsoil has been carefully removed and stockpiled at the removal site for recolonisation.	Performance satisfactory.
	Borrow pits	<p>Before opening any borrow pit of crusher site Contractor shall obtain proper permits. Borrow pits to be located in environmentally safe locations:</p> <ul style="list-style-type: none"> Not closer than 500 meters to water courses; Outside agricultural lands, and <p>On state-owned lands.</p>	<p>Permits and approvals obtained for the borrow pits and crusher site.</p> <p>MOTC – IPIG / ADB formally approved borrow pits in KJSNR (Km 500 to 539) subject to conditions (a) approved design (b) workshop for monitoring team (c) baseline monitoring.</p>	Conditions (a), (b) and (c) have been met and MOTC - IPIG informed.
		<p>Alluvial material taken upstream from the blocked culverts can be used as base material.</p> <ul style="list-style-type: none"> This material shall be checked by Contractor and Engineer for its use as base material. Such material 	Available material used in previous months.	Performance satisfactory.

		shall be used first before the uses of the other material from borrow pits or material reserve.		
		Development and recultivation of borrow pits, located in Chatyr Kul lake area, and should be carried out in accordance with Borrow pit management plan specially developed for this section (km501-km531). Monitoring of these borrow pits is carried out on daily basis and summary information is provided once a month.	A Borrow Pit Action Plan (BPAP) has been prepared and approved, it forms part of the ABPMP (Appendix 9 of EIA)	Performance satisfactory. Daily monitoring carried out by CRBC Borrow Pit Monitoring and Response Team (BPMRT) and audited by TERA.
Soils	Loss of fertile soil	Engineer will ensure adequate measures in place to prevent irreplaceable loss of fertile soil cover or its deterioration by construction equipment in the course of construction works. Protection of fertile soil layer is the priority task.	At borrow areas fertile topsoil has been selectively removed and stored separately for reuse.	Good Contractor performance
	Erosion	Contractor ensures: <ul style="list-style-type: none"> • Material that is less prone to erosion can be used around bridges and culverts • Restoration of vegetation on the stripped slopes includes; (i) selection of the fast-growing local types of flora; (ii) immediate re-vegetation of all slopes and banks, if not covered with gabions, (iii) placement of fiber material to allow for seeds to sprout with account to local climate. 	No erosion incidents identified.	No action required on this item
	Pollution due to oil spills or hazardous materials	Contractor will ensure: <ul style="list-style-type: none"> • All petroleum and chemical materials kept of the impermeable base, and fenced. Such storage areas to be arranged outside from any water courses or water-logged areas. The base and the walls of such banks shall be capable of 110% weight of the fuel/lubricant tanks. • Areas for repairs in construction camps organized on the impermeable base with drainage to collect 	At the Camp (Km500) main refueling area has hardstanding, and spill control. Within the crushing / asphalt plant area it was noted that some small fueling areas for specific processes did not have hardstanding or bunding. Repair area in good condition. Improved use of oil / fuel pans could be	Generally satisfactory. Some minor departures from correct practice have been noted.

		<p>oil spills. Vehicle repairs on the open ground will not be allowed.</p> <ul style="list-style-type: none"> • Fuelling of equipment shall be under strict control and regulated by the formal procedures. In all such areas oil/fuel pans shall be used. The used oil is collected and utilized by the licensed subcontractor. • All the valves and filling nozzles must be protected from unauthorized access or vandalism and locked up, when not in use. • Tanks and drums have clear marking about their content. It is necessary to avoid any pollutants getting into water sources. • Tanks and drums with bitumen shall not be kept on the open ground, - only in the impermeable pallets/base. • Locations for the use of bitumen shall be arranged on the impermeable surface. 	<p>considered.</p> <p>Fueling controlled but requires ongoing attention.</p> <p>Fueling generally within the controlled confines of the camp.</p> <p>Markings and location needs to be formalized in crushing, precast and asphalt plant area.</p>	
Hydrology	Drainage	<p>Contractor will ensure:</p> <ul style="list-style-type: none"> • At the construction site Contractor builds, maintains, removes and replaces, as needed, temporary drainage structures and undertakes safety measures to avoid damage from flooding or wash-out of silt from construction sites. 	<p>Dry conditions, no silty runoff observed. Temporary drainage structures in place.</p>	<p>Performance satisfactory.</p>
	Construction camps and storage areas	<p>Contractor will ensure:</p> <ul style="list-style-type: none"> • Waste water shall be collected and diverted from the territory by a sewage system and located in the manner and in places preventing environmental pollution. • Direct discharge of sanitary and waste water on the ground shall not be allowed. Utilization of such materials in the open ground or open water sources is prohibited. • Places for liquid wastes collection shall not allow any seepage into the ground. • Any oil spills must be immediately removed, and means for their removal and soil clean-up shall be kept in construction camps. 	<p>A concrete septic tank system has been installed at the Km500 construction camp to collect waste water generated by the construction team.</p> <p>Seepage – Generally within structures on hardstanding within camp.</p> <p>Oil spills have not been observed. Local oil spotting has been addressed on a case by case basis.</p> <p>Toilets – Portable toilets need to be mobilised for remote sites.</p> <p>Surface water courses – No unauthorized discharges identified.</p>	<p>Performance satisfactory. The issues have been addressed in the final versions of the Site Specific EMP (SSEMP) and Borrow Pit Action Plan (BPAP) prepared by</p>

		<ul style="list-style-type: none"> • Construction and work sites shall be equipped with toilets, without liquid seepage into surface waters. • Utilization of pumped and waste water in surface water courses is not allowed. It should be collected in settling ponds, or tanks for further removal. • The following rules to prevent oil spills and reagents storage must be observed: <ul style="list-style-type: none"> • Equipment fuelling shall be done only in designated places. • All petroleum and chemical materials kept of the impermeable base, and fenced. Such storage areas to be arranged outside from any water courses or water-logged areas. The base and the walls of such banks shall be capable of 110% weight of the fuel/lubricant tanks. • Fuelling of equipment shall be under strict control and regulated by the formal procedures and done in the locations protected by earth banks to prevent oil spills or potentially hazardous liquids. • All the valves and filling nozzles must be protected from unauthorized access or vandalism and locked up, when not in use. • Tanks and drums have clear marking about their content. It is necessary to avoid any pollutants getting into water sources. • In case of occasional oil spills they must be immediately removed; such materials shall be kept in safe areas as designated for hazardous materials. • As Engineer may deem necessary, Contractor will arrange a vehicle washing ditch, or site at the exit from construction sites and ensures that vehicles are clean from sand and dirt (body and wheels) before they leave. Dirty water or dirt travelling from the construction sites will not be allowed. 	<p>See earlier comments on “Pollution due to oil spills or hazardous materials”</p> <p>Oil spill precautions taken at the site. Bunded fuel storage, dedicated refueling area at camp and dedicated refueling trucks with auto stop nozzles, etc., were observed.</p> <p>Fueling is carried out at the camp in a dedicated refueling area.</p> <p>The refueling facility is at the camp which is in an isolated location.</p> <p>Drums, where used, are observed to be marked.</p> <p>No major spills have been observed. Isolated spotting has been cleared where appropriate.</p> <p>Vehicles were observed to be well maintained at the start of each working day.</p>	<p>the Contractor and approved by TERA, MOTC and ADB.</p>
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	Construction of bridges	<p>Contractor will ensure:</p> <ul style="list-style-type: none"> Flow diversion from abutments Cofferdams, silt traps or other structures for silt capturing. Cofferdams drainage or clean-up shall be made to prevent siltation. 	All bridges and culverts have been formed and appear to be operating satisfactorily	Performance satisfactory.
	Borrow pits	<p>Contractor will ensure:</p> <ul style="list-style-type: none"> Reclaim borrow pits upon completion of works in full compliance with applied standards and requirements. The terms of contract shall include terms for borrow pits opening and the use of material. Material excavation and borrow pit restoration and the adjoining area shall be done according to the terms of the contract. Additional borrow pits will not be opened until the previous sites are restored. 	<p>Fragile topsoil carefully removed and stored for recolonisation.</p> <p>Official approval obtained for current borrow pits.</p> <p>The Borrow Pit Action Plan will be followed.</p> <p>Permission has been obtained to operate multiple pits due to specific material requirements</p>	Performance satisfactory. Bulk excavation is over and borrow pits are in process of restoration.
Flora and fauna	Loss of flora	<p>Contractor will ensure:</p> <ul style="list-style-type: none"> Ensure over-grassing, where necessary. Provide construction camps with adequate fuel to prevent fuel stocking from unauthorized sources. 	<p>Currently not applicable.</p> <p>Construction camp supplied with electrical heating no fuel burning will be allowed within the camps.</p>	Performance satisfactory.
	Protected areas	<p>Opening of new borrow pits and excavation areas will require approval by SAEPF.</p> <p>Engineer ensures safety of the protected areas.</p> <p>Fencing around nestling places and identified areas of rare species. Limiting construction work during breeding and nestling time</p>	<p>Approval obtained from SAEPF.</p> <p>KJSNR officials attended briefing of the BPMRT in June, who will monitor activities of borrow pits within Chatyr Kul catchment, and provided information on acceptable practices.</p>	Performance satisfactory. Briefing workshop carried out for KJSNR work.
Land use	Construction camps & other temporary structures	Contractor is responsible for good order in the territory of construction camps. The used land shall be restored to acceptable level within the due time.	The main camp at Km500 is in good order.	Performance satisfactory.
Transport and	Road closure and by-pass roads	<p>Contractor will ensure:</p> <ul style="list-style-type: none"> Installation of road signs and pointers for the by-pass roads. Such roads shall not impact the 	Installation of signage needs constant vigilance but major diversion work is	Performance satisfactory.

Infrastructure		<p>boundaries of the protected area of Chatyr-Kul Lake (except for the area of the Smaller Lake).</p> <ul style="list-style-type: none"> At the KM 501 and KM 532 there will be installed a roadside information stand with the following text in Kyrgyz, Russian, English and Chinese languages: "Specially Protected Area of Karatal-Zhapyryk State Reserve. KM 501 – KM 532 No Stopping!" except at designated parking areas. Put additional road signs along the road, at every 2 km. All by-pass roads to be coordinated with Engineer. Contractor is responsible to keep the road open during construction works at least to 50% in daytime, and 100% at the end of the working day. 	<p>complete only signage at discrete worksites on the alignment is needed.</p> <p>Signage for the "Specially Protected Area of Karatal-Zhapyryk State Nature Reserve" installed.</p> <p>Bypass roads and road opening satisfactory and effectively complete.</p>	<p>Signage for the "Specially Protected Area of KJSNR" installed</p>
	Electric systems	<p>For the period of construction all power transmission lines shall not be disconnected except during the period of relocation of electric poles. Contractor will coordinate with local electric power authority.</p>	<p>No incidents in the reporting period.</p>	<p>Performance satisfactory.</p>
Wastes and pollutants	Pollution	<p>Under no circumstances the excess material can be utilized without prior permission of Engineer. No dumping of such material shall be done in rivers or watercourses. Coordination with Engineer and Environmental Expert is required.</p>	<p>There have been no identified incidents in the reporting period.</p>	<p>Performance satisfactory.</p>
	Inert and liquid wastes	<p>Contractor will ensure:</p> <ul style="list-style-type: none"> Installation of garbage cans on working sites; Maintain construction sites in good order, and provide all necessary means required for all wastes storage for their final utilization/removal; Train personnel in waste management practices and procedures as part of ecological process Collect and remove hazardous and hazard-free materials separately in the locations approved by Engineer and Environmental Expert. For this purpose (if required) a specialized company can be contracted to collect wastes from camps and temporary storage areas for their further disposal. 	<p>Generally followed, clearer marking of waste disposal areas could be considered.</p> <p>Sites observed to be maintained in good condition.</p> <p>More formalized training has been conducted for work in the KJSNR A specialized waste collection and disposal company has been identified.</p>	<p>Generally good waste management procedures followed. Training for work within KJSNR conducted</p>
	Hazardous wastes	<p>The rules of handling and utilization of hazardous wastes shall be integrated in the WMP. Locations for utilization of</p>	<p>The WMP forms a supporting document of the Site Specific EMP</p>	<p>Performance satisfactory.</p>

		hazardous wastes shall be coordinated with SAEPP. Contractor will collect the carbon-containing wastes, including used oil, for their safe removal for processing or utilization at temporary storage areas or hand over to a licensed operator.	(SSEMP) and prepared by the Contractor. The Contractor has identified a sub-contractor to collect and dispose of waste at Naryn.	
Health and safety	Health and safety workers	<p>Contractor will ensure:</p> <ul style="list-style-type: none"> • Occupational safety training for personnel. All the Contractor staff shall attend the safety training with account to the duration of works, and levels of management. • Safety meetings shall be held on the monthly basis, which will be attended by safety officials, unless otherwise stated by Engineer. • Inspections. Contractor will, on the regular basis, check, test and maintain all the safety equipment, working platforms, fixtures, step-ladders and other means; hoisting, lighting, signaling and safety equipment. The lighting and marking for such equipment shall not be obstructed and must be readable. Dirty or broken equipment, or misplaced equipment must be immediately fixed and replaced properly. • Protection gear and clothes must be available on site at any working time; effective measures must be taken for their due use and replacement. All construction equipment must be equipped with safety means. • First aid means. Contractor ensures a fully equipped first aid premises with climate-control inside the building/room at the level of +20oC. The terms of first aid to be coordinated with Engineer. • Contractor will cooperate with local health protection authorities and will conclude a contract for probable use of hospitals and other means. 	<p>On arrival at camp operatives are given occupational safety training.</p> <p>Safety issues are reported and discussed on a monthly basis as part of the progress meeting.</p> <p>Safety equipment was observed to be in satisfactory condition.</p> <p>Protective equipment is available and staff on site are observed wearing appropriate equipment. Like all working sites this aspect needs constant attention.</p> <p>First Aid – The contractor has a full time Chinese Doctor resident at the camp and a local Doctor on call and attending on a regular basis. There is a fully equipped first aid facility (medical room) at the Camp (Km500) including oxygen.</p>	<p>Performance satisfactory but it is noted that Health and Safety requires constant vigilance and attention.</p>

	Health and safety of subcontractors	All subcontractors will receive copies of the SSEMP. All sub-contracts will contain clauses to ensure the observance of the SSEMP at all stages of works. All the subcontractors will appoint a safety representative for the entire period of works, unless otherwise stated by Engineer in written form.	A Site Specific EMP (SSEMP) has been prepared by the contractor. The Contractor is following environmental mitigation in line with the EIA and its associated EMP.	Checklists prepared for audit.
	HIV /AIDS	Contractor with the support of relevant offices will hold an HIV / AIDS training for workers, as required, according to the terms of the Contract.	Initial training has been initiated. Refresher should be carried out at the start of each construction season.	Performance satisfactory.
Protect ed areas	Impact on the protected area	In order to avoid potential negative impacts Contractor will: <ul style="list-style-type: none"> • Stick to the adopted international practice and requirements to ensure environmental safety as regards to the protected area, and the specific requirements as stated in the EIA. • In case of finding any archeological or historical artifacts (movable or immovable) in the course of works, Contractor will undertake all the necessary measures for their protection and report to Engineers and local authorities of such findings. Provided the continuation of works will expose threat to such artifacts, the works must be suspended until proper measures are taken for their due protection. 	The Contractor has been observed to be taking steps to avoid impact on protected areas. KJSNR have attended and briefed the CRBC BPMRT.	Performance satisfactory on this aspect.
Noise	Construction noise and vibration	Contractor will ensure: <ul style="list-style-type: none"> • Control of the sources, such as exhaust systems, noise reducers at the air intakes and regular equipment maintenance; • Requirements for allocation of stationary equipment close to ecologically sensitive receptors or sites, optimization of the noise load and the use of protection mechanisms/tools, where necessary, shall be done in line with the standard procedures. 	The contractor has adopted a policy of using new plant and machinery on the Project and observation suggests good levels of maintenance. The current working season has had limited interaction with noise sensitive receptors.	Good performance in this aspect.

87. While the project has been implemented in accordance with the ADB Environmental Safeguards Policy, there has been some delays in project level implementation of specific items identified in Section 8.9 of the EIA – Institutional Responsibilities for EMP

implementation. These are (i) installation of spill prevention controls (ii) monitoring equipment procurement and (ii) the ecological monitoring programme. These elements are identified in Table 7 (Status of Actions) and the Corrective Actions in Table 8 (Corrective Action Plan).

Table 7: Status of Actions identified in the EIA

	Environmental Issue Identified	Action taken	Due Date	Status	Responsible Party
1	Implementation of Spill Prevention, control and countermeasures	Orientation and training of RMU in spill control techniques and procurement of equipment	Q4 2015	(i) Orientation and safety training of RMU carried out. (ii) Equipment procurement completed. (iii) Practical Training with equipment not complied with.	IPIG / TERA TERA IPIG / TERA
2	Operation phase runoff controls to prevent road spills entering Chatyr Kul.	Design and construction of interceptors and retention ponds	Q4 2015	(i) Contractor design prepared and approved. (ii) Construction of runoff controls not complied with.	TERA / IPIG CRBC
3	Pollution source environmental monitoring of NVAW	Monthly monitoring by Contractor and Bi-annual reporting	Q4 2015	(i) Monthly monitoring complied with (ii) Biannual reporting complied with	CRBC TERA
4	Post project monitoring of pollution sources	Procurement of monitoring equipment for KJSNR and training	Q4 2015	(i) Equipment identified and specified (ii) Procurement of equipment not complied with. (iii) Training of KJSNR not complied with.	TERA TERA TERA / manufacturers
5	Dissemination of environmental information.	Bi-annual reporting	Q4 2015	Draft bi-annual report for June to December 2015 prepared and issued for comment	IPIG
6	Management of the Chatyr Kul ecosystem	Ongoing ecological surveys during project and framework for future monitoring and analysis for management purposes by KJSNR.	Q4 2015	(i) Focus is on ornithological surveys (ii) Engagement of KJSNR – classroom and one field session carried out – partial compliance more needed on management aspect	TERA TERA / IPIG / KJSNR

END			
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In order to comply with the EMP the following corrective actions are being implemented.

Table 8: Corrective Action Plan

	Environmental Issue Identified	Corrective action	Due Date	Status	Responsible Party
1	Implementation of Spill Prevention, control and countermeasures	Practical Training with spill control equipment.	Q2 2016	Equipment procured, classroom orientation and safety training carried out. Practical training scheduled May / June 2016	TERA / IPIG
2	Operation phase runoff controls to prevent road spills entering Chatyr Kul	Construction of runoff controls	Q2 2016	Designs completed and approved. Construction scheduled for June 2016 (weather dependant).	CRBC
3	Post project monitoring of pollution sources	Procurement of equipment and training of KJSNR	Q2 2016	Specifications prepared. Procurement Scheduled for Q1/2 2016. Training scheduled for May / June 2016	N/a TERA TERA / Supplier
4	Management of the Chatyr Kul ecosystem	Engagement of KJSNR – further classroom and field sessions and management plan.	Q2 2016	Ongoing ornithological field work with TERA NES through 2016 construction season. Classroom session with KJSNR on Management Plan in May / June 2016	TERA NES TERA / IPIG
	END				

Part IV Conclusions and Recommendations

Conclusions

88. There are comprehensive facilities for staff welfare (doctor, nurse and first aid facilities) and environmental protection (liquid and solid waste management) in the construction camp at Km 500. An area 3km from the construction base camp at Muz Tor River has been developed for materials processing (extraction, crushing, grading, pre-casting and asphalt production).
89. The Contractor has generally brought new heavy plant to site and a comprehensive workshop at the Km500 construction camp ensures vehicles are well maintained, reducing potential for adverse environmental impact from air and noise and petroleum based emissions.
90. Generally, the Contractor has carried out work in an environmentally acceptable that is compliant manner with the environmental management plan as amended. The Contractor has been responsive to the requests for corrective actions.
91. On Borrow Pit operation, the Contractor carefully removed and stored fragile topsoil for re-use in the future restoration/recultivation programme. In particular good practice has been recorded and audited satisfactorily, at all borrow pits opened within KJSNR. During next construction season additional measures will be taken to finish the recultivation of borrow pits.
92. To meet road construction material demand, the Contractor applied for: (i) extension of three of the four borrow pits within the KJSNR approved for operation at the start of the 2014 construction season, and (ii) opening of three additional borrow pits and obtained approval from the relevant authorities at the end of 2014 construction season. However, after careful consideration and investigation the proposed pit at Km 508+600 (LHS) was rejected due to being potentially ecologically sensitive and was not approved by ADB. This was reported in the Amended Borrow Pit Management Plan (ABPMP) included in the revised project EIA (March 2015).
93. Monitoring of air quality has been carried out at active borrow pits and noise and water quality monitoring has been carried out within the KJSNR. The Maximum Permitted Levels (MPL) have not been exceeded and good environmental condition is being maintained. An ecological monitoring programme based on the Ecological Response Plan (EcolRP) is in place alongside monthly monitoring of noise and vibration, air and water quality.
94. The Contractor has prepared a Site Specific Environmental Management Plan (SSEMP) and a Borrow Pit Action Plan (BPAP) covering environmental performance required for borrow pit operation with special focus on works carried out in the borrow pits within the KJSNR.

95. Contractor performance during the July to December 2015 construction season is therefore considered satisfactory.

Recommendations and Action Plan for 2016

General recommendations

96. The 2015 season saw construction work continuing in the sensitive KJSNR. Construction Impact on the ecologically sensitive KJSNR and the RAMSAR site of Chatyr Kul was managed to avoid impact and the mitigation measures, standards and activities established in 2014 and maintained in 2015, including the SSEMP and ABPMP needs to be maintained and executed just as thoroughly in the 2016 construction season. Which will be the final construction season for the project. There will be very little work outside the immediate road footprint with work focusing on the installation of barriers, whit lining and erection of traffic signage. There will be some work alongside the alignment where the spill control drainage and settlement ponds will be installed.

97. Good record keeping has been observed at site (In Chinese language) and it is considered that more translated material would be beneficial to document environmental performance. This will be reviewed by the Consultant and reported at Monthly Progress Meetings.

98. The Contractor has been reminded at progress meetings that all interactions on environmental issues with the public, either verbal or written, should be recorded and reported to the Engineer in English for inclusion in the site log.

Action Plan for 2016

In order to comply with EMP, and recommendations of the senior safeguards specialist of Central and West Asia Department, ADB, the following actions should be implemented in close cooperation with IPIG and Contractor (Table 7).

Table 9: Action Plan for 2016 Construction season

#	Activity	Due Date	Responsible for implementation/supervision
1.	Purchase of environmental monitoring equipment	March – April 2016	DSC/IPIG
2.	Further Training for KJSNR and RMU	May – June 2016	DSC/IPIG
3.	Restoration and site cleanup works	May-Oct 2016	Contractor/DSC
4.	Construction of spill collection system	June 2016	Contractor/DSC
5.	Post-construction environmental audit	Oct – Dec 2016	DSC/IPIG

99. **Equipment and Training** - In 2016 the priority is to ensure that the boat, lab (water quality monitoring) equipment and accommodation unit handed over to KJSNR and associated

training programmes delivered to assist in management of the Reserve. Equipment will be sourced in Q1 of 2016 with arrival in Kyrgyzstan identified in late April / early May to allow training to be carried out in May / June. In addition the spill control equipment will be the subject of a practical training session for the RMU. This builds on the classroom training workshop held in September 2015.

100. **Ecology** – Ecological training (bird surveys) will continue in the 2016 construction season led by the TERA National Environmental Specialist.
101. **Spill Control** – The Contractor has prepared construction drawings for the spill control system designed to intercept any major spill on the highway passing through the State Reserve and prevent spilled material entering the Chatyr Kul lake system. The 2016 construction programme has still to be confirmed, based on the weather dependent 2016 season start date, but construction is provisionally scheduled for June 2016.
102. **Site Cleanup and Restoration** – The Contractor is preparing their site cleanup programme during the winter shutdown of the site. It will include restoration of the camp and manufacturing area and other sites impacted by the works. Restoration of the borrow pits is well advanced with all pits recontoured and topsoil respread ready for seed germination in the spring of 2016 to complete recultivation. The 2016 construction programme has still to be confirmed, based on the weather dependent 2016 season start date but works are provisionally scheduled to be carried out for the duration of the 2016 construction season (May to October 2016)

END OF MAIN TEXT

Annex 1: Monitoring Results – Air, Noise & Vibration and Water Quality

MONITORING TEST RESULTS

Environmental Monitoring of Noise & Vibration, Air and Water Quality (NVAW) - Upto and including June 2015 monitoring

1) Noise and Vibration

Table 10: Noise Monitoring

	Camp		Manufacturing Area (crushers, asphalt & pre-cast yard)		BP9 Km507		BP10 Km514		BP11 Km518		Barracks		BP12 Km528		Border Holding Area		Maximum Permissible Level	Max Recorded	Min Recorded
	Immediate area	Lorries passing	Manufac- turing 200m (S)	Manufac- turing 200m (N)	Immediate area	Lorries passing	Bp10 Km 514 200m (N)	BP10 Km514 200m (S)	BP11 Km518 200m (N)	BP11 Km518 200m (S)	Immediate area	Barracks 50m from Highway	BP12 Km528 50m (W)	BP12 Km528 50m (N)	Immediate area	Lorries passing			
15-Oct-15		46	63	65			59	57	49	47		46	48	47			75	65	46
23-Sep-15		51	69	65			55	52	56	49		47	52	51			75	69	47
13-Aug-15		47	67	63			53	57	46	46		46	46	45			75	67	45
14-Jul-15		49	66	65			59	53	65	49		65	48	49			75	66	48
24-Jun-15		48	65	65			58	53	65	48		45	47	46			75	65	45
21-May-15		45	60	61			55	50	71	45		43	44	43			75	71	43
22-Oct-14		47	67	63			57	53	53	46		46	46	45			75	67	45
19-Sep-14		45	67	63			57	53	74	47		46	48	48			75	74	45
26-Aug-14		45	67	65			57	57	74	47		46	48	48			75	74	45
17-Jul-14		46	68	58			59	57	73	46		47	47	48			75	73	46
18-Jun-14	53	60	45	60			57	99db Result removed			54	60			44	57	75	68	44
21-May-14	66	58	55	60	57	68		60	64	44	44	59	99db Result removed		60	55	75	68	44
22-Oct-13	56	60									55	66					75	66	55
30-Sep-13	53	58									53				67	67	75	67	53
28-Aug-13	59	62									57	69			69	68	75	69	57
29-Jul-13	57	60									57	60			75	68	75	75	57
29-Jun-13	57	60									57	60			75	68	75	75	57
Max Recorded	66	62	55	60	57	68	57	68	64	44	57	69	68	57	75	68	75	75	57
Min Recorded	53	58	45	60	57	68	57	60	64	44	44	59	68	57	44	55	75	66	44

Table 11: Vibration Monitoring

Camp		Manufacturing Area (crushers, asphalt & pre-cast yard)		BP9 Km507		BP10 Km514		BP11 Km518		Barracks		BP12 Km528		Border Holding Area		Maximum Permissible Level
Immediate area	Lorries passing	Manufacturing 200m (S)	Manufacturing 200m (N)	Immediate area	Lorries passing	Bp10 Km 514 200m (N)	BP10 Km514 200m (S)	BP11 Km518 200m (N)	BP11 Km518 200m (S)	Immediate area	Barracks 50m from Highway	BP12 Km528 50m (W)	BP12 Km528 50m (N)	Immediate area	Lorries passing	
	75	72	76			75	73	72	75		72	75	73			108
	77	75	74			77	75	74	76		75	76	75			108
	76	74	74			76	76	73	77		73	76	74			108
	75	72	73			74	77	75	75		73	74	75			108
	71	73	74			75	75	73	77		73	76	74			108
	74	73	74			75	75	73	77		73	76	74			108
	76	74	74			76	76	73	77		73	76	71			108
	78	74	75			57	57	74	47		73	76	76			108
	46		75			73	57	72	76		74	76	76			108
99	105	97	104			100	107			98	98			97	106	108
82.5	107	100	108	104	106	106	98.4	97.8	105	105	107	105	106	110	110	108
107	82									106	104			105	107	108
107	82.5									106	104			105	107	108
83	105									107	105			103	106	108
																108
																108

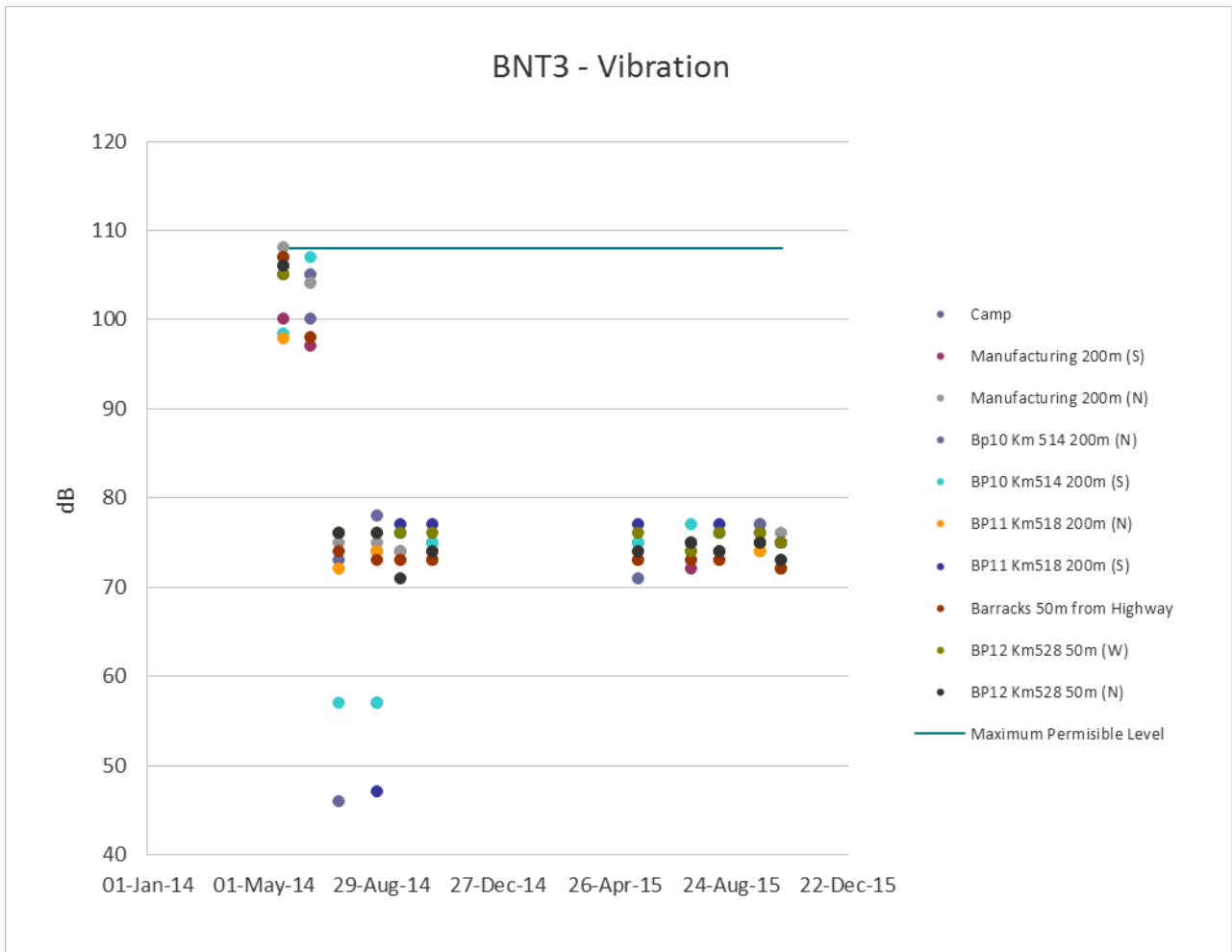


Figure 30: Vibration monitoring plots

2) Air Quality

Table 12: Air Quality – Sulphur Dioxide

Sulphur Dioxide (mg/m3)	Borrow Pit 1	Borrow Pit 2	Borrow Pit 3	Borrow Pit 4	Borrow Pit 5	Borrow Pit 6	Construction Camp	Manufacturing Area	Borrow Pit 9	Borrow Pit 10		Borrow Pit 11		Borrow Pit 12		Barracks	Border Holding Area	MPL	Range Max	Range Min
										Km514		Km518		Km528						
										BP10 Km 514 u/w	BP10 Km 514 d/w	BP11 Km 518 u/w	BP11 Km 518 d/w	BP12 Km 528 u/w	BP12 Km 528 d/w	Barracks				
18-Jul-13	0.8	1	1.6	1.4	0.8	1.6												0.5	1.6	0.8
14-Aug-13	0.5	0.3	0.3	0.4	0.5	0.5	0.5	0.5										0.5	0.5	0.3
25-Sep-13	0.3	0.4	0.5	0.4	0.5	0.3	0.4	0.4										0.5	0.5	0.3
4-Nov-13	0.5	0.4	0.3	0.5	0.3	0.5	0.4	0.5										0.5	0.5	0.3
21-May-14							0.4	0.4										0.5	0.4	0.4
17-Jun-14							0.5	0.4		0.5						0.4	0.3	0.5	0.5	0.3
17-Jul-14							0.3	0.4		0.4	0.3	0.4	0.3	0.3	0.3	0.4		0.5	0.4	0.3
19-Aug-14							0.4	0.2		0.4	0.3	0.5	0.4	0.3	0.5	0.2		0.5	0.5	0.2
23-Sep-14							0.4	0.2		0.3	0.2	0.4	0.4	0.5	0.4	0.3		0.5	0.5	0.2
25-Oct-14							0.4	0.3		0.5	0.3	0.4	0.5	0.3	0.3	0.5		0.5	0.5	0.3
5-May-15							0.001	0.001		0.001		0.001		0.001	0.001	0.001		0.5	0.001	0.001
16-Jun-15							0.001	0.002		0.001	0.002	0.002	0.003	0.002	0.002	0.001		0.5	0.003	0.001
15-Jul-15							0.042	0.036		0.045	0.033	0.039	0.047	0.036	0.036	0.03		0.5	0.047	0.03
13-Aug-15							0.04	0.046		0.037	0.034	0.049	0.046	0.04	0.034	0.031		0.5	0.049	0.031
23-Sep-15							0.04	0.046		0.037	0.034	0.049	0.046	0.04	0.034	0.031		0.5	0.049	0.031
14-Oct-15							0.027	0.038		0.035	0.043	0.04	0.038	0.046	0.035	0.029		0.5	0.046	0.027

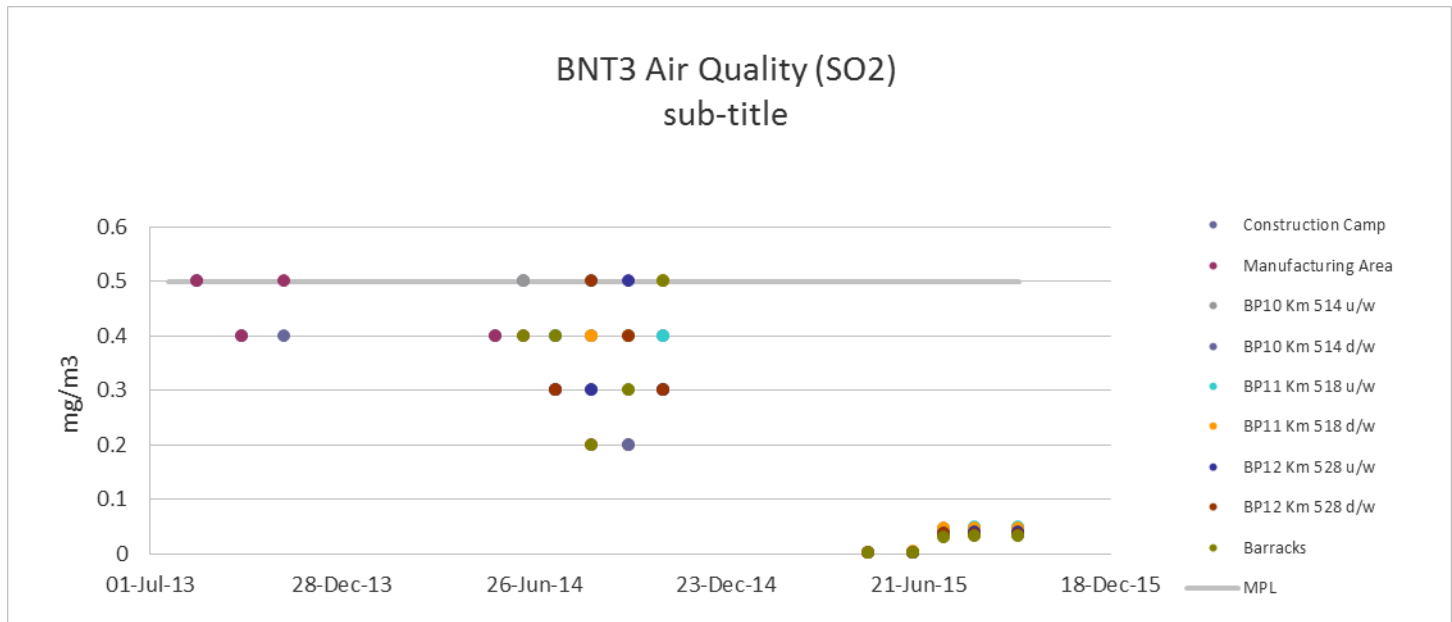


Figure 31: Air Quality Monitoring plots - Sulphur Di-oxide

Table 13: Air Quality –Carbon Monoxide

Carbon Oxide (mg/m3)	Borrow Pit 1	Borrow Pit 2	Borrow Pit 3	Borrow Pit 4	Borrow Pit 5	Borrow Pit 6	Construction Camp	Asphalt Plant & Crusher	Borrow Pit 9	Borrow Pit 10		Borrow Pit 11		Borrow Pit 12		Barracks	Border Holding Area	MPL	Range Max	Range Min
										Km514		Km518		Km528						
										BP10 Km 514 u/w	0	0	0	0	0					
18-Jul-13	2.1	2.7	4.8	8.5	5.3	3.3	2.8											5	8.5	2.1
14-Aug-13	2	4.6	4.5	2.9	4.3	4.9	4.9	5										5	5	2
25-Sep-13	4.9	3.9	4.8	3.3	4.3	3.9	4.1	4.5										5	4.9	3.3
4-Nov-13	3.6	4.8	3.5	3.9	4.1	4.6	4.9	5										5	5	3.5
21-May-14							3.8	4.2										5	4.2	3.8
17-Jun-14							3.6	4.7		4.1						3.9	3.3	5	4.7	3.3
17-Jul-14							3.3	3.7		4.5	4	3.3	3.5	4.5	4.3	4.6		5	4.6	3.3
19-Aug-14							3.6	4.7		3.9	4.2	3.9	3.7	4.8	4.1	4.2		5	4.8	3.6
23-Sep-14							3.9	4.2		4.9	3.2	3.6	3.3	3.7	4.1	4.2		5	4.9	3.2
25-Oct-14							4.6	4.8		4.4	3.8	3.9	4.2	3.4	4.3	5		5	5	3.4
5-May-15							0.7	1.2			2.1	2.6		1.7	1.7			5	2.6	0.7
16-Jun-15							2	1.7		2	2.6	1.9	2.1	1.8	2.3	1.4		5	2.6	1.4
17 Jul 15																				
13 Aug 15																		5	0	0

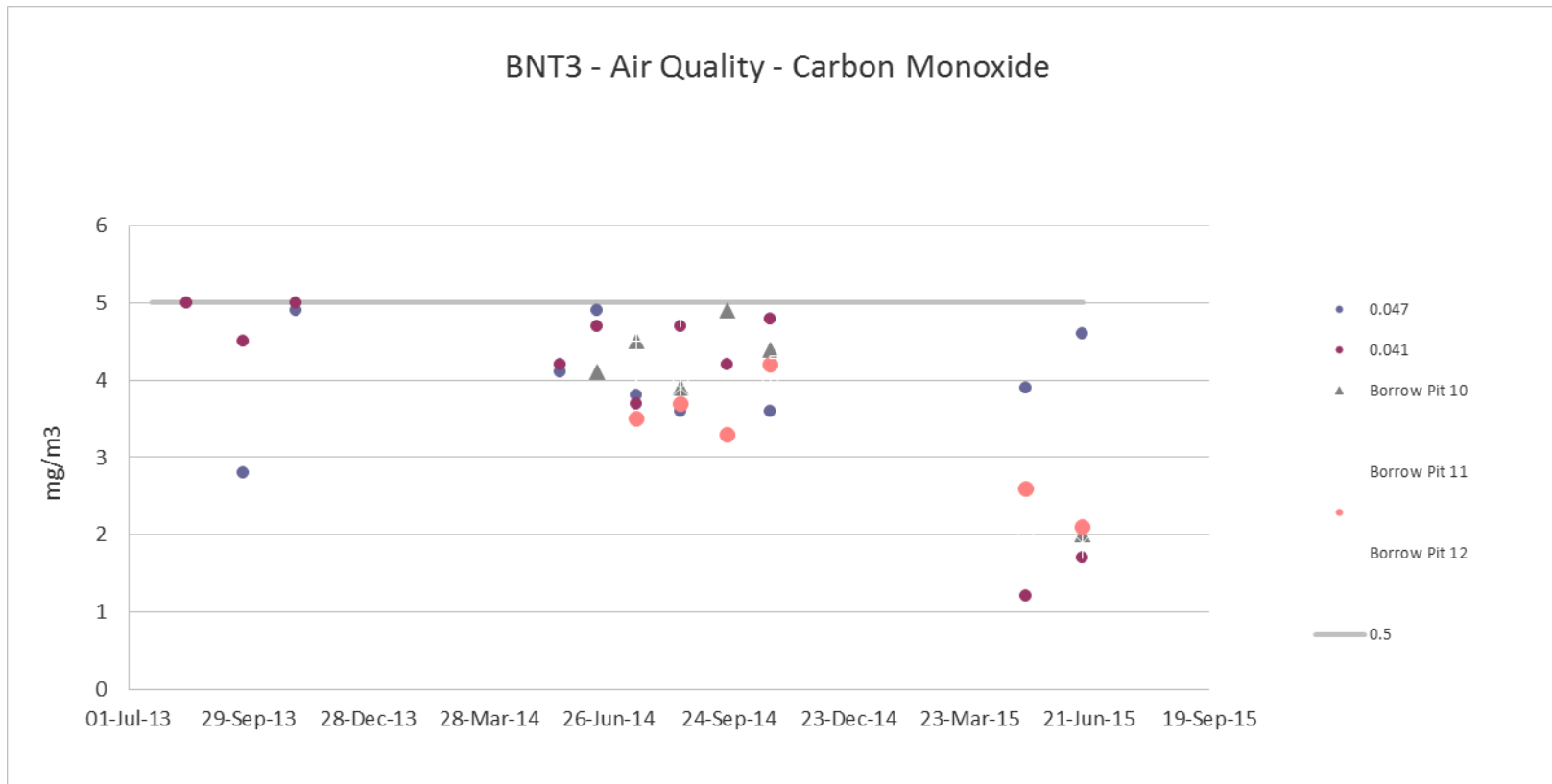


Figure 32: Air Quality Monitoring plots - Carbon Monoxide

Suspended Particulates and Nitrogen Dioxide are both below the MPL and detection limit of the meters.

3) Water Quality

Table 14: Water Quality - Ph

Ph	Muz Tor River		Small River		Chatyr Kul	Kosh Kul	Narzan Spring	Min	Max
	Muz Tor (u/s)	Muz Tor (d/s)	Km511 (25m u/s)	Km511 (50m d/s)					
						21/ 22 June 13 - Average of 4			
18-Jul-13	8.1				9	8.07	6.52	6.5	8.5
14-Aug-13	8.0		7.8			8.6	6.7	6.5	8.5
25-Sep-13	8.0		7.8			8.6	6.8	6.5	8.5
30-Oct-13	8.0		7.5			8.4	7.3	6.5	8.5
21-May-14	8.1				8.1	8.01	6.5	6.5	8.5
17-Jun-14	8.1				8.1	8.04	7.5	6.5	8.5
17-Jul-14								6.5	8.5
19-Aug-14								6.5	8.5
23-Sep-14								6.5	8.5
21-Oct-14	8.1	8.11	8.2	8.3		8.5	7.6	6.5	8.5
5-May-15	7.65	7.39	7.77	6.32			6.3	6.5	8.5
16-Jun-15	7.57	7.71				8.29	6.29	6.5	8.5
14-Jul-15	7.5	7.52				7.6	7.8	6.5	8.5
14-Aug-15	6.13	7.68				7.64	7.45	6.5	8.5
16-Sep-15	7.62	7.65				7.68	8.06	6.5	8.5
13-Oct-15						7.61	7.75	6.5	8.5

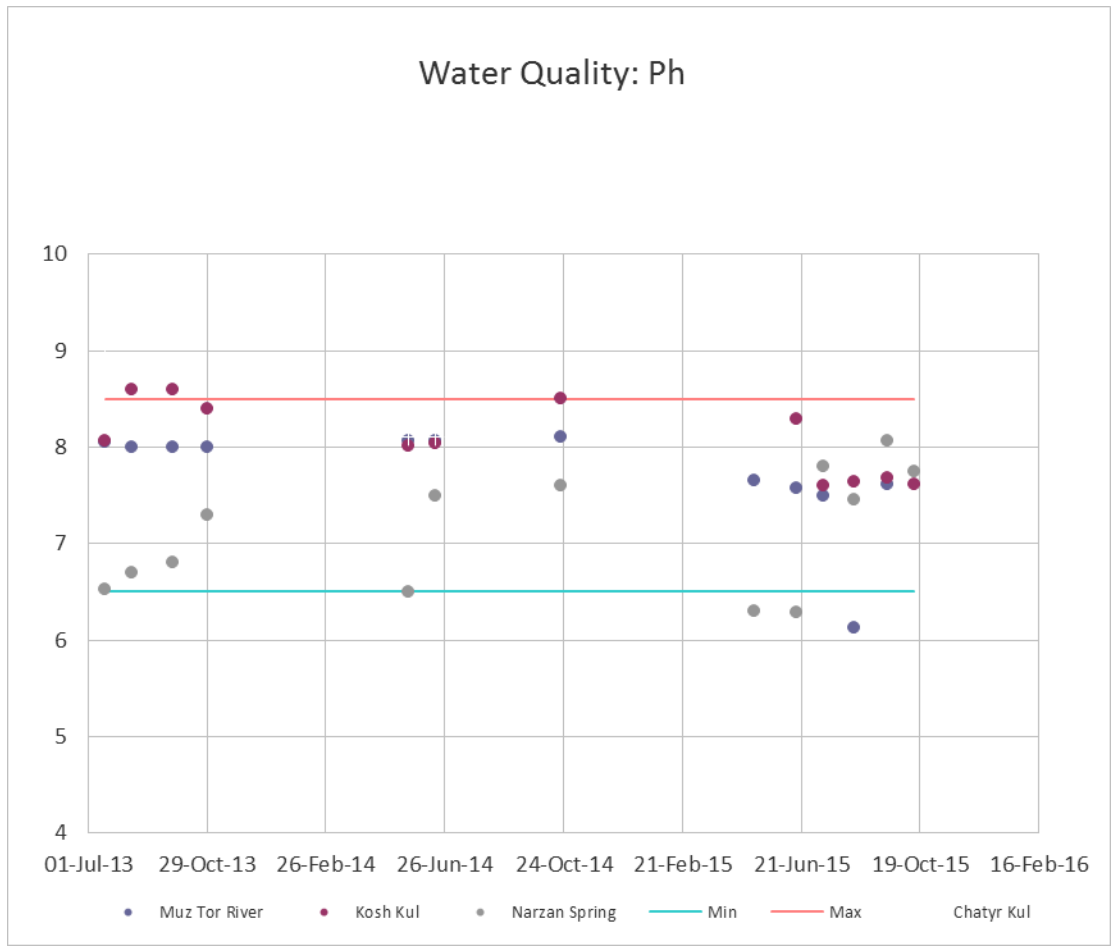


Figure 33: Water Quality Monitoring plots - Ph

Table 15: Water Quality - Sulfates

Sulfates (mg/l)	Muz Tor River		Small River		Chatyr Kul	Kosh Kul	Narzan Spring	Min	Max
	Muz Tor (u/s)	Muz Tor (d/s)	Km511 (25m u/s)	Km511 (50m d/s)					
18-Jul-13	20				163	21	65	100	500
14-Aug-13	19		90			25	37	100	500
25-Sep-13	21		83			35	62	100	500
30-Oct-13	46		51			47	52	100	500
21-May-14	20				145	100	65	100	500
17-Jun-14	14				63	52	39	100	500
17-Jul-14	27	28	69	68		50	38	100	500
19-Aug-14	27	26	59	63		46	36	100	500
23-Sep-14	29	27	24	51	33	24	29	100	500
23-Oct-14	28	26	50	55		44	22	100	500
5-May-15	23	33	42	45			18	100	500
16-Jun-15	9.6	11				34	29	100	500
14-Jul-15	10.7	12				29	31	100	500
14-Aug-15	30	32				45	15	100	500
16-Sep-15	31	33				39	9.9	100	500
13-Oct-15						41	12	100	500

21/ 22 June 13 - Average of 4

Average of 3

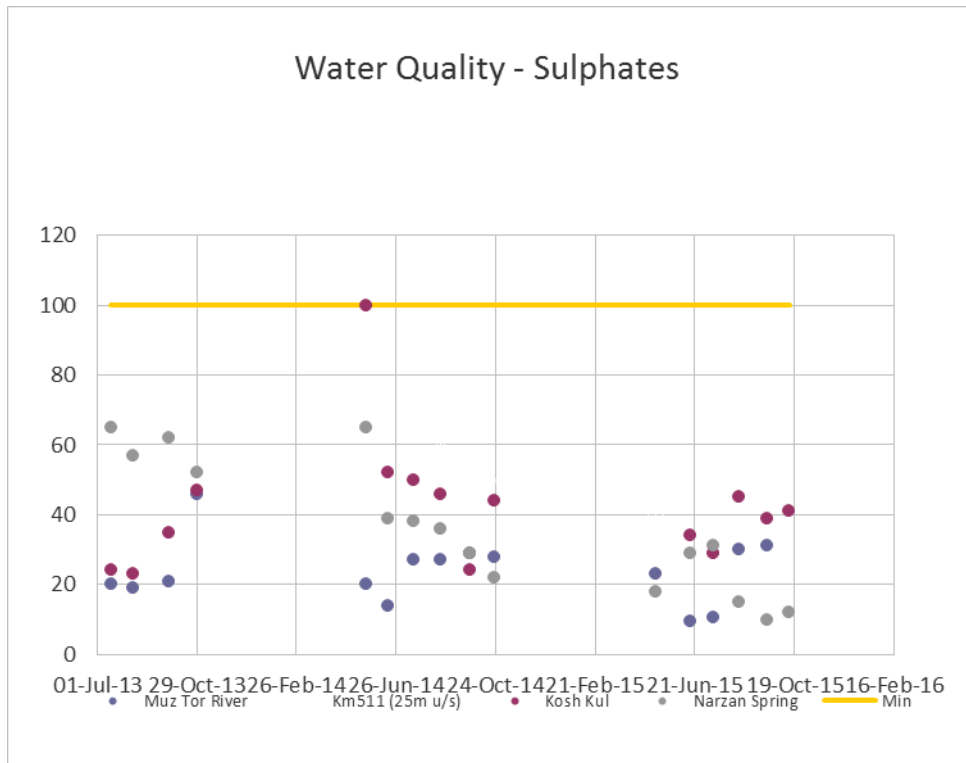


Figure 34: Water Quality Monitoring plots - Sulphates

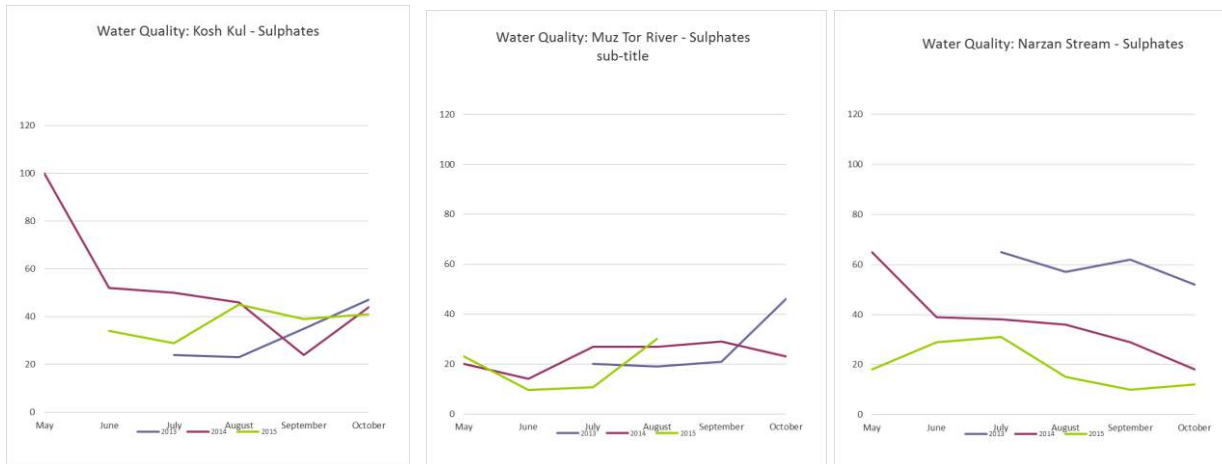


Figure 35: Air Quality Monitoring plots - Sulphates (Annual variation)

Table 16: Water Quality - Suspended Substances

Suspended Substances (mg/l)	Muz Tor River		Small River		Chatyr Kul	Kosh Kul	Narzan Spring	Min	Max
	Muz Tor (u/s)	Muz Tor (d/s)	Km511 (25m u/s)	Km511 (50m d/s)					
18-Jul-13									
14-Aug-13									
25-Sep-13									
30-Oct-13									
21-May-14	22.8				9.8	61.2	5.2		
17-Jun-14	23.6				12.6	8.4	44		
17-Jul-14	12.4	59.8	2.8	1.8		4	8.6		
19-Aug-14	12.8	60	2.8	1.8		4.3	8.9		
23-Sep-14	12.6	63.4	5.6	2.2	8	4.2	7.8		
23-Oct-14	16.8	24.2	3.6	0.6		2.2	0.4		
5-May-15	20	19.8	13.8	12.2			9		
16-Jun-15	4	5.4				18.4	28		
14-Jul-15	12	2				3	0.8		
14-Aug-15	240.8	299				Average of 3	2,4		
16-Sep-15	200	291.6				67	3.4		
13-Oct-15						66.2	27		

Water Quality Suspended Substances (Mg/l) sub-title

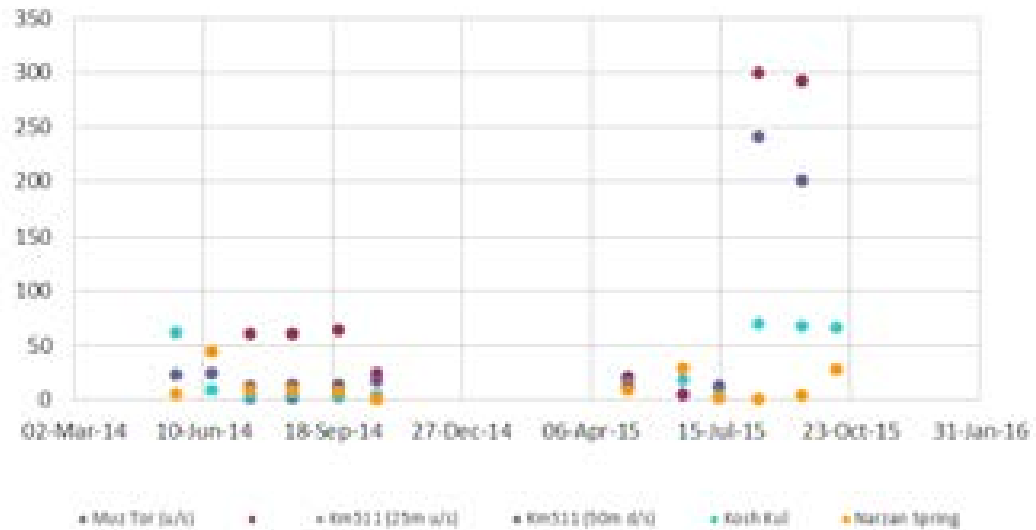


Figure 36: Water Quality Monitoring plots - Suspended Substances

Table 17: Water Quality - Chlorides

Chlorides (mg/l)	Muz Tor River		Small River		Chatyr Kul	Kosh Kul	Narzan Spring	Min	Max	
	Muz Tor (u/s)	Muz Tor (d/s)	Km511 (25m u/s)	Km511 (50m d/s)						
18-Jul-13	6.1				444	32	234	-	300	
14-Aug-13	5		16			40	224	-	300	
25-Sep-13	6.1		15			9	234	-	300	
30-Oct-13	17		16			15	11	-	300	
21-May-14	6.1				409	224	234	-	300	
17-Jun-14	8.51				63.8	21/ 22 June 13 - Average of 4				
17-Jul-14	7.1	7.1	32	30						
19-Aug-14	9.22	9.93	26	27						
23-Sep-14	11	9.2	25	26	8	76	82	-	300	
23-Oct-14	8.7	9.4	17	16		67	14	-	300	
5-May-15	11	11	8.5	8.5			7.8	-	300	
16-Jun-15	7.1	6.4				8.5	8.5	-	300	
14-Jul-15	8.7	10				20	42	-	300	
14-Aug-15	8.1	8.1				7.4	13	-	300	
16-Sep-15	29	32				Average of 3		9.2	-	300
13-Oct-15						53	11	-	300	

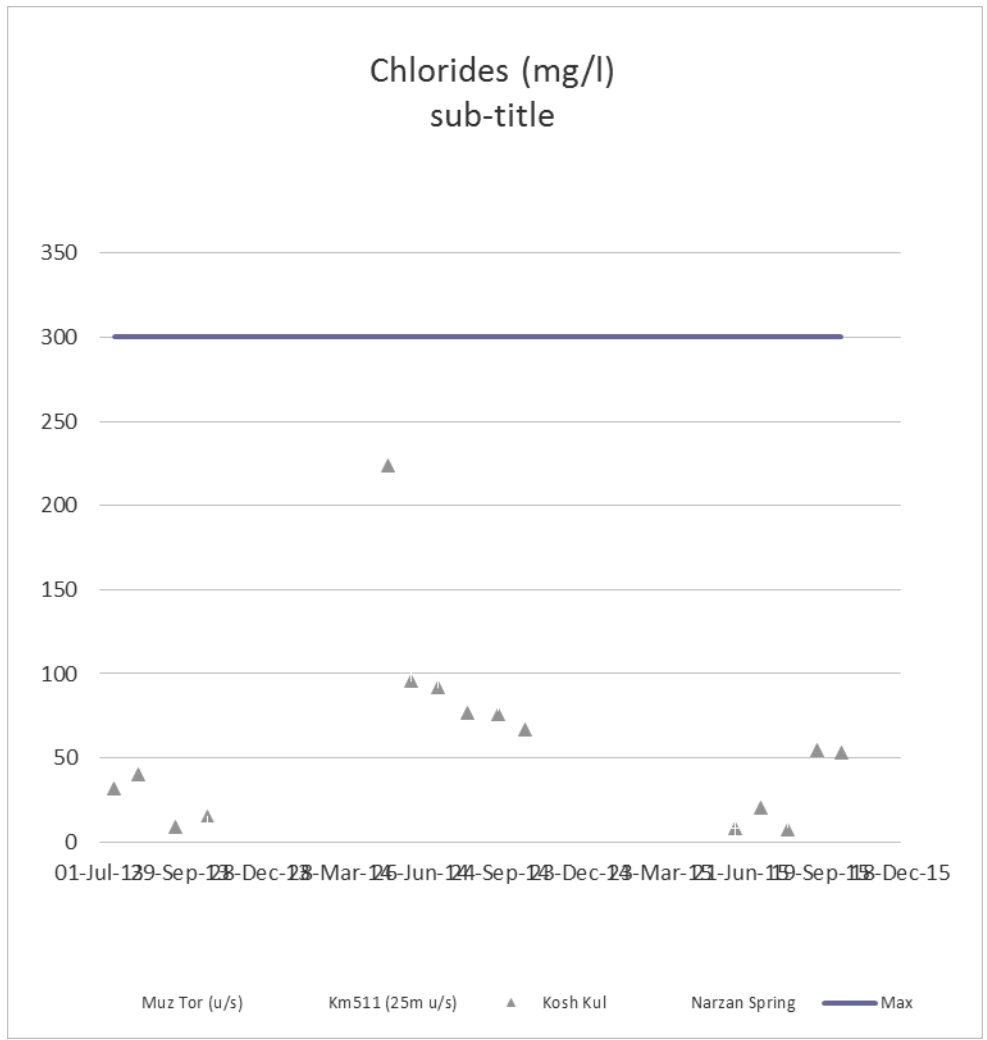


Figure 37: Water Quality Monitoring plots - Chlorides

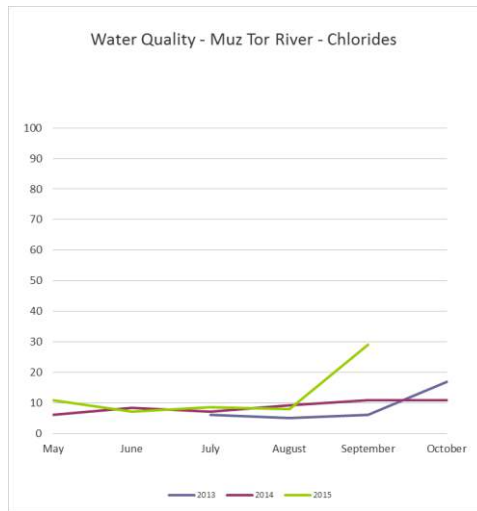


Figure 38: Air Quality Monitoring plots - Chlorides (Annual variation)

Table 18: Water Quality –Dissolved Oxygen

Dissolved Oxygen	Muz Tor River		Small River		Chatyr Kul	Kosh Kul	Narzan Spring	Min
	Muz Tor (u/s)	Muz Tor (d/s)	Km511 (25m u/s)	Km511 (50m d/s)				
17-Jun-14	9.18				9.83	9.68	10.74	4
17-Jul-14	8.38	8.31	5.51	4.31		9.76	10.01	4
19-Aug-14	8.16	8.2	5.32	4.23		8.67	8.97	4
23-Sep-14	7.53	7.5	6.43	7.03	8	7.33	7.09	4
23-Oct-14	7.33	7.44	5.24	4.81		7.15	6.54	4
5-May-15	7.93	8.3	7.69	8.61			7.1	4
14-Jul-15	7.05	7.01				6.3	5	4
14-Aug-15								4
16-Sep-15	9.9	9.4				10	7.1	4
13-Oct-15						9.2	7.8	4

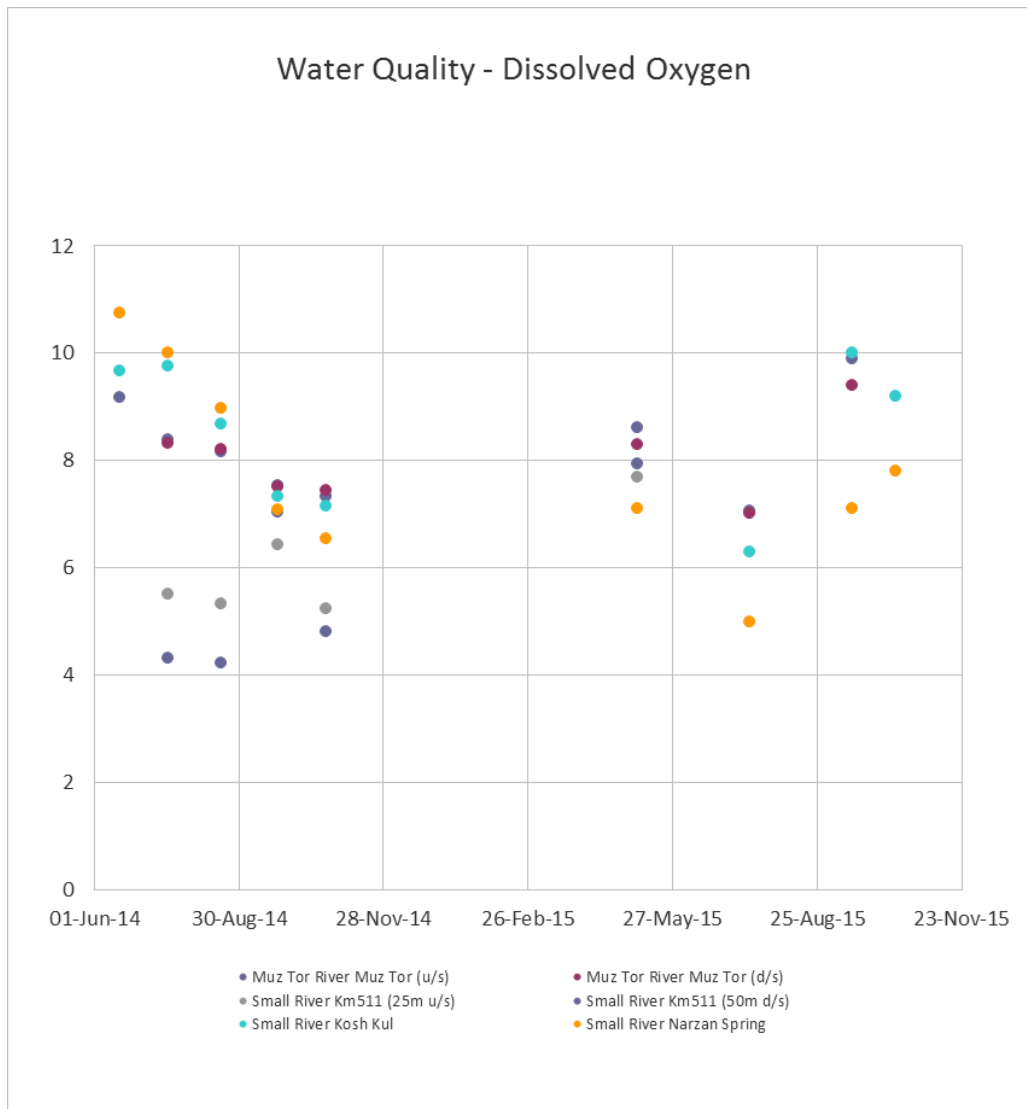


Figure 39: Air Quality Monitoring plots - Dissolved Oxygen

Nitrates, Oil Products Copper, Zinc, Cadmium and Lead are all below the MPL and detection limit of the meters.

Annex 2: Photographs

PHOTOGRAPHS



Figure 40: Looking from Camp into the KJSNR (October 2013)



Figure 41: Looking from Camp into the KJSNR after first winter snow (October 31st 2013)



Figure 42: Looking from Camp into the KJSNR (8 May 14)



Figure 43: Looking from Camp into the KJSNR after first winter snow (October 22nd 2014)



Figure 44 Looking from Camp into the KJSNR (5 May 2015)



Figure 45: Trailers at Border Holding Area (Km 530)



Figure 46: Precast Concrete production, asphalt plant, crushing and grading areas



Figure 47: Borrow Pit #8 on Muz Tor River – Note Asphalt and Crushing Plant in distance



Figure 48: Truck refuelling at dedicated camp facility



Figure 49: Onsite refuelling of plant by dedicated refuelling truck



Figure 50: Dedicated On-site Medical Clinic at the Camp



Figure 51: Septic Tank installed behind Camp – Emptied to facility at Naryn



Figure 52: Overnight vehicle parking on rolled hardstanding



Figure 53: Waste bins in camp compound– Solid waste collected and disposed to At-Bashy



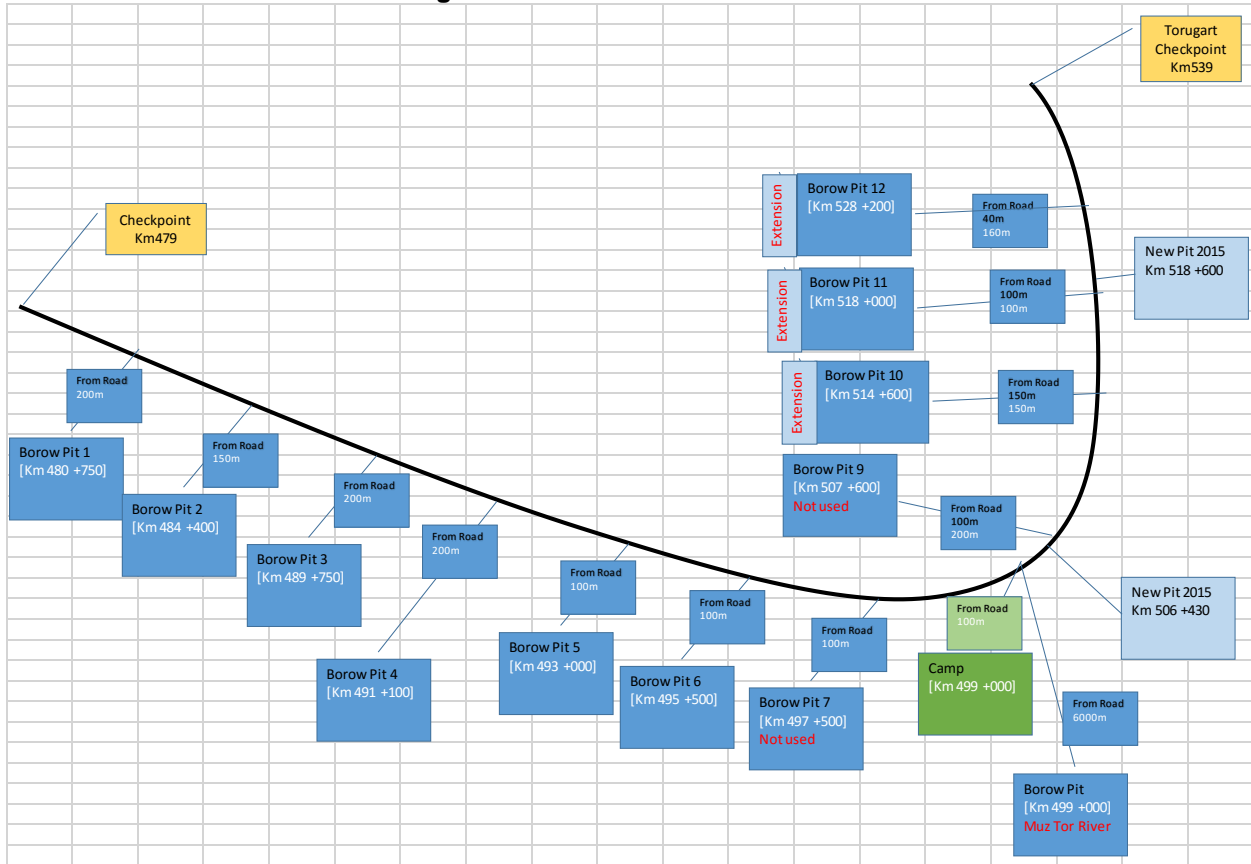
Figure 54: Oxygen equipment available at Camp medical centre



Figure 55: Camp accommodation. Note heat pumps and absence of litter

Annex 3: Status of Borrow Pits



Figure 56: Location of Borrow Pits






Borrow Pit # / Location	Date	Status	Photo – Status
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Section – 1



<p>#1</p> <hr/> <p>480+750 RHS</p> <hr/> <p>Volume 150,000m³</p> <hr/> <p>100 x 600 m</p> <hr/> <p>200m from road</p>	<p>June 15</p>	<p>Not started <input type="checkbox"/></p> <p>In progress <input type="checkbox"/></p> <p>Extraction complete <input type="checkbox"/></p> <p>Restoration phase <input checked="" type="checkbox"/></p>	 <p>Figure 57: Borrow Pit #1 – Extraction now completed (June 14)</p>
	<p>Sept 15</p>		 <p>Figure 58: Borrow Pit #1 (Sept 15) – Restoration complete</p>



Borrow Pit # / Location	Date	Status	Photo – Status
<p>#2</p> <hr/> <p>484+400 RHS</p> <hr/> <p>Volume 240,000 m³</p> <hr/> <p>Area 600 x 200m</p> <hr/> <p>150m from road</p>	<p>June 2015</p>	<p>Not started <input type="checkbox"/></p> <p>In progress <input type="checkbox"/></p> <p>Extraction complete <input type="checkbox"/></p> <p>Restoration phase <input checked="" type="checkbox"/></p>	 <p>Figure 59: Borrow Pit #2 – Note active, topsoil stored on edge of pit for recontouring</p>
	<p>Sept 15</p>		 <p>Figure 60: Borrow Pit #2 (Sept 15) – Restoration complete</p>


Borrow Pit # / Location	Date	Status	Photo – Status
<p>#3</p> <hr/> <p>480+750 RHS</p> <hr/> <p>Volume 120,000m³</p> <hr/> <p>300 x 200 m</p> <hr/> <p>200m from road</p>	<p>June 2015</p>	<p>Not started <input type="checkbox"/></p> <p>In progress <input checked="" type="checkbox"/></p> <p>Extraction complete <input type="checkbox"/></p> <p>Restoration phase <input checked="" type="checkbox"/></p>	 <p>Figure 61: Borrow Pit #3 – Material extraction continued - Note stockpiles of topsoil</p>
	<p>Sept 15</p>		 <p>Figure 62: Borrow Pit #3 (Sept 15) – Restoration complete</p>


Borrow Pit # / Location	Date	Status	Photo – Status
<p>#4</p> <hr/> <p>491+100 RHS</p> <hr/> <p>Volume 480,000m³</p> <hr/> <p>800 x 300 m</p> <hr/> <p>200m from road</p>	<p>June 2015</p>	<p>Not started <input type="checkbox"/></p> <p>In progress <input type="checkbox"/></p> <p>Extraction complete <input type="checkbox"/></p> <p>Restoration phase <input checked="" type="checkbox"/></p>	 <p data-bbox="730 753 1843 781">Figure 63: Borrow Pit #4 – Material extracted in 2014 but now complete - access road cut</p>


Borrow Pit # / Location	Date	Status	Photo – Status
	Sept 15		 <p data-bbox="667 812 1396 844">Figure 64: Borrow Pit #4 (Sept 15) – Restoration complete</p>


Borrow Pit # / Location	Date	Status	Photo – Status
<p>#5</p> <hr/> <p>493+000 RHS</p> <hr/> <p>Volume 120,000m³</p> <hr/> <p>300 x 200 m</p> <hr/> <p>100m from road</p>	<p>June 2015</p>	<p>Not started <input type="checkbox"/></p> <p>In progress <input type="checkbox"/></p> <p>Extraction complete <input type="checkbox"/></p> <p>Restoration phase <input checked="" type="checkbox"/></p>	 <p data-bbox="667 727 1633 753">Figure 65: Borrow Pit #5 – Extraction in progress - Note stockpiles of topsoil</p>
	<p>Sept 15</p>		 <p data-bbox="667 1227 1402 1253">Figure 66: Borrow Pit #5 (Sept 15) – Restoration complete</p>



Borrow Pit # / Location	Date	Status	Photo – Status
<p>#6</p> <hr/> <p>495+500 RHS</p> <hr/> <p>Volume 120,000m³</p> <hr/> <p>300 x 200 m</p> <hr/> <p>100m from road</p>	<p>June 2015</p>	<p>Not started <input type="checkbox"/></p> <p>In progress <input checked="" type="checkbox"/></p> <p>Extraction complete <input type="checkbox"/></p> <p>Restoration phase <input checked="" type="checkbox"/></p>	 <p>Figure 67: Borrow Pit #6 – Extraction in progress – Note stockpiles of topsoil</p>
			 <p>Figure 68: Borrow Pit #6 (Sept 15) – Restoration complete</p>
<p>#7</p> <hr/> <p>497+500 RHS</p>	<p>Not Used</p>		


Borrow Pit # / Location	Date	Status	Photo – Status
<p data-bbox="249 267 296 297">#8</p> <hr/> <p data-bbox="216 334 329 396">Muz Tor River</p> <hr/> <p data-bbox="216 435 329 496">499+000 RHS</p> <hr/> <p data-bbox="216 535 329 597">Volume 3,000,000m³</p> <hr/> <p data-bbox="195 636 350 698">750 x 2000 m</p> <hr/> <p data-bbox="195 737 350 799">6000m from road</p>	<p data-bbox="388 334 459 396">May 2015</p>	<p data-bbox="487 300 646 329">Not started <input type="checkbox"/></p> <p data-bbox="487 401 646 430">In progress <input checked="" type="checkbox"/></p> <p data-bbox="487 501 646 563">Extraction complete <input type="checkbox"/></p> <p data-bbox="487 634 646 696">Restoration phase <input type="checkbox"/></p>	 <p data-bbox="667 711 1495 740">Figure 69: Borrow Area #8: Muz Tor River – Looking Downstream</p>


Borrow Pit # / Location	Date	Status	Photo – Status
	Sept 15		 <p data-bbox="667 1000 1904 1057">Figure 70: Borrow Pit #8 (Sept 15) – Extraction complete</p>


Borrow Pit # / Location	Date	Status	Photo – Status
<p data-bbox="249 267 296 297">#9</p> <hr/> <p data-bbox="212 332 333 362">In KJSNR</p> <hr/> <p data-bbox="212 397 333 459">507+600 RHS</p> <hr/> <p data-bbox="212 495 333 557">Volume 225,000m³</p> <hr/> <p data-bbox="191 592 354 621">450 x 250 m</p> <hr/> <p data-bbox="191 657 354 719">200m from road</p> <hr/> <p data-bbox="191 755 354 925">Decision “not to use” following trial pitting</p>	<p data-bbox="388 365 459 427">May 2014</p>	<p data-bbox="489 300 646 362">Not started <input checked="" type="checkbox"/></p> <p data-bbox="489 397 646 459">In progress <input type="checkbox"/></p> <p data-bbox="489 462 646 524">Extraction complete <input type="checkbox"/></p> <p data-bbox="489 560 646 621">Restoration phase <input type="checkbox"/></p>	 <p data-bbox="667 898 1787 927">Figure 71: Borrow Pit #9 – NW corner looking east before work (This pit will not be used)</p>


Borrow Pit # / Location	Date	Status	Photo – Status
<p>#10</p> <hr/> <p>In KJSNR</p> <hr/> <p>514+600 RHS</p> <hr/> <p>Volume 250,000m³</p> <hr/> <p>500 x 250 m</p> <hr/> <p>150m from road</p>	<p>21 May 2014</p>	<p>Not started <input type="checkbox"/></p> <p>In progress <input type="checkbox"/></p> <p>Extraction complete <input type="checkbox"/></p> <p>Restoration phase <input checked="" type="checkbox"/></p>	 <p data-bbox="667 964 1906 993">Figure 72: Borrow Pit #10 – NW corner looking east (prior to work)</p>

Borrow Pit # / Location	Date	Status	Photo – Status
<p>#10</p> <hr/> <p>In KJSNR</p> <hr/> <p>514+600 RHS</p> <hr/> <p>Volume 250,000m³</p> <hr/> <p>500 x 250 m</p> <hr/> <p>150m from road</p>	<p>10 June 2014</p>	<p>Not started <input type="checkbox"/></p> <p>In progress <input checked="" type="checkbox"/></p> <p>Extraction complete <input type="checkbox"/></p> <p>Restoration phase <input type="checkbox"/></p>	 <p>Figure 73: Borrow Pit #10 – Extraction in Progress (10 June 14)</p>
	<p>Sept 15</p>		 <p>Figure 74: Borrow Pit #10 (Sept 15) – Regrading of pit base in progress</p>



Borrow Pit # / Location	Date	Status	Photo – Status
<p>#11</p> <hr/> <p>In KJSNR</p> <hr/> <p>518+000 RHS</p> <hr/> <p>Volume 325,000m³</p> <hr/> <p>650 x 250 m</p> <hr/> <p>100m from road</p>	<p>21 May 2014</p>	<p>Not started <input checked="" type="checkbox"/></p> <p>In progress <input type="checkbox"/></p> <p>Extraction complete <input type="checkbox"/></p> <p>Restoration phase <input type="checkbox"/></p>	 <p data-bbox="737 1027 1839 1057">Figure 75: Borrow Pit #11 – NW corner look east (air & noise monitoring - prior to work)</p>

Borrow Pit # / Location	Date	Status	Photo – Status
<p>#11</p> <hr/> <p>In KJSNR</p> <hr/> <p>518+000 RHS</p> <hr/> <p>Volume 325,000m³</p> <hr/> <p>650 x 250 m</p> <hr/> <p>100m from road</p>	<p>Oct 2014</p>	<p>Not started <input type="checkbox"/></p> <p>In progress <input checked="" type="checkbox"/></p> <p>Extraction complete <input type="checkbox"/></p> <p>Restoration phase <input type="checkbox"/></p>	 <p data-bbox="814 706 1759 735">Figure 76: Borrow Pit #11 - Progress in October 2014 – North / West corner</p>

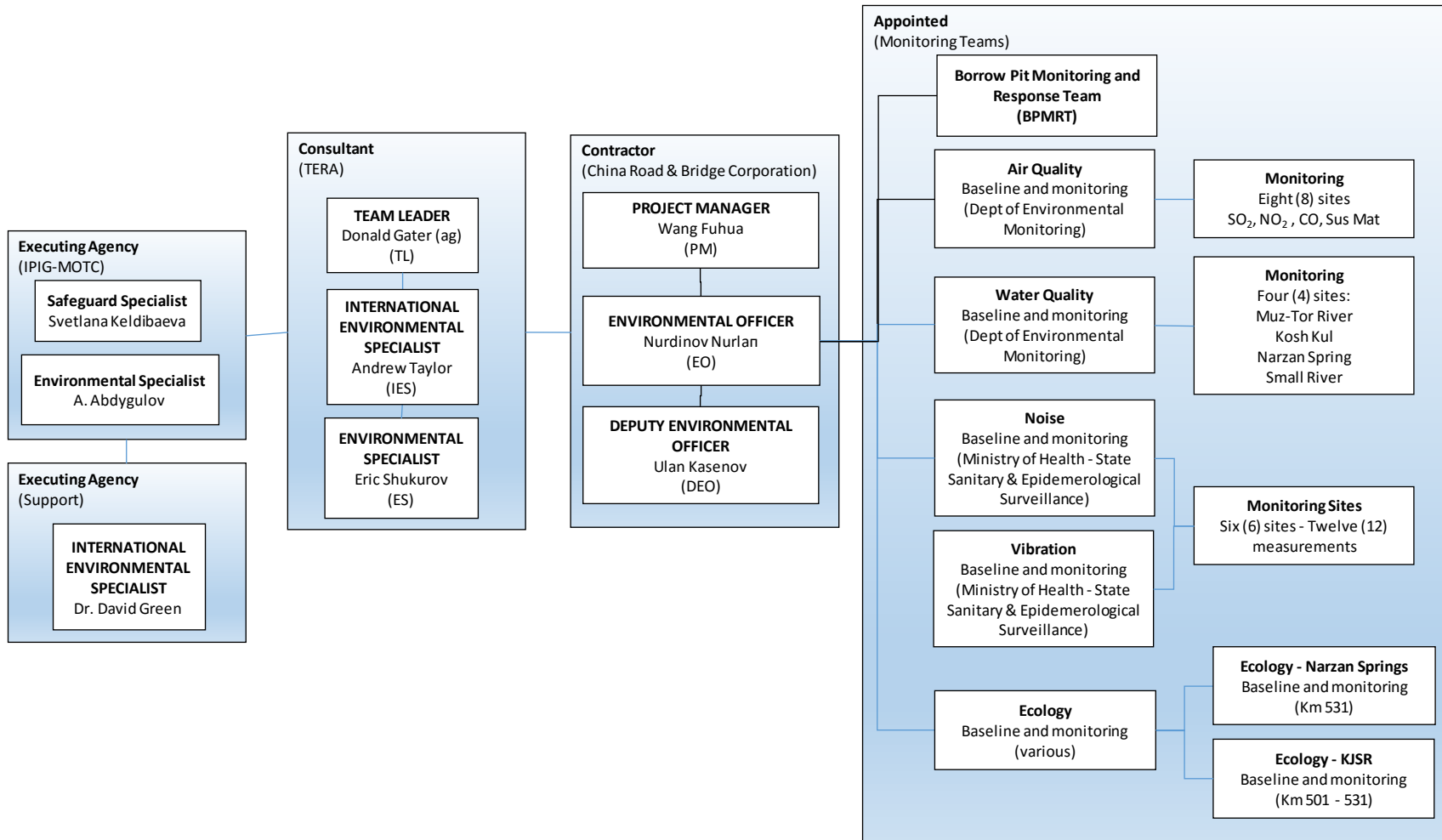
Borrow Pit # / Location	Date	Status	Photo – Status
	Sept 15		 <p data-bbox="667 932 1904 995">Figure 77: Borrow Pit #11 (Sept 15) – Regrading complete and topsoil relaid</p>

Borrow Pit # / Location	Date	Status	Photo – Status
<p data-bbox="241 267 304 300">#12</p> <hr/> <p data-bbox="199 332 346 365">In KJSNR</p> <hr/> <p data-bbox="210 397 336 462">528+200 RHS</p> <hr/> <p data-bbox="220 495 325 527">Volume</p> <p data-bbox="199 527 346 560">325,000m³</p> <hr/> <p data-bbox="189 592 357 625">650 x 250 m</p> <hr/> <p data-bbox="199 657 346 722">160m from road</p>	<p data-bbox="388 267 451 300">21</p> <p data-bbox="388 300 451 332">May</p> <p data-bbox="388 332 451 365">2014</p>	<p data-bbox="493 300 640 332">Not started</p> <p data-bbox="546 332 588 365"><input checked="" type="checkbox"/></p> <p data-bbox="493 397 640 430">In progress</p> <p data-bbox="546 430 588 462"><input type="checkbox"/></p> <p data-bbox="493 462 640 495">Extraction</p> <p data-bbox="493 495 640 527">complete</p> <p data-bbox="546 527 588 560"><input type="checkbox"/></p> <p data-bbox="493 592 640 625">Restoration</p> <p data-bbox="514 625 619 657">phase</p> <p data-bbox="546 657 588 690"><input type="checkbox"/></p>	 <p data-bbox="667 982 1774 1015">Figure 78: Borrow Pit #12 – NW corner look east (air & noise monitoring - prior to work)</p>

Borrow Pit # / Location	Date	Status	Photo – Status
<p>#12</p> <hr/> <p>In KJSNR</p> <hr/> <p>528+200 RHS</p> <hr/> <p>Volume 325,000m³</p> <hr/> <p>650 x 250 m</p> <hr/> <p>160m from road</p>	<p>June 2014</p>	<p>Not started <input type="checkbox"/></p> <p>In progress <input checked="" type="checkbox"/></p> <p>Extraction complete <input type="checkbox"/></p> <p>Restoration phase <input type="checkbox"/></p>	 <p data-bbox="974 1032 1604 1057">Figure 79: Borrow Pit #12 - Extraction in Progress</p>

Borrow Pit # / Location	Date	Status	Photo – Status
<p>#12</p> <hr/> <p>In KJSNR</p> <hr/> <p>528+200 RHS</p> <hr/> <p>Volume 325,000m³</p> <hr/> <p>650 x 250 m</p> <hr/> <p>160m from road</p>	<p>Oct 2014</p>	<p>Not started <input type="checkbox"/></p> <p>In progress <input type="checkbox"/></p> <p>Extraction complete <input type="checkbox"/></p> <p>Restoration phase <input checked="" type="checkbox"/></p>	 <p data-bbox="890 818 1690 846">Figure 80: Borrow Pit #12 - Progressive restoration in Progress</p>
	<p>Sept 15</p>		 <p data-bbox="667 1300 1528 1328">Figure 81: Borrow Pit #12 (Sept 15) – Regraded and topsoil respread</p>

Annex 4: Organisation Chart for Environmental Management (2014 Season)



Annex 5: Borrow Pit Monitoring and Response Team Workshop (10 June 2015)

Annex 6: RMU Workshop on Spill Control (22 Sept 2015)

Annex 5: Borrow Pit Monitoring and Response Team Workshop (10 June 2015)

Кыргызская Республика Транспортный коридор-1,
 ЦАРЭС (автодорога «Бишкек – Торугарт») Проект 3
 Участок Км 479 – 539

**CAREC Transport Corridor 1 (Bishkek – Torugart Road) Project 3
 BNT3 – Km 479 to 538**

Встреча – Meeting: Borrow Pit Monitoring and Response Team Workshop

расположение / Location: Conference Room of the Engineer, Km501 CRBC Camp

дата / Date: 10 June 2015 время / Time: 10:00 – 11:15 and 13:30 - 14:30 (on-site)

Present		Role	Organisation
1	Zhang Yi ^{note 1}	Deputy Project Manager (BPMRT)	China Road and Bridge Construction (CRBC)
2	Gao He Long	Chief Engineer (BPMRT)	
3	Ruslan Tuhtamatov	Materials Engineer	
4	Ulan Kasenov ^{note 1}	Deputy Environmental Officer (BPMRT)	
5	Ma Yu Ming	Translator	
1	Tumaev Kylychbek ^{note 1}	Hunter	Karatal-Japaryk State Nature Reserve (KJSNR)
1	Beksultanov Mirlan ^{note 1}	Inspector	TERA International Group Inc.
2	Koichubaev Janybek ^{note 1}	Pavement Engineer	
3	Suyun Kalil Uulu ^{note 1}	Translator	
4	A Taylor ^{note 1}	International Environmental Consultant	

Note 1: Attendee at the BPMRT workshop held on 14 May 2014

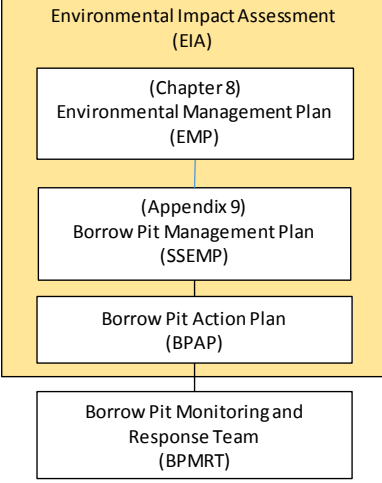
Abbreviations and references

In these notes the organisation “Karatal-Japaryk State Nature Reserve” is referred to as KJSNR and the site as “the Reserve”		
BPMRT	Borrow Pit Monitoring and Response Team	A CRBC team inspecting environmental performance
CRBC	China Road and Bridge Construction	The Contractor
MOTC – IPIG	Ministry of Transport and Communications - Investment Projects Implementation Group	The Implementing Agency
KJSNR	Karatal-Japaryk State Nature Reserve	Ecological Stakeholder
TERA	TERA International Group Inc.	The Engineer

1	Introduction
1.1	The workshop opened with welcome and introductions by TERA. The sensitivity of working inside the Reserve was acknowledged. A dedicated team (the Borrow Pit Monitoring and Response Team [BPMRT]) had been formed to monitor environmental performance of borrow pits that will be operated within the Reserve.
1.2	In 2013 work was outside the Reserve. In 2014 and 2015 work is carried out within the Reserve. Three borrow pits operated within the Reserve in 2014.
1.3	TERA noted that a similar workshop was held on 14 th May 2014 and this meeting would build on that workshop and experiences of the 2014 construction season.
2	Importance of the KJSNR
2.1	TERA highlighted the details of the KJSNR and the Reserve presented by Omulomuraliev Talant (Deputy Director of the KJSNR) at the last workshop.
2.2	The KJSNR was established in 1994 to conserve an area of unique and complex nature and protect rare and threatened species of flora and fauna. The KJSNR [21,016 hectares / 51,930 acres] is made up of three areas Song-Kul (wetland), Karatal-Achatash (forest / gorge) and Chatyr-Kul (wetland). The size of the reserve makes monitoring, research and control a challenge.
2.3	Chatyr-Kul is located at an altitude of 3,500m and is 48km long and 28 km wide. It occupies the Central Tien-Shan and is a unique site in Central Asia. Though not studied in all aspects, it is known to contain IUCN red list ¹ fauna and is acknowledged to be an important wetland for over 50 species of waterbirds. It was declared a Ramsar site in 2005 in recognition of its diverse ecosystem and vulnerability ² . The high altitude and fragile ecology mean that it is difficult to restore populations that are disturbed.
2.4	Provisions were made in 2011 to create a special protected zone for Chatyr-Kul, principally making the wetland a “no access” area. This “no access” requirement needs to be reinforced by signage. In relation to the Project, KJSR asked CRBC to ensure that all workers were aware of this requirement. They also advised that any violation is provided for in recently reinforced environmental regulations (Article 160) that allow fines of upto One Million com.
2.5	The remit of the KJSNR is to provide: <ul style="list-style-type: none"> • Preservation of animals and plants; • Restoration of flora and fauna; • Carry out monitoring of bio-indicators; • Cultivate information awareness; and • Capacity building for the Reserve.
2.7	On items highlighted at the last workshop TERA reported that:
2.8	(1) Signboards - Signboards had been erected at the eastern and western entrances to the Reserve and five have been erected along the road along the south and west shore of Chatyr Kul between lake and road.
2.9	(2) Fish Spawning – Last year KJSNR noted that fish spawning (laying of eggs) will occur in the river leading to Kosh Kul in the period 15 May to 15 June and requested that any (bridge) work in this area should be agreed with KJSNR. This was noted, though it was not on the CRBC programme to be working in the area at that time.

¹ International Union for Conservation of Nature (IUCN) Red List of Threatened Species

² Ramsar Wetland of International Importance – Designated on 8th November 2005 as Site No. 1588

2.10	<p>Key points directed to CRBC were that there must be:</p> <ul style="list-style-type: none"> • no access to the Lake; • no fishing, hunting, poaching or killing of any animals in the KJSNR; and • no taking eggs of nesting birds. <p>Environmental regulations have been reinforced and there are fines of upto one Million com.</p>
3.	Controlling environmental documentation
3.1	<p>The Environmental Impact Assessment (EIA) is the primary document setting out the requirements for the design, construction and operation of the BNT3 Project. Due to the sensitivity of the KJSNR there are very specific procedures identified for work inside the KJSNR and in particular the operation of Borrow Pits. A Borrow Pit Management Plan (BPMP) is included as Appendix 9 to the EIA and sets out why borrow pits were selected and how they will be operated in order to comply with the requirements of the EIA. The BPMP is supported by a Borrow Pit Action Plan (BPAP) prepared by the Contractor. The BPAP sets out how the Contractor will operate borrow pits and contains the details of permissions obtained. The BPAP includes provision for a dedicated Borrow Pit Monitoring and Response Team (BPMRT), a contractor organized team tasked with carrying out daily monitoring of borrow pit activities within KJSNR. The following sketch indicates how the environmental documentation is linked.</p>
	 <pre> graph TD EIA[Environmental Impact Assessment (EIA)] --> EMP["(Chapter 8) Environmental Management Plan (EMP)"] EMP --> SSEMP["(Appendix 9) Borrow Pit Management Plan (SSEMP)"] SSEMP --> BPAP[Borrow Pit Action Plan (BPAP)] BPAP --> BPMRT[Borrow Pit Monitoring and Response Team (BPMRT)] </pre>
3.2	<p>During the 2013 construction season 12 borrow pits were identified to produce construction materials for the Project road. The use of the 8 borrow pits outside the Reserve (from Km479 to Km500) was determined by MOTC and the Consultant. The use of four borrow pits from Km501 to Km532 in the Reserve (Km507, Km514, Km518 & Km 528 all on left side) was determined with additional input from ADB, SAEPF and the KJSNR.</p>
3.3	<p>At the start of the 2014 construction season borrow pit Km507 was found to have insufficient suitable gravel material and was not developed, there was sufficient material in other borrow pits to service the project through the 2014 season. But, in order to supply sufficient materials for 2015 the Contractor proposed developing one additional borrow pit outside the Reserve (Km499 left), extension of the three existing borrow pits (Km514, Km518 & Km 528 left side) and development of three new pits (Km506 & Km518 right side and Km508 left side).</p>
3.4	<p>The use of these six pits in KJSNR and one pit at Km499 left was determined by joint agreement of MOTC, the Consultant, ADB, SAEPF and the KJSNR. However subsequent analysis during preparation of the Amended Borrow Pit Management Plan (ABPMP) resulted in the pit at Km508 being removed. The details and validation are presented in the ABMP, approved by ADB, March 2015 and forming Appendix 9 of the Project EIA.</p>
3.5	<p>Therefore for the 2015 construction season, approval has been granted for two new borrow pits at Km506 (right) and Km518 (right) and the extension of existing pits Km 514 (left), Km 518 (left) and Km 528 (left).</p>
4	<p>Introducing System of Observations, Opportunities for Improvement and Non-Conformity</p>



4.1	TERA introduced a graded system of ranking environmental incidents on site. It follows the proven “near miss” reporting methodologies used on construction sites. The Near Miss approach is based on the observation that a major incident (non-conformity) is generally preceded by a series of minor incidents (not directly life or environmentally threatening). Identifying and addressing the minor incidents removes the path to major incidents (non-conformities) occurring.
4.2	The current method of recording incidents on the Site Inspection Checklist allows only one response for minor or major incident - identification as a non-conformity. Particular Specification Sub Clause 4.18 - Protection of the Environment identifies three levels of Non-compliance Level I, Level II and Level III (see attachment).
4.3	In order to introduce reasoned analysis of incidents identified on-site it is proposed that there levels of incident reporting are available: <ul style="list-style-type: none"> • Observation: No discernible environmental impact on the site. • Opportunity for Improvement: Minor impact that is reversible with minor intervention. • Non-conformity: Major incident requiring significant resources to rectify.
4.4	When an incident is identified the observer assigns it as an Observation, Opportunity for Improvement or a Non-conformity. Only a Non-conformity requires the issue of a Corrective / Preventative Action Request generated by TERA. Observations and Opportunities for improvement are relayed verbally to the supervisor at site, recorded on the site audit sheet and summarised in monthly reporting.
5	Review of checklists for borrow pits in KJSNR
5.1	The view of the workshop was that the checklists effectively cover the likelihood of identifying an environmental incident that may occur on-site.
5.2	It was proposed to modify the checklists to have both English and Russian language on the same sheet rather than the current arrangement of separate English and Russian language sheets.
5.3	An additional column will be added to the right hand side of the sheet to allow reporting of non-conformities under the three levels of “observation, opportunity for improvement” and non-conformity.
5.4	The new forms would be formally issued for use early next week.
6	Break for Lunch - Lunch was provided at CRBC and TERA canteens between 12:00 to 13:00
7	On Site
7.1	The afternoon session was an exercise on the use of checklists at a borrow pit within the KJSNR. Exercises will include the steps to be taken on the identification of an incident on site. Borrow pits at Km 414 and Km 518 were visited. Both were in operation at the time of the visit.
8	Closeout
8.1	TERA will revise the site inspection checklists (new lists attached) in line with comments and issue to the site team for use in the 2015 construction season.
8.2	The monthly project reports and six monthly Environmental Monitoring Reviews will summarise the information obtained from the site inspection checklists.
8.3	The on-site meeting concluded with thanks to all attending by Andrew Taylor (TERA)
8.4	Attendees dispersed from the Km501 camp at 15:30

Attachments:

- 1) Attendance sheet for the workshop
- 2) The Three Levels of Non-compliance
- 3) Draft copy of the new 2015 borrow pit checklist for BPMRT.



Attachment 1: Attendance Sheet

Кыргызская Республика
Транспортный коридор-1, ЦАПС
(автодорога «Бишкек – Торугарт») Проект 3
Участок Км 479 – 539

CAREC Transport Corridor 1 (Bishkek – Torugart Road) Project 3
BNT3 – Km 479 to 535

Встреча - Meeting

тема / Subject: Workshop on Border Post Monitoring & BPMRT

Местоположение / Location: CRBC Construction Camp km 501

дата / Date: 10 July 2015 время / Time: 10:00

Присутствовавший / Attending:

Организация Organisation	название Name	положение Position	Телефон Telephone or по электронной почте email
TERA	ANDREW TAYLOR	INTERNATIONAL ENVIRONMENTAL DIVISION	0550 5437 38 ataylor@terainc.org
CRBC	Duslan Tuhemmanov	miscellaneous Eng	0552 956410 duslan.tuhemmanov@gmail.com
TERA	Kairambayev Janysh	resident exp	0552 710102
TERA	Bekbulmatov Maken	inspector	+778714474
CRBC	Kosonov Olan	Exp. Eng.	0555 159905
CRBC	Zhang Yi	Deputy P.M.	0558168788
CRBC	Gao Helong	Chief Engineer.	0534357760
CRBC	Ma Yu Ming	Interpreter	055255760
КРБС Коргоочу Инженер	Jyngal Janysh	exp	0552420031
TERA	Kalilvaliev Sevan	Translator	857 755587
END			

Meeting Ended: 11:15



Attachment II: Documenting Environmental Incidents - Levels of Non Compliance

Documenting Environmental Incidents

The following table sets out how Potential Environmental incidents (termed Non-compliance in the Particular Specification Sub Clause 4.18 - Protection of the Environment) will be addressed on site.

The approach follows internationally established Health, Safety and Environmental (HSE) procedures designed to protect and enhance environmental performance on-site.

Non Compliance as set out in Particular Specification Sub Clause 4.18		What it means on site	Reported by?	In site reporting as:
Level I	A non-compliance situation not consistent with the requirements of the EMP, but not believed to represent an immediate or severe social or environmental risk.	An unplanned and undesirable event is observed where there was no damage to the environment but there could have been.	Everyone on site. Responsibility of the BPMRT to educate the workforce	An “ observation ”
	Repeated Level I concerns may become Level II concerns if left unattended.			
Level II	A non-compliance situation that has not yet resulted in clearly defined damage or irreversible impact but which potential significance requires expeditious corrective action and site specific attention to prevent severe effects.	e.g. where containers aren’t properly sealed but are on a hardstanding or within a bund so any spill would be contained.	The teams responsible for carrying out the regular site audits.	An “ Opportunity for Improvement ”
	Repeated Level II concerns may become Level III concerns if left unattended.			
Level III	A critical non-compliance situation, typically including observed significant social or environmental damage or a reasonable expectation of very severe impending damage.	Were a situation exists, or with potential to create a situation, where there is damage to the environment. e.g. where containers aren’t properly sealed <u>and</u> they aren’t within a bund or hardstanding and close to a sensitive area like a river or stream	Includes TERA, KJSNR, MOTC.	A “ Non-conformity ”
	Intentional disregard of specific prohibitions is also classed as a Level III concern.			

Attachment 3 - 2015 borrow pit checklist for BPMRT.

**CAREC Transport Corridor 1 (Bishkek – Torugart) Project 3: Km 479 to 538 - Borrow Pits Inside KJSR
SITE INSPECTION CHECKLIST for BORROW PIT OPERATION in 2015
Контрольный список инспекции участка по Границам КАРЬЕРОВ 2015**

DD/MM/YY: ___ / ___ / ___ HH/MM: ___ / ___, ___ / ___, ___ / ___ Inspection by: CRBC / TERA / KJSNR / IPIG

Borrow Pit: _____ / 506 + 430 R / 514 +600 (L) / 518 +000 (L) / 518 +600 R / 528+200

Weather:

--	--	--	--

 Wind:

Nil			
-----	--	--	--

 Temp: °C

		OK	Action Needed	>	Observation	Opportunity	Non-conformity	Remarks
A Ecology								
1	Any ecological activity at the site or surrounding area Экологическая деятельность на участке или вблизи	<input type="checkbox"/>	<input type="checkbox"/>	>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2	Other: _____	<input type="checkbox"/>	<input type="checkbox"/>	>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
B CUT FACES AND EXTRACTION DEPTHS / СРЕЗ ПОВЕРХНОСТИ И ГЛУБИНА КАРЬЕРА:								
1	Edges of the borrow pit are stable and no steeper than 1:3. Откосы карьеров укреплены и не круче 1:3	<input type="checkbox"/>	<input type="checkbox"/>	>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3	Excavation is more than 1m above the water table. Экскавация больше 1 метра над уровнем грунтовых вод	<input type="checkbox"/>	<input type="checkbox"/>	>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
C REFUELING / ЗАПРАВКА								
1	Truck refueling carried out at Km 501 (Construction camp) Заправка грузовиков осуществляется на км 501 (Строительный лагерь)	<input type="checkbox"/>	<input type="checkbox"/>	>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2	Excavator refuelling carried out at dedicated refueling area (DRA). Заправка экскаваторов осуществляется на специальной площадке для заправки (СПЗ).	<input type="checkbox"/>	<input type="checkbox"/>	>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3	Is DRA impervious (steel) with edge bunding to contain any fuel spillage На СПЗ имеется непроницаемый (стальной) материал с согнутыми концами для улавливания разливов ГСМ.	<input type="checkbox"/>	<input type="checkbox"/>	>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4	Only dedicated refueling vehicles with a hose and nozzle in the DRA Только специальные заправочные машины со шлангом и пистолетом	<input type="checkbox"/>	<input type="checkbox"/>	>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
5	Does the nozzle incorporate an automatic overfilling cut-off При заполнении бака пистолет автоматически блокируется	<input type="checkbox"/>	<input type="checkbox"/>	>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
D SPILLAGE								
1	Are any vehicles on site leaking oil. На участке течет ли из машин масло	<input type="checkbox"/>	<input type="checkbox"/>	>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2	Any spillage of oily or hydrocarbon fuel material Разлив ГСМ или углеводородного топлива	<input type="checkbox"/>	<input type="checkbox"/>	>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
E DUST / ПЫЛЬ								
1	Any visible dust clouds from borrow pit activity. Видимые облака дыма из-за работ на карьере	<input type="checkbox"/>	<input type="checkbox"/>	>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2	Are vehicles within the borrow area travelling at low speeds (<10 km/h). Машины ездят на маленькой скорости на карьерном участке (<10 км/ч)	<input type="checkbox"/>	<input type="checkbox"/>	>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
F SOLID AND HAZARDOUS WASTE / ТВЕРДЫЕ И ОПАСНЫЕ ОТХОДЫ								
1	Is there a solid waste / hazardous material collection point? Имеется ли место для сбора твердых отходов /опасных веществ?	<input type="checkbox"/>	<input type="checkbox"/>	>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2	For hazardous material (e.g. oil). Is there a leak proof container with lid Относительно опасных веществ (например, масло). Имеется ли герметичный контейнер с крышкой?	<input type="checkbox"/>	<input type="checkbox"/>	>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3	Is the leak proof container on an impervious surface or drip tray Под герметичным контейнером имеется непроницаемая поверхность или поддон.	<input type="checkbox"/>	<input type="checkbox"/>	>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4	Is there a backup container. (one active and one in reserve). Имеется ли запасной контейнер (один используется, а второй – в запасе).	<input type="checkbox"/>	<input type="checkbox"/>	>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
G OTHER OBSERVATIONS								
		<input type="checkbox"/>	<input type="checkbox"/>	>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

CRBC Representative

TERA Representative

KJSNR Representative

Annex 6: RMU Workshop on Spill Control (22 Sept 2015)

Accidental Spill Emergency Response & Clean Up

*Dr. David Green International Environmental Specialist MOTC IPIG
Mr. Andrew Taylor TERA International Group Inc.*

10:00 – 10:10	Welcome and Introductions
10:10 – 10:30	Purpose of the workshop
10:30 – 10:45	Containment and clean-up
10:45 - 11:00	Lines of Responsibility and Reporting –
11:00 - 11:30	Protect yourself - Safety First!
11:30 – 11:45	Personal and containment / clean-up equipment
11:45 - 12:00	Checklists to be used at spills

Purpose of this workshop – WHY? – need to clean up

The Chatyr Kul lake is a special habitat protected by law

Need to prevent any accidentally spilled materials entering the water

Workshop will explain what to do in emergency - roads and drains

Special drains will be located at side of road to catch any spilled materials

Need to check and clean out drains on a monthly basis

Need to clean up any accidental spills from accident or vehicle overturned

Must remove cleaned up soil and liquids from the roads and drains

Must dispose of the clean up waste to At-Bashy

Need to clean up Road and Drains – WHEN?

As soon as possible after spill – same day if at all possible (before dark)

No later than next morning - at least contain / block the spill

Clean up soon so spill cannot spread out into ground

Clean up soon so spill cannot get into stream/river run to the lake

Take waste to At-Bashy or hold in drums and dispose next day

Must dispose of the clean up waste to At-Bashy.

Report incident to RMU – MOTC – BORDER POLICE WHEN?

As soon as possible after spill – same day (without fail - before dark)

Next morning if no telecom connection

Clean up soon so spill cannot spread out into ground

Clean up soon so spill cannot get into stream/river run to the lake

Take waste to At-Bashy or hold in drums and dispose next day

Must dispose of the clean up waste to At-Bashy.

Steps in Handling the Spill – How?

- **Step 1: Stop the spill.**
- **Step 2: Contain & recover spill (use sorbent).**
- **Step 3: Collect the contaminated sorbent.**
- **Step 4: Secure the waste.**

Steps in Handling the Spill (1)

- **Step 1: Stop the spill.**
- Trained properly qualified and equipped personnel
- Turn off nozzles or valves from the leaking container, if safe.
- Use wooden plug, bolt, band or putty on a puncture-type hole.
-

Steps in Handling the Spill (2)

Step 2: Contain and recover the spill.

If the spill or leak cannot be stopped,

- Catch flowing liquid using a pan, pail, hubcap, shovel or whatever is available.
- Spreading sorbent material, such as kitty litter / corn starch, sand, sawdust, wood chips, peat, synthetic sorbent pads, or dirt from the roadside can stop the flow and soak up the petroleum on pavement.
- Sorbents do not make petroleum nonflammable. Fire possible

Steps in Handling the Spill (3)

Step 3: Collect the contaminated sorbent.

- Brooms and shovels.
- Sweep up the sorbent material and put it into container.
- Buckets, garbage cans or barrels, plastic bags or on top of plastic sheeting.
- Remember to control ignition sources.
- Fresh granular sorbent such as sand can then be re-spread on a roadway to control the residual slipperiness.

Steps in Handling the Spill (4)

Step 4: Secure the waste.

- Disposal of the contaminated sorbent is RMU responsibility.
- Must not leave sorbent in the KJSNR reserve at the scene.
- If the spill is a very small spill from a car or a “mystery spill,” sweeping used sorbent onto a road's shoulder is better than leaving it on the roadway or not using sorbent at all.
Alternatively, a fire department may elect to take care of the contaminated sorbent. If so, collect and store the sorbent for later treatment or disposal.