

# Environmental Monitoring Report

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## MON: Western Regional Road Corridor Investment Program, Tranche 2

Prepared by Project Management Unit (Ministry of Road and Transport Development) for the Government of Mongolia and the Asian Development Bank.

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Asian Development Bank

# 2018

## ENVIRONMENTAL MONITORING REPORT: AUGUST TO OCTOBER, 2018



EMR 2018 NO.2

WRRICIP

12/29/2018

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**ABBREVIATIONS**

ADB	: Asian Development Bank
COMO	: Community Outreach Monitoring Officer
CW	: Construction Work
CSC	: Construction Supervision Consultant
dB	: Decibel
DEIA	: Detailed Environmental Impact Assessment
EA	: Executing Agency
EIA	: Environmental Impact Assessment
EMoP	: Environmental Monitoring Plan
EMP	: Environmental Management Plan
EMR	: Environmental Monitoring Report
EMS	: Environment Monitoring Specialist
H&S	: Health & Safety
GASI	: General Agency for Specialized Inspection
GoM	: Government of Mongolia
GRM	: Grievance Redress Mechanism
MRTD	: Ministry of Road and Transportation Development
MET	: Ministry of Environment and Tourism
PIU	: Project Implementation Unit
TSP	: Total suspended particulate
TSS	: Total Suspended Solids
WRRICIP	: Western Regional Road Corridor Investment Project



## 1 INTRODUCTION

### 1.1 ABOUT THE REPORT

The construction work has entered its final stages for two of the three civil work packages of the Tranche-2 phase of the Western Regional Road Corridor Investment Program in the second half of 2018. Environmental protection activities, implementation of mitigation measures and routine environmental monitoring performed by the contractor under supervision of the PIU in the reported period that are aimed to successfully complete implementation of the Environmental Management Plan have been summarized in this report. Hand-over of restored of borrow pits and quarry sites to local soum administration at CW1-1 and CW1-2 lot were the main focus of the reported period.

This Environmental Monitoring Report comprises of following sections:

- ❖ Section 1 of the report provides report structure, project location and the construction progress achieved in the reported period.
- ❖ Section 2 describes environmental responsibilities of the project within the framework of domestic regulations and ADB requirements.
- ❖ Section 3 summarizes mitigation measures implemented by the contractor in each aspect of safeguard, such as air quality, water, soil resources, health and safety. Status of rehabilitation of borrow and quarry sites are also included in this section.
- ❖ Section 4 provides results of the environmental monitoring activities carried out in the second half of 2018. Community engagement actions were also described in Section 4.
- ❖ Section 5 provides conclusion and recommendations for the next reporting period.

This report is prepared by the PIU Environmental and Social Consultant E.Hasar with inputs from the Contractors.

## 1.2 LOCATION OF THE PROJECT

The road is part of the Asian Highway network, Route 4 (AH4, 6,024 km), as shown in Figure 2, and is a designated Central Asia Regional Economic Cooperation (CAREC) Corridor 4a, which links Russia (Novosibirsk) with Pakistan (Karachi). The road network aims to increase connectivity, create linkages with Europe and develop trade across Asia. The road is therefore significant to the development of the western regions of Mongolia.

**Figure 1: Project location**



Source: ADB IEE, 2013.





Tranche-1 section is 300km road which connects Altai soum to Khovd city and was constructed between 2012-2015. Construction of the Tranche-2 section of the project has commenced on April 18, 2016. It connects Khovd city to Ulaanbaishint border crossing town and is divided into 4 lots. The contractor for the lots CW1-1 and CW1-3 is Huashi Enterprises Co., Ltd while the contractor for the lot CW1-2 is HKB International LLC. Inter Continental Technocrats (ICT) LLC has worked as the supervising consultant for all four lots of the Tranche-2. Lots CW1-1 and CW1-2 have completed asphalt pavement works at the end of August, 2018 while pavement works for the lot CW1-3 is expected to be completed by August 30, 2019.

### 1.3 CONSTRUCTION PROGRESS UPDATE

**Contract Package CW1-1:** The contractor employed a total of 32 construction workers in the second half of 2018, of which 12 are Chinese and 20 are local workers. A total of 36 equipments and machineries are mobilized in the reported period, of which 25 were rented equipments. Asphalt pavement works completed in August and borrow site restoration works are completed in September. As of October 30, 2018, cumulative construction progress was at 90.5%. The contractor withdrew most of its construction workforce and equipments as there are only some minor works are left for 2019. Below table shows construction status.

**Table 1. Linear progress of road works for the lot CW1-1 as of October 30, 2018.**

No.	Description of Works	Unit	Completed (km)
1	Road length under Package CW1-1	km	50.00
2	Site Clearance	Km	50.00
3	Embankment construction	Km	50.00
4	Sub-base	Km	50.00
5	1 <sup>st</sup> layer of Base Course	Km	50.00
6	2 <sup>nd</sup> layer of Base Course	Km	50.00
7	Asphalt concrete surfacing	km	49.50
8	1 <sup>st</sup> layer of Gravel Shoulder	Km	50.00
9	2 <sup>nd</sup> layer of Gravel Shoulder	km	50.00
10	Slope trimming	km	50.00
11	Excavation of side ditch	Km	51.92
12	T-junction	Nos	5
13	Road marking for centerline	Km	49.3
14	Guard rail	Km	14.47
15	Guide posts	Nos	613
16	Road signs	Nos	264





**Contract Package CW1-2:** The contractor employed a total of 36 construction workers in second half of 2018, of which 14 are Chinese and 22 are local workers. A total of 75 equipments and machineries are mobilized. Asphalt pavement works are already completed in CW1-2 lot by end of August, 2018. A couple of 150 meter long bridges were built over 2 main streams of Buyant river and a 30 meter long bridge have constructed over a dry riverbed. As of October 30, 2018, cumulative construction progress was at 94.00%.

***Table 2. Linear progress of road works for the lot CW1-2 as of October 30, 2018.***

No.	Description of Works	Unit	Completed (km)
1	Road length under Package CW1-1	km	56.60
2	Site Clearance	Km	56.60
3	Embankment in fill upto top layer	Km	56.33
4	Sub-base	Km	56.33
5	1 <sup>st</sup> layer of Base Course	Km	56.33
6	2 <sup>nd</sup> layer of Base Course	Km	56.33
7	Asphalt concrete surfacing	km	56.33
8	1 <sup>st</sup> layer of Gravel Shoulder	Km	56.33
9	2 <sup>nd</sup> layer of Gravel Shoulder	km	56.33
10	Junctions (T)	Nos	7
11	Junctions (+)	Nos	2
12	Junctions (Y)	Nos	2
13	Road marking for centerline	Km	56.6
14	Guard rail	Km	17.912
15	Guide posts	Nos	866
16	Road signs	Nos	256

**Contract Package CW1-3:** The contractor employed a total of 433 construction workers, of which 225 are Chinese and 223 are local workers in the second half of 2018. A total of 224 equipments and machineries are mobilized, including rented equipments, culvert manufacturing plant and crusher plant. Embankment up to top layer and sub-base works are completed. Asphalt pavement was layed out for 36.29km section. As of October 30, 2018, cumulative construction progress was at 57.36%. The construction works are expected to be completed by August, 2019.

**Table 3. Linear progress of road works for the lot CW1-3 as of October 30, 2018.**

No.	Description of Works	Unit	Completed
1	Road length under Package CW1-1	km	60.7
2	Site Clearance	Km	59.72
3	Embankment in fill upto top layer	Km	59.9
4	Sub-base	Km	56.46
5	1 <sup>st</sup> layer of Base Course	Km	57.7
6	2 <sup>nd</sup> layer of Base Course	Km	52.1
7	Asphalt concrete surfacing	km	36.29
8	1 <sup>st</sup> layer of Gravel Shoulder	Km	56.2
9	2 <sup>nd</sup> layer of Gravel Shoulder	km	36.29

Construction work progress for all three lots are summarized in below table.

**Table 4: Construction work progress rate for Tranche-2 section**

Lots	Start and end points	Length, km	Actual work progress rate as of October, 2018	Targeted work progress rate up to October 30, 2018
CW1-1	Shurga bridge to Khashaat pass	50 km	90.5%	92.08%
CW1-2	Khovd provincial center to Shurga bridge	56.6 km	94.0%	100.00%
CW1-3	Khashaat pass to Tolbo lake	60.7 km	57.36%	83.11%



## **2 ENVIRONMENTAL RESPONSIBILITIES**

### **2.1 ADB REQUIREMENTS**

The project is classified under category A. The ADB EIA for Tranche-2 was prepared in August 2010 and amended in 2013. It provided description of physical environment for the project area, assessment of impacts, environmental management plan and grievance redress mechanism for construction period. The EIA concluded that Tranche 2 will not have any significant, long term or irreversible impacts on the physical, biological or socio-economic environment. Implementation of the environmental management, mitigation, and monitoring programs specified in the EIA were in compliance with ADB and government environmental guidelines and procedures.

The ADB's Safeguard Policy Statement (SPS), 2009 is applicable to the project which seeks to avoid, minimize or mitigate the adverse environmental and social impacts of projects including protecting the rights of those people likely to be affected or marginalized by the development process.

### **2.2 DOMESTIC ENVIRONMENTAL REQUIREMENTS**

The main policy document is a set of environmental laws that were amended in May, 2012 including the Law on EIA. The purpose of the Law on Environmental Impact Assessment is to ensure environmental protection, the prevention of ecological imbalance, the regulation of natural resource use, the assessment of environmental impacts of projects and procedures for decision-making regarding the implementation of projects. The terms of the law apply to all new projects, as well as rehabilitation and expansion of existing industrial, service or construction activities and projects that use natural resources.

The Tranche-2 DEIA was approved by MET in 2016. This comprises of Environmental Protection Action Plan, Environmental Monitoring Plan, Cultural Heritage Protection Plan and Rehabilitation Plan. Required timeframe and frequency, responsible parties, budgets and corresponding domestic standards are specified in the Tranche-2 EMP. The key personnels of the contractors, including on-site environmental staffs, safety staffs, construction engineers and unit supervisors have attended EMP implementation trainings that were held at beginning of each construction season.



## 2.3 ROLES AND RESPONSIBILITIES

The project EMP defines the following key roles and responsibilities for Tranche 2 this includes:

- (i) **Executing Agency.** Ministry of Roads and Transportation Development (MRTD) will be the Executing Agency for the Project and is ultimately responsible for ensuring the implementation of the EMP;
- (ii) **Implementation Agency.** The Project Implementation Unit (PIU) resides within the Department of Roads (DOR) which is the Implementation Agency. The PIU will engage an Environmental Monitoring Specialist (PIU-EMS) to monitor implementation of the EMP;
- (iii) **PIU-EMS.** The PIU-EMS facilitates the implementation of the EMP and the grievance redress mechanism (GRM), have regular contact with the PIU and Supervising Engineer and prepare bi-annual environmental monitoring reports;
- (iv) **Supervising Engineer (SE).** The SE supervises the site environmental management system of the contractors, provide corrective instructions, and assist the contractors to implement the EMP;
- (v) **Soum based Community Outreach and Monitoring Officers (COMO).** The COMOs are the key entry point for the GRM. Three COMOs are engaged for each lot to ensure the GRM is disseminated and implemented at a local level, as well as undertaking consultations with residents to check EMP implementation;
- (vi) **Contractor.** Environmental responsibilities for the Contractors and their construction activities are stated in the Contract signed between the ADB, MRT and the contractors. On one hand, all the construction activities shall meet ADB's rules and standards regarding environmental protection, and on the other hand, it shall obey the environmental laws and regulations of Mongolia. The contractors for the lots CW1-, CW1-2 and CW1-3 are responsible for implementation of the measures specified in the EMP, thus they have employed permanent on-site environmental and safety staffs and contracted with local professional laboratories to carry out the tasks



### **3 IMPLEMENTATION OF THE ENVIRONMENTAL MANAGEMENT PLAN**

#### **A. OBJECTIVES OF THE ENVIRONMENTAL MANAGEMENT PLAN**

The updated EMP for the Tranche-2 section defines mitigation and monitoring measures and describes the institutions and mechanisms to monitor and ensure compliance. Specific measures are developed in relation to the design, construction and operation of each project component and the impacts identified in relation to physical, biological, cultural and socio-economic resources.

Key tasks for the contractors during implementation of the Environmental Management Plan are to:

1. Ensure that environmental requirements specified in the contract documents are adequately performed.
2. Carry out construction and supportive activities in compliance with all relevant Government laws, rules and regulations including environmental laws in force.
3. Manage construction works and operations to prevent or at least minimize adverse impacts on the environment.
4. Implement environmental protection and mitigation measures specified in the EMP.
5. Employ necessary personnel, local consultant to carry out environmental protection measures and monitoring activities.
6. Allocate a budget necessary for carrying out environmental monitoring activities.
7. Provide safeguard rules to protect workers from any accident and hazard associated with the construction operations and ensure protection of their health
8. Ensure protection of the health and welfare of road side communities by minimizing nuisance including pollution.
9. Observe the laws and other environmental regulations of the country and liaise with the Engineer and statutory authorities for the smooth and efficient operation to complete the Project.

#### **B. ENVIRONMENTAL PERSONNEL**

The PIU employs E.Hasar as the environmental monitoring consultant for the project who is responsible for facilitating implementation of the EMP, training contractors' environmental staffs and handling environmental issues related with the project on daily basis. He started working at



the PIU since January, 2014 and his contract was extended on April 01, 2016 through 2018 construction season.

The environmental monitoring consultant has visited the Project area 2 times in the second half of 2018, during August 20-24, and September 15-21. The field trips were aimed to i). carry out to environmental monitoring works ii). Active construction points, construction camps and nearby soum centers to undertake observations, measurements iii) organize interviews and meetings with environmental staff of the contractors and soum administration to find out existing problems iv) check out restoration of borrow areas.

Contact information of the on-site environmental staffs employed by the contractors is provided in below table.

**Table 5. On-site environmental staffs employed by the contractors**

Construction packages	Name of on-site environmental staff	Phone number
CW1-2	Ms.Dungaamaa	99806855
CW1-1	Mr.Uyanzorig	95590306
CW1-3	Mr.Muhamed	99973697

C.

### C. TRAININGS ORGANIZED

As part of his duties, the PIU environmental monitoring consultant has organized rehabilitation training for the contractors and their key staffs. Following table shows details of the rehabilitation field training conducted in August, 2018.

**Table 6. Trainings organized by PIU Environmental monitoring consultant**

Training	Date	Attendants	Key topics presented
Domestic rehabilitation standards and requirements	2018.08.20 – 2018.08.24	Tumenbayar – On-site safety staff of CW1-2 Uyanzorig – On-site environmental staff of CW1-1 Khurtsbaatar – Assistant to team leader at CW1-3	Rehabilitation requirements and methods, specifications for technical rehabilitation of borrow points



### 3.1 AIR QUALITY MANAGEMENT

As specified in the EMP, following mitigation measures have been implemented to minimize dust emission:

3. Asphalt plants and concrete batching plants is located at least 1000 m downwind from the nearest dwellings in order to reduce the impact of fumes on humans and to be fitted with necessary equipment such as bag house filters to reduce fugitive dust emissions.
4. The location of the stockpile is on downwind of sensitive receptors.
5. Dust monitoring is conducted at the monitoring spots on monthly basis to ensure dust level is within the maximum allowed level.
6. Earth material transporting vehicles started used blankets to prevent dust spread
7. Water is sprayed on construction sites and material handling routes where fugitive dust is generated. The CW1-1 construction team had 7, CW1-2 team had 6 and CW1-3 team had 8 water spray trucks respectively that had been deployed for watering the temporary roads, embankment construction sites, borrow points and quarry sites to reduce dust generation.

### 3.2 NOISE AND VIBRATION CONTROL

As specified in the EMP, following mitigation measures have been implemented in order to minimize noise and vibration:

As specified in the EMP, following measures are implemented to minimize noise impacts:

- ❖ Source control: Maintain all exhaust systems in good working order; undertake regular equipment maintenance;
- ❖ Locate sites for concrete-mixing and similar activities at least 500 m away from sensitive areas;
- ❖ Operate between 8am-6pm only and reach an agreement with nearby residents regarding the timing of heavy machinery work, to avoid any unnecessary disturbances;
- ❖ Provide advance warning to the community on timing of noisy activities.
- ❖ Noise monitoring regularly to ensure noise levels at construction sites are within the allowed limit





### 3.3 MANAGEMENT OF WATER RESOURCES

#### **CW1-1:**

The CW1-1 road crosses Shurga river at STA.45+952 and Hongio river at STA.16+823. The project road passes adjacent to the Hongio river in the Hongio valley between STA.16 and STA.8. A 54 meter long new bridge was built over the Hongio river at STA.16+823. Hongio river valley is a summer grazing area for local herders. In order to prevent from oil spills, the contractor has constructed a temporary deviation road embankment with culverts installed under it during the bridge construction.

#### **CW1-2:**

The only permanent surface water body in the CW1-2 road corridor is Buyant river which is the second largest river in Khovd province. The CW1-2 road crosses 2 streams of the Buyant river in the delta. 2 new bridges with length of 151 meters each was built over the river at the crossing points (STA.85+716 and STA.86+455). Another new bridge with length of 30 meters was built over a dry riverbed at STA.81+300.

In order to prevent oil spill from construction trucks, the contractor has constructed temporary deviation road embankments at 3 points over the river streams during the bridge construction.

#### **CW1-3:**

The main surface water bodies crossed by the CW1-3 road are Buraat and Hongor Ulun rivers. 15.1 meters long bridge was built over Hongor Ulun river at STA.100+718 and a 30.15 meters long new bridge was built over Buraat river at STA.78+890. Protection of the surface water resources from pollution is a critical task for the contractor. In order to prevent from oil spill, CW1-3 team has constructed river crossing embankments for deviation roads at 3 points for Buraat and Hongor Ulun rivers, at STA.72+500, STA.75+800 and STA.100+700 respectively. Culverts are installed under the deviation which allows water flow.

The provincial government of Bayan-Ulgii has requested to change the road alignment so that the project road traverses by western side of the city and a new bridge over Khovd river is required.

#### **Water quality protection measures implemented by all 3 construction lots**

As specified in the Tranche-2 EMP which was updated in 2016, the contractors' staffs were trained on relevant domestic regulations that helped raise their awareness on water protection zone. Water protection rules were imposed by construction team management at all three lots.



According to which, following activities that may pollute the river water in the water protection zone (200m on both sides of the river) are prohibited at :

- ❖ washing of trucks, cars and clothes
- ❖ making a toilet
- ❖ throwing garbage

The on-site environmental staff is responsible for ensuring the water protection rules implemented by construction workforce on daily basis by having routine site visits, checking and reporting.

The contractors are using Shurga, Hongio, Buyant, Hongor Ulun and Buraat river water for both drinking and construction purposes. They apply to the Khar Lake and Khovd River Basin Administration for obtaining Approval on Water Consumption before the start of construction season every year. The Approval on Water Consumption is a document that serves as permission to use water from the aforementioned rivers.

In order ensure control over water quality, the contractors are sub-contracted with local professional laboratories who send their professional staffs to conduct water quality monitoring on monthly basis. Water samples taken from the Buyant, Hongio, Shurga, Hongor Ulun and Buraat river is tested at the laboratory of the Institute of Meteorology of Khovd province.

As a result of proper implementation of the water protection measures, no any complaints regarding water pollution is received from the local communities and monthly water quality monitoring results showed the water quality is not affected by the construction works (detailed results of water quality monitoring is provided in Section 4).

### **3.4 MANAGEMENT OF SOIL RESOURCES AND REHABILITATION**

#### **CW1-1:**

The CW1-1 construction team has obtained permission on one quarry site and 13 borrow pits. The contractor has completed technical rehabilitation at all 14 borrow pits and the quarry site in accordance with the requirements specified in the national rehabilitation standards: MNS 5915-2008, MNS 5916-2008 and MNS 5917-2008. The quarry site for the lot CW1-1 is located neaby the main camp where the contractor produces aggregates for cement and asphalt concrete, graded crushed stone base course material located.

Erdeneburen soum governor U.Tserentogtokh, soum environmental officer H.Munkhjargal have visited 12 borrow sites and the quarry site that are located within the Erdeneburen soum territory and joined by CW1-1 Team Leader Li Zhao long on 25 September, 2018. After the visit, the soum government has issued an Acceptance Letter to the contractor which concludes that



the rehabilitation results meet the national rehabilitation standards and thus can be accepted. (please see Erdeneburen Government Acceptance Letter in Appendix ).

Tolbo soum land management officer B.Salauat, soum environmental officer H.Bahytkhan have visited 2 borrow sites that are located within the Tolbo soum territory and joined by CW1-1 Deputy Team Leader H.Unurtugs and site environmental staff Uyanzorig on 17 August, 2018. After the visit, the soum government has issued an Acceptance Letter to the contractor which concludes that the rehabilitation results meet national rehabilitation standards and thus can be accepted. (please Tolbo Government Acceptance Letter in Appendix 2.)

Below table summarizes rehabilitation details of the borrow and quarry sites for the lot CW1-1.

**Table 7. Summary of rehabilitation status for the lot CW1-1.**

No.	Location of borrow sites		Rehabilitation status	Date of hand over to local soum administration
1	STA.49+700	Erdeneburen soum	Completed	2018.09.25
2	STA.43+200	Erdeneburen soum	Completed	2018.09.25
3	STA.40+500	Erdeneburen soum	Completed	2018.09.25
4	STA.38+000	Erdeneburen soum	Completed	2018.09.25
5	STA.35+350	Erdeneburen soum	Completed	2018.09.25
6	STA.32+440	Erdeneburen soum	Completed	2018.09.25
7	STA.29+200	Erdeneburen soum	Completed	2018.09.25
8	STA.24+460	Erdeneburen soum	Completed	2018.09.25
9	STA.19+840	Erdeneburen soum	Completed	2018.09.25
10	STA.12+100	Erdeneburen soum	Completed	2018.09.25
11	STA.10+900	Erdeneburen soum	Completed	2018.09.25
12	STA.26+400 /quarry site/	Erdeneburen soum	Completed	2018.09.25
13	STA.5+700	Tolbo soum	Completed	2018.08.17
14	STA.2+200	Tolbo soum	Completed	2018.08.17

#### **CW1-2:**

The contractor used one quarry site and 14 borrow sites. The quarry site and crusher for CW1-2 construction team were located in 4 km distance from the main camp at STA.81+300 nearby Hatuu Hutul. The quarry site was chosen with consideration of distance from potential receptors (in 5km distance from nearest household) and quality of earth material. Since the asphalt pavement works are completed, the quarry site and crushers have stopped operation and closed in 2018. All the equipments and machineries were removed and site cleaning and



landfilling works are executed in August.

Khovd soum environmental officer Sh.Aibol have visited 7 borrow sites and the quarry site in the territory of Khovd soum together with CW1-2 Team Leader Zhang Shi chao and translator N.Khangai on 23 September, 2018. After the visit, the soum government has issued an Acceptance Letter to the contractor which concludes that the rehabilitation results meet national rehabilitation standards and thus can be accepted. (please Khovd soum Government Acceptance Letter in Appendix 2).

Erdeneburen soum governor U.Tserentogtokh, soum environmental officer H.Munkhjargal are joined by CW1-2 Team Leader Zhang Shi chao and translator N.Khangai and have visited 4 borrow sites in Erdeneburen soum territory on 12 September, 2018. After the visit, the soum government has issued an Acceptance Letter to the contractor which concludes that the rehabilitation results meet national rehabilitation standards and thus can be accepted. (please Erdeneburen Government Acceptance Letter in Appendix 2).

Jargalant soum government has issued an Acceptance Letter to the contractor which confirms rehabilitation of the borrow pit in the Jargalant soum territory is complete. (please Jargalant Government Acceptance Letter in Appendix 2).

Buyant soum governor M.Purev, soum environmental officer D.Erdenezaya have visited 2 borrow sites in Buyant soum territory together with CW1-2 Team Leader Zhang Shi chao and translator N.Khangai on 08 September, 2018. After the visit, the soum government has issued an Acceptance Letter to the contractor which concludes that the rehabilitation results meet national rehabilitation standards and thus can be accepted. (please Buyant Government Acceptance Letter in Appendix 2).

Below table summarizes rehabilitation details of the borrow and quarry sites for the lot CW1-2.

**Table 8. Summary of rehabilitation status for the lot CW1-2.**

No.	Location of borrow sites		Rehabilitation status	Date of hand over to local soum administration
1	STA.50+600	Erdeneburen soum	Completed	2018.09.12
2	STA.52+300	Erdeneburen soum	Completed	2018.09.12
3	STA.57+000	Erdeneburen soum	Completed	2018.09.12
4	STA.59+540	Erdeneburen soum	Completed	2018.09.12
5	STA.61+000	Khovd soum	Completed	2018.09.23
6	STA.65+360	Khovd soum	Completed	2018.09.23
7	STA.67+800	Khovd soum	Completed	2018.09.23
8	STA.68+800	Khovd soum	Completed	2018.09.23



9	STA.72+900	Khovd soum	Completed	2018.09.23
10	STA.81+300	Khovd soum /quarry/	Completed	2018.09.23
11	STA.87+600	Khovd soum	Completed	2018.09.23
12	STA.89+500	Khovd soum	Completed	2018.09.23
13	STA.90+500	Buyant soum	Completed	2018.09.08
14	STA.95+300	Buyan soum	Completed	2018.09.08
15	STA.103+000	Jargalant soum	Completed	2018.09.17

**CW1-3:**

The construction team has obtained permission to use 22 borrow pits. All 22 borrow sites were under exploitation during the 2018 construction season. There are 2 quarry sites are operating for the lot CW1-3 that are located at STA.65 and STA.89, respectively. All borrow and quarry sites will continue exploitation for the next construction season in 2019, thus rehabilitation is expected to be executed in August 2019 once the asphalt pavement works are completed.

**Soil quality protection measures implemented at all three lots**

As specified in the EMP, all three construction team have implemented following measures in order to minimize potential impacts related to land use and soil erosion:

8. All truck drivers were instructed to strictly follow the pre-determined deviation road routes in order to avoid creating multiple dirt tracks
9. Access road to camp sites, borrow points were planned to minimize length of the access road
10. Borrow pits and quarry sites were chosen in at least 3-5km distance from herder settlements

**3.5 WILDLIFE PROTECTION**

As proposed by the Wildlife movement survey, there will be 4 wildlife crossings along the Tranche-2 road, 3 crossings in the Hongio river valley at STA.6+520, STA.7+956 and STA.13+425 and 1 crossing at the Buraat pass at STA.85+040. In accordance with domestic standard, there will be ramps on both sides of road embankment, warning signs for drivers on both side of the road and 3 speed bumps at each crossing point. Necessary additional budget for construction of wildlife crossings are: 5,780USD for CW1-3 lot and 16,150USD for CW1-1 lot. The contractor Huashi Enterprises Co.,Ltd has applied for contract variation in order to obtain



approval on the budget.

**Table 9. The proposed wildlife crossing points for Tranche-2 road**

No.	Wildlife species	Longitu de*	Latitu de*	Elevation, m
<b>Lot CW1-1</b>				
Crossing 1	Argali sheep, ibex, snow leopard	48.41935	90.93569	1867
Crossing 2	Argali sheep, ibex, snow leopard	48.40641	90.87063	1952
Crossing 3	Argali sheep, ibex, snow leopard	48.40230	90.85270	1977
<b>Lot CW1-3</b>				
Crossing 4	Argali sheep, ibex, snow leopard	48.46631	90.46074	2625

### 3.6 CAMP MANAGEMENT

The main camp of the lot CW1-1 which covers 2.8 hectares of area is located on the right side of the road alignment at STA.31+400 while the sub camp which covers 0.3 hectares of area is located on the left side of the road alignment at STA.9+100.

The main camp of the lot CW1-2 is located on the right side of the road alignment at STA.76+740 while 3 sub camps are located at STA.57+240, STA.68+980 and STA.96+500, respectively.

The CW1-3 construction team has constructed 3 camps. The main camp is located on the right side of the road alignment at STA.66+300 while the sub camps are located at STA.81+500 and STA.114+163 respectively.

Waste collection points, sanitation system, rest rooms, canteen, ventilator, dorms and office rooms are available at all camp sites. The camp site is protected by surrounding drainage and fences. Necessary permits were obtained from local government for all the camp sites. In order to establish comfort for workers, the camp sites are provided with concrete basketball field and convenient dormitory rooms for staffs. As shown in the Appendix A, the camp site meets all the basic requirements.



### 3.7 WASTE MANAGEMENT

#### Solid waste management

The following solid waste management procedures are implemented by the contractors:

- ❖ Domestic and waste construction materials are disposed to a designated waste collection points at each camp site.
- ❖ Garbage boxes are placed at each office and dormitory rooms and the construction staff are not allowed to throw any waste at or nearby the construction areas
- ❖ The contractors have signed "Agreement on waste handling" with the Tolbo, Jargalant and Erdeneburen soum administrations.
- ❖ Construction waste is delivered to the central dumpsite of the soum center. In accordance with the "Agreement on waste handling", the contractor pays a waste disposal fee of 400,000 MNT per month to the soum administration for using the local dumpsite.

The final destination for the domestic solid waste generated by construction camp sites and waste construction materials is central dumpsites of the relevant soums. These central dumpsites are managed by local soum administrations. As part of their social responsibility, the contractors execute landfilling works at those sites once every year.

#### Waste water management:

Sewage generated by workers' camp sites are collected in designated holding tanks. Kitchen and toilets at the workers camp sites are connected to the steel septic tanks with underneath pipelines. Once the holding tanks get full, the waste water is disposed to the Khovd city Waste Water Treatment Plant.

### 3.8 HEALTH AND SAFETY

Each construction team employs a permanent safety staff at their camp.

**Table 10. On-site safety staffs**

Name of safety staff	Construction package	Contact phone
Mr.Bayasgalanbat	CW 1-1	95590306
Mr.Tumenbayar	CW 1-2	99964855
Mr.Jangiirkhan	CW 1-3	99413777



**Health and safety staffs carry our following works on daily basis:**

- ❖ Checking up workplace arrangements and identify risks
- ❖ Checking up the Health and safety principles, determine actions to be taken to improve the work place safety
- ❖ Dress inspection before the construction workers go out to workplace
- ❖ Checking the abnormal status and risk factors for the heavy machineries and equipment and determine preventive measures
- ❖ Clear signs placed at construction sites in view of the public, warning people of potential dangers such as moving vehicles, hazardous materials and excavation and raising awareness on safety issues.
- ❖ If any risks are found, inform it to field supervisors and recommend appropriate mitigation measures

**3.9 COMMUNITY CONSULTATION**

There are 3 main GRM entry points: local administration, EA through its COMO officers and the contractors. The contractors' environmental staffs and Chinese-Mongolian translators are designated to take responsibility to receive and record complaints from local residents and pass it to managers and EA. The PIU hired community outreach monitoring officers (COMO) at each lot to implement GRM measures: Ulzii Orshikh at CW1-1, Kharul Majat at CW1-3 and Khishigtogtoh at CW1-2.

**Table 11. Community Outreach Monitoring Officers**

Name of COMO officer	Construction package	Contact phone
Ms. Hishigtogtoh	CW 1-2	88750511
Ms. Ulzii-Orshih	CW 1-1	95502499
Mr. Khairolmajat	CW 1-3	99165438

The COMO officers have worked between May and October in 2018. Ms.Hishigtogtokh has interviewed 69 local residents, Ms.Ulzii-Orshikh has interviewed 125 local residents and Mr.Khairolmajat has interviewed 70 local residents in 2018.

As mentioned in the community outreach monitoring reports, the main concerns among local residents in the second half of 2018 were:



- ❖ Whether the rehabilitation of borrow pits and quarry sites can be completed as soon as this year
- ❖ Once the construction is completed at CW1-1 and CW1-2, how the camp sites are cleaned and where the construction waste are disposed to
- ❖ Cleaning and waste removal along the road corridor is important in order to avoid environmental pollution
- ❖ 2 households in Olon Nuuruud valley in CW1-3 road corridor have requested to have a livestock crossing adjacent to their grazing area. This request was recorded by the PIU Social Monitoring Consultant Ms.Urnaa and forwarded to the PIU.

There were no any complaints regarding environmental impact during the second half 2018. Main points of the community outreach monitoring reports submitted by COMO officers are summarized in below table:

**Table 12. Summary of community outreach works in 2018.**

Civil Work Package No.	Responsible COMO officer	Number of people interviewed	Main concerns of local residents	Recorded grievance regarding environmental impacts/issues
CW1-1	Ms.Hishigtogtoh	69	Timing of rehabilitation, waste disposal	None
CW1-2	Ms.Ulzii-Orshih	125	None	None
CW1-3	Mr.Khairolmajat	70	Livestock crossing in Oloon nuuruud valley	None

## 4 ENVIRONMENTAL MONITORING

### 4.1 MONITORING PARAMETERS

In accordance with the project EMP requirements, ADB standards and Mongolian regulations on environmental protection, the Contractor has chosen following parameters for environmental monitoring measurements:

- ❖ Dust concentration level ( $\text{m}^3/\text{mg}$ )
- ❖ Noise emission level (decibel)
- ❖ Water chemical contents: turbidity, mineralization, hardness and contents of other chemicals
- ❖ Water contamination: contents of Pb, Zn, Cd, Cr and Ni.
- ❖ Soil contamination: contents of Pb, Zn, Cd, Cr and Ni.
- ❖ Hygiene inspection: inspection on waste and sewage removal, physical condition of camp sites, hygiene condition of kitchen and canteen, drinking water standards.

### 4.2 MONITORING ACTIVITIES

The contracted local laboratories sent a team of experts to carry out field monitoring works during the active construction months of August and September. The environmental monitoring team has conducted dust and noise level measurements using devices Dust Trak and VoltCraft, taken soil and water samples at the selected monitoring spots. Test analysis for soil and water samples were conducted at the Laboratory of Khovd province Institute of Meteorology.

**Figure 2: Noise and dust measurement devices used for monitoring**



Source: PIU Environmental Monitoring Consultant



### 4.3 MONITORING RESULTS

#### 4.3.1 Soil quality monitoring

The monitoring team has taken soil samples at active construction sites such as quarries, asphalt plants and workers camps. In the each month of soil quality monitoring, heavy metals contents in the soil samples were within the standard levels. Based on the laboratory test analysis, it can be concluded that there is no any soil pollution in the project area.

**Table 13: Heavy metals analysis for soil samples, lot CW1-1**

Spot No.	Name of the monitoring spot	Depth sm	Content of heavy metals (mg/kg)					
			Ni	Cd	Pb	Zn	Cr	Cu
Lab test results in August, 2018								
1	Nearby the quarry site	0-30	21.2	<0.01	<0.01	56.5	21.6	25.5
2	Hongio valley	0-30	20.4	<0.01	6.85	68.3	<0.01	31.2
Lab test results in September, 2018								
1	Nearby the quarry site	0-30	23.0	<0.01	<0.01	53.7	18.9	26.3
2	Hongio valley	0-30	20.7	<0.01	6.14	66.7	<0.01	29.8
Maximum allowed level MNS 5850:2008			150.0	3.0	100.0	300.0	150.0	100.0
Conclusion based on test analysis:			No contamination					

**Table 14: Heavy metals analysis for soil samples, lot CW1-2**

Spot No.	Name of the monitoring spot	Depth sm	Content of heavy metals (mg/kg)					
			Ni	Cd	Pb	Zn	Cr	Cu
Lab test results in August, 2018								
1	Nearby asphalt plant	0-30	22.2	<0.01	<0.01	52.2	<0.01	36.4
2	Buyant river valley	0-30	<0.01	<0.01	<0.01	14.3	10.6	14.8
Lab test results in September, 2018								
1	Nearby asphalt plant	0-30	21.6	<0.01	<0.01	54.5	0.01	28.7
2	Buyant river valley	0-30	<0.01	<0.01	<0.01	12.9	10.7	15.1
Maximum allowed level MNS 5850:2008			150.0	3.0	100.0	300.0	150.0	100.0
Conclusion based on test analysis:			No contamination					

**Table 15: Heavy metals analysis for soil samples, lot CW1-3**

Spot No.	Name of the monitoring spot	Depth sm	Content of heavy metals (mg/kg)					
			Ni	Cd	Pb	Zn	Cr	Cu
Lab test results in August, 2018								
1	Buraat river valley	0-30	12.2	<0.01	<0.01	38.1	8.73	19.5
2	Nearby asphalt plant	0-30	30.1	<0.01	7.75	54.6	10.7	49.1
Lab test results in September, 2018								
1	Buraat river valley	0-30	12.5	<0.01	<0.01	38.3	8.96	19.2
2	Nearby asphalt plant	0-30	28.9	<0.01	7.13	52.0	10.6	48.8
Maximum allowed level MNS 5850:2008			150.0	3.0	100.0	300.0	150.0	100.0
Conclusion based on test analysis:			No contamination					

#### 4.3.2 Results of water quality monitoring

Water quality monitoring was aimed i).ensuring the surface water quality in the vicinity of the construction area are not affected and ii).drinking water used at the construction camps are well suited for human drinking.

During the active construction months of August and September, water samples were taken from the surface water bodies in the project area: Buyant, Hongio, Hongor Ulun and Buraat rivers as well as the drinking water used at the main construction camp sites. Laboratory test analysis are compared against the Drinking Water Standard of Mongolia MNS0900: 2018 in below tables.

**Table 16: Water Chemical analysis, August 2018. CW1-1**

Parameters	Measuring unit	Drinking Water Standard (MNS 0900:2018)	Main Camp kitchen	Hongio bridge
Turbidity	mg/l	1.5	0.00	0.00
Total suspended solids /TSS/	mg/l		9.8	19.4
pH		6.5-8.5	7.63	7.59
EC:	dS/m		188.0	198.0
Ca	mg/l	100	25.4	28.4
Mg	mg/l	30	2.4	5.7
Hardness:	mg-equiva/l	7.0	1.67	1.75
HCO <sub>3</sub>	mg/l		79.3	81.1
Cl <sup>-</sup>	mg/l	350	6.7	8.9
SO <sub>4</sub>	mg/l	500	26.4	16.3
PO <sub>4</sub>	mg/l	0.1	0.028	0.022
NH <sub>4</sub>	mg/l	1.5	0.33	0.42
NO <sub>2</sub>	mg/l	1	0.001	0.002
NO <sub>3</sub>	mg/l	50	0.27	0.35
F	mg/l	0.7-1.5	0.47	0.33
Fe	mg/l	0.3	0.10	0.04
Conclusion based on test analysis			No pollution	No pollution

**Table 17: Water Chemical analysis, September 2018. CW1-1**

Parameters	Measuring unit	Drinking Water Standard (MNS 0900:2018)	Main Camp kitchen	Hongio bridge
Turbidity	mg/l	1.5	0.00	0.00
Total suspended solids /TSS/	mg/l		8.5	11.9
pH		6.5-8.5	7.42	7.68
EC:	dS/m		191.0	187.0
Ca	mg/l	100	26.2	27.9
Mg	mg/l	30	2.8	5.3
Hardness:	mg-equiva/l	7.0	1.74	1.80
HCO <sub>3</sub>	mg/l		78.7	80.1
Cl <sup>-</sup>	mg/l	350	6.8	9.1
SO <sub>4</sub>	mg/l	500	25.1	17.7
PO <sub>4</sub>	mg/l	0.1	0.027	0.024
NH <sub>4</sub>	mg/l	1.5	0.37	0.43
NO <sub>2</sub>	mg/l	1	0.001	0.001
NO <sub>3</sub>	mg/l	50	0.32	0.39
F	mg/l	0.7-1.5	0.41	0.35
Fe	mg/l	0.3	0.08	0.05
Conclusion based on test analysis			No pollution	No pollution



**Table 18: Water Chemical analysis, August 2018. CW1-2**

Parameters	Measuring unit	Drinking Water Standard (MNS 0900:2018)	Buyant river stream 1	Buyant river stream 2	Main Camp kitchen
Turbidity	mg/l	1.5	0.00	0.00	0.00
Total suspended solids /TSS/	mg/l		35.0	32.6	13.0
pH		6.5-8.5	7.87	8.02	7.54
EC:	dS/m		163.0	182.0	163.0
Ca	mg/l	100	23.6	25.0	22.6
Mg	mg/l	30	6.1	7.2	3.0
Hardness:	mg-equiva/l	7.0	1.66	1.5	1.38
HCO <sub>3</sub>	mg/l		78.7	80.5	81.7
Cl <sup>-</sup>	mg/l	350	7.4	6.7	5.3
SO <sub>4</sub>	mg/l	500	20.2	21.6	20.2
PO <sub>4</sub>	mg/l	0.1	0.014	0.022	0.015
NH <sub>4</sub>	mg/l	1.5	0.16	0.19	0.14
NO <sub>2</sub>	mg/l	1	0.001	0.003	0.002
NO <sub>3</sub>	mg/l	50	0.3	0.33	0.25
F	mg/l	0.7-1.5	0.29	0.24	0.38
Fe	mg/l	0.3	0.04	0.02	0.07
Conclusion based on test analysis			No pollution	No pollution	No pollution

**Table 19: Water Chemical analysis, September, 2018. CW1-2**

Parameters	Measuring unit	Drinking Water Standard (MNS 0900:2018)	Buyant river stream 1	Buyant river stream 2	Main Camp kitchen
Turbidity	mg/l	1.5	0.00	0.00	0.00
Total suspended solids /TSS/	mg/l		30.5	32.9	17.1
pH		6.5-8.5	7.62	7.97	7.63
EC:	dS/m		169.0	178.0	165.0
Ca	mg/l	100	24.6	25.6	23.2
Mg	mg/l	30	6.7	6.9	3.8
Hardness:	mg-equiva/l	7.0	1.61	1.78	1.47
HCO <sub>3</sub>	mg/l		78.6	81.5	80.0
Cl <sup>-</sup>	mg/l	350	7.3	6.4	5.6
SO <sub>4</sub>	mg/l	500	19.8	20.9	19.9
PO <sub>4</sub>	mg/l	0.1	0.016	0.020	0.017
NH <sub>4</sub>	mg/l	1.5	0.15	0.17	0.16
NO <sub>2</sub>	mg/l	1	0.002	0.002	0.003
NO <sub>3</sub>	mg/l	50	0.34	0.31	0.28
F	mg/l	0.7-1.5	0.27	0.26	0.32
Fe	mg/l	0.3	0.03	0.03	0.06
Conclusion based on test analysis			No pollution	No pollution	No pollution

**Table 20: Water Chemical analysis, August, 2018. CW1-3**

Parameters	Measuring unit	Drinking Water Standard (MNS 0900:2018)	Hongor Ulun river	Buraat river	Main Camp kitchen
Turbidity	mg/l	1.5	0.00	0.00	0.00
Total suspended solids /TSS/	mg/l		14.5	16.2	6.0
pH		6.5-8.5	7.86	7.13	7.74
EC:	dS/m		176.0	182.0	208.0
Ca	mg/l	100	23.2	28.2	26.2
Mg	mg/l	30	4.8	2.4	6.1
Hardness:	mg-equiva/l	7.0	1.88	1.42	1.75
HCO <sub>3</sub>	mg/l		78.7	89.1	78.7
Cl <sup>-</sup>	mg/l	350	9.9	5.3	6.0
SO <sub>4</sub>	mg/l	500	21.6	23.0	13.0
PO <sub>4</sub>	mg/l	0.1	0.033	0.028	0.036
NH <sub>4</sub>	mg/l	1.5	0.48	0.18	0.19
NO <sub>2</sub>	mg/l	1	0.004	0.005	0.003
NO <sub>3</sub>	mg/l	50	0.29	0.3	0.32
F	mg/l	0.7-1.5	0.38	0.27	0.47
Fe	mg/l	0.3	0.11	0.03	0.05
Conclusion based on test analysis			No pollution	No pollution	No pollution

**Table 21: Water Chemical analysis, September, 2018. CW1-3**

Parameters	Measuring unit	Drinking Water Standard (MNS 0900:2018)	Hongor Ulun river	Buraat river	Main Camp kitchen
Turbidity	mg/l	1.5	0.00	0.00	0.00
Total suspended solids /TSS/	mg/l		13.2	15.8	7.3
pH		6.5-8.5	7.78	7.24	7.63
EC:	dS/m		182.0	177.0	192.0
Ca	mg/l	100	24.5	27.6	25.8
Mg	mg/l	30	4.3	2.9	5.9
Hardness:	mg-equiva/l	7.0	1.80	1.37	1.70
HCO <sub>3</sub>	mg/l		75.1	90.2	78.3
Cl <sup>-</sup>	mg/l	350	9.3	5.0	5.5
SO <sub>4</sub>	mg/l	500	22.9	21.7	14.1
PO <sub>4</sub>	mg/l	0.1	0.029	0.026	0.034
NH <sub>4</sub>	mg/l	1.5	0.37	0.21	0.20
NO <sub>2</sub>	mg/l	1	0.003	0.004	0.003
NO <sub>3</sub>	mg/l	50	0.31	0.28	0.35
F	mg/l	0.7-1.5	0.35	0.31	0.42
Fe	mg/l	0.3	0.09	0.05	0.03
Conclusion based on test analysis			No pollution	No pollution	No pollution

Looking at the lab test results provided in above tables, level of turbidity, hardness and contents of other chemicals in water samples taken from the nearby rivers were all within the standard level, thus it can be concluded that the surface water quality in the project area are not affected.

Laboratory test results for the water samples taken from the kitchens of the construction camps show that all of the indicators are within the allowed level of Drinking Water Standard of Mongolia, thus well water could be used for human drinking.



### 4.3.3 Dust monitoring

Dust measurements were made nearby construction camps, borrow pits, active construction sites and deviation roads (access dirt roads) where there are relatively high traffic. The monitoring team specialists have measured dust concentration levels with average value of one hour duration. Average dust concentration level per hour is shown in the below table. The maximum allowed level of dust concentration is 0.1 mg/m<sup>3</sup> according Mongolian Standard on Ambient Air Quality.

**Table 22: Measured dust concentration levels, CW1-1**

Monitoring Spot No.	Name of the monitoring spot	Average dust concentration level /per hour/, mg/m <sup>3</sup>		Standard level mg/m <sup>3</sup>
		August 2018	September 2018	
1	Hongio valley STA.5+700	0.85	0.021	0.1
2	Hongio bridge STA.16+500	0.098	0.067	
3	Nearby the quarry site STA.26+400	1.211	0.1	

**Table 23: Measured dust concentration levels, CW1-2**

Monitoring Spot No.	Name of the monitoring spot	Average dust concentration level /per hour/, mg/m <sup>3</sup>		Standard level mg/m <sup>3</sup>
		August 2018	September 2018	
1	Buyant river bridge STA.85+700	0.221	0.033	0.1
2	Nearby borrow pit STA.89+500	2.354	0.082	

**Table 24: Measured dust concentration levels, CW1-3**

Monitoring Spot No.	Name of the monitoring spot	Average dust concentration level /per hour/, mg/m <sup>3</sup>		Standard level mg/m <sup>3</sup>
		August 2018	September 2018	
1	Buraat river valley STA.76+100	0.957	0.1	0.1
2	Buraat pass STA.84+300	0.083	0.020	
3	Nearby quarry site STA.89+000	2.763	0.096	



Measured dust concentration level was higher than the standard level at several monitoring spots between August. The contractors had water spray trucks operating along the deviation road and the borrow points and it helped to reduce dust level, but not to the expected level. Asphalt pavement works completed at CW1-1 and CW1-2 lots at the end of August, thus dust level was reduced considerably in September. Measured dust level at all monitoring spots were conformed to the standard level in September, 2018.

#### 4.3.4 Noise monitoring

The monitoring spots chosen for noise measurement considering construction activities and sensitive receptors and the points where construction staff are working such as camp sites and quarry sites. Maximum allowed level of noise during day time is 90 decibels according to Mongolian Standard on Noise. At all monitoring spots, the noise levels were within the allowed level.

**Table 25: Measured daytime noise levels, CW1-1**

Monitoring Spot No.	Name of the monitoring spot	Measured noise level /dB/		Standard level dB
		August 2018	September 2018	
1	Ontsiin Khutul STA.41+300	15.2	13.8	90
2	Nearby construction camp STA.31+400	37.5	24.7	
3	Hongio bridge STA.16+800	48.7	52.6	
4	Hongio valley STA.9+500	46.0	41.4	
5	Bayan Enger STA.5+100	29.1	25.9	

**Table 26: Measured daytime noise levels, CW1-2**

Monitoring Spot No.	Name of the monitoring spot	Measured noise level /dB/		Standard level dB
		August 2018	September 2018	
1	Nearby waste water treatment plant STA.92+500	23.1	27.6	90
2	Nearby bridge No.1 at Buyant river STA.85+750	79.8	42.3	



3	Nearby bridge No.2 at Buyant river STA.86+450	75.1	45.9
4	Ulaan Bogoch spring STA.93+200	56.8	27.3
5	Nearby main camp STA.76+500	33.7	30.2

**Table 27: Measured daytime noise levels, CW1-3**

Monitoring Spot No.	Name of the monitoring spot	Measured noise level /dB/		Standard level  dB
		August 2018	September 2018	
1	Hongor Ulun river STA.100+900	19.1	17.4	90
2	Borrow pit at STA.96+500	77.5	72.0	
3	Quarry site STA.89+100	89.3	85.9	
4	Buraat valley STA.77+200	49.7	43.3	
5	Nearby main camp site STA.65+000	38.1	31.2	





## 5 CONCLUSION

### 5.1 SUMMARY OF ENVIRONMENTAL MANAGEMENT

The contractors implemented mitigation measures specified in the EMP properly during the reported period. Each construction package employed on-site environmental and safety staffs and hired local professionals laboratories to carry out field monitoring activities (sampling, measurements and lab test) during the active construction months of August and September.

All 13 borrow areas and 1 quarry site at CW1-1 was rehabilitated and handed over to local Erdeneburen and Tolbo soum administrations. All 14 borrow areas and 1 quarry site was rehabilitated and handed over to local Jargalan, Buyant, Erdeneburen and Khovd soum authorities. The construction Team leaders have joined local soum governors and environmental officers to visit restored borrow sites and Acceptance Letter on restored borrow and quarry sites were issued by the respective soum administrations (see Appendix 2).

Embankment and asphalt pavement works at the lots CW1-1 and CW1-2 lots are completed at the end of August, 2018. Some minor works, such as erect traffic signs and providing wildlife crossings, have left for 2019 and CW1-1 and CW1-2 contractors withdrew most of their construction workforce and equipments. Environmental monitoring will not be needed for CW1-1 and CW1-3 lots in 2019.

Construction works will continue at the lot CW1-3 till August 2019. Thus, EMP implementation and environmental monitoring works need to be continued by the contractor until the end of construction.

Overall, the Project has demonstrated a satisfactory level of environmental due diligence in the second half of year 2018.

### 5.2 FURTHER RECOMMENDATIONS:

#### Lot CW1-1:

1. The contractor needs to obtain approval on additional budget for creation of wildlife crossings at STA.6+508, STA.7+956 and STA.13+496 through a contract variation.

#### Lot CW1-3:

- ❖ The contractor will continue its monthly monitoring activities in 2019 to ensure the impacts are within control.
- ❖ The contractor needs to obtain approval on additional budget of 5,780USD for creation of wildlife crossing at STA.85+040 through a contract variation.



- ❖ Execute rehabilitation at all borrow areas and quarry sites in accordance with relevant standards and hand over to Tolbo soum administration.
- ❖ The proposed alignment change and a construction of 200m long new bridge over the Khovd river nearby Ulgii city needs to have a domestic EIA and EMP approved by MET before commencement of construction in April, 2019. The local government of Bayan-Ulgii province is responsible for the task.

**APPENDIX 1. EMP COMPLIANCE CHECKLIST**

No	Place	Concern issue	Recommended measures	Implementation status
1	Road Construction site	Use of Safety tools (goggles, gloves, dress, helmet, shoes, etc. by the Construction workers/ engineers.	Availability of safety tools at the camp and at the construction site.	Implemented
		Temporary Sign and Signals for construction works	Important signals like Line marker post, STA. post, Aerial markers, Intermediate aerial markers, Warning signs and Identification signs etc. should be made available along the road.	Implemented
2.	Construction camp	Water supply	<ul style="list-style-type: none"><li>• Arrangement for elevated service reservoir / tank.</li><li>• Availability of taps in bathroom, toilet, kitchen and dining space</li><li>• Ensure drinking water quality through tests as per Mongolian standards</li></ul>	Implemented
		Sanitation	<ul style="list-style-type: none"><li>• Provision of water closet and flushing system in toilet and bathroom</li><li>• Effluent transportation arrangement into septic tank for treatment and disposal through soak pits.</li></ul>	Implemented Implemented
		Kitchen and dining environment.	Provision of adequate ventilation, fixing of hand basins and cleanliness	Implemented
		Drainage at the camp	Provision of storm water drainage to nearby drain/stream outside the	Implemented



No	Place	Concern issue	Recommended measures	Implementation status
			camp area.	
			Avoid stagnation of water inside the camp.	Implemented
		Solid waste	Placement of waste collection bins (one for two rooms), and Immediate modernization of waste disposal dig with cover and proper handling at the camp.	Implemented
		First aid facilities,	Physician available at camp site	Implemented
		Workshop	<ul style="list-style-type: none"><li>Structure modification with raised impervious platform and shed/roof.</li><li>Collection of drips on tray and storing in drum for re-use or safe disposal</li><li>Soaking arrangement with dry sands in case of accidental spillage and disposal in deep pit away from water body</li></ul>	Implemented.  N/a  N/a
			Stock pile	Maintenance of stockpile height at a maximum of 4 meter
3.	Quarry/Borrow pits.	<ul style="list-style-type: none"><li>Material collection</li><li>Compliance with Environmental Law, 2012.</li></ul>	<ul style="list-style-type: none"><li>Preparation of a plan for required and available quantity supported by survey data and profiling of the river at the material collection point</li><li>Collect permission from local authority.</li></ul>	Implemented    Implemented
4.	Unplanned Hill cutting,	Unplanned hill cutting and disposal of spoil earth and debris materials will lead to erosion of the hill and will deposit the eroded soil on the road site.	<ul style="list-style-type: none"><li>Maintain necessary slope to the hill cutting area and staged disposal of spoil earth from hill cutting with adequate</li><li>compaction and erosion protection measures to prevent all kinds of soil movement on the constructed</li></ul>	Implemented



No	Place	Concern issue	Recommended measures	Implementation status
			road, valleys, agricultural lands, and river/stream courses.	
5.	Crusher Plant at site.	Dust pollution at the site resulting different diseases of the residence of the camp	<ul style="list-style-type: none"><li>• Regular spray water at the dust area and the entire internal road, inside the camps.</li><li>• Arrangement for water sprinkler throughout the crushing time, wearing of masks, goggles, etc., and regular health checking of the crusher equipment operators/workers at the site.</li></ul>	Implemented  Implemented
6.	Camp, Offices	Fire fighting equipments should be placed at the camp and office	Immediate placement of fire fighting equipments so that it can visible and in case of any emergency, it can be utilized.	Implemented
7.	Transport and equipment movement at the camp.	Excessive dust polluting surrounding environment of the camp and sound pollution due to transport movement in the camp.	Equipment meeting environmental standard in respect of sound should be used in the camp and construction area.	Implemented
8.	Tree plantation at the road, camp and at the offices.	For the better environment it is required to plant tree along the road side, camp, offices etc.	Tree plantation along the road, at the camp and at the offices should be implemented immediately	N/a
9.	Storage and use of chemicals, fuel and lubricant at the camp and at the offices.	Soil pollution for spilled out from the vehicles, bituminous drum etc. at the camp and at the offices.	Strict chemical and solid waste handling and storage practices should be followed.	Implemented
10.	Construction workers related Impact at the camp and at the construction sites.	<ul style="list-style-type: none"><li>• Unhygienic and littered environment around the camp,</li><li>• Exposure to hazards, transmission of diseases among workers, water-borne</li></ul>	The local workers should be oriented to hygienic disposal of solid waste, hazardous materials, and proper handling methods. And also should be provided regular health inspections and vaccination among the workers.	Implemented



No	Place	Concern issue	Recommended measures	Implementation status
		diseases to workers.		
11.	Traffic Signal	Without traffic signal accident may be happened	Signal Man should be provided at the construction site.	Implemented
12.	Accommodation in the camp	According to size of the room accommodation of the workers should be provided.	Accommodation of the workers should have enough space and should be cleaned everyday.	Implemented
13.	Environmental officer	In absence of environmental officer contractors activities will may not going on as environment friendly.	Immediate placement of environmental officer.	Implemented



## APPENDIX 2. ACCEPTANCE LETTERS

### Acceptance Letter by Erdeneburen soum administration. Translation.

#### General Inspection Agency, State Inspector's Conclusion

28<sup>th</sup> September 2018

Number:2104340 02

Delivering to: China Huashi Enterprises Company Limited, Package- CW1-1

Regarding Inspection for Reinstatement of the Borrow Area:

Construction work of Package-CW1-1, from Khashaatiin Davaa- Shurag Bridge 50 km Road which is part of Western Regional Road Corridor Investment Program, financed by Mongolian Government and Asian Development Bank, Contractor China Huashi Enterprises Company Limited is in Shurag, and Khongio Bags, Erdeneburen Soum, Khovd Province, and it's borrow area reinstatement is inspected by Governor U. Tserentogtokh, Environmental State Inspector Kh. Munkhjargal, with Project Manager Li Zhao Long of Contractor China Huashi Enterprises Company Limited on September 25<sup>th</sup> 2018.

1. Activity of China Huashi Enterprises Company Limited, Package- CW1-1:

Company excavated 13 borrow areas for road structure starting from June 2<sup>nd</sup> 2014 in Shurag, and Khongio Bags, Erdeneburen Soum and borrow areas are used under law, regulation, standard, and reinstatement is fulfilled.

2. Inspection process, detected non-conformance items

There was no defection, the technical recovery fulfill the standard and Laws of Environmental Protection, Mineral Resource, Common Mineral Resource and Environmental Specification Assessment, Environmental Management Plan, and Environment Protection, Recovery Process Plan in inspection process of borrow areas for Construction work of Package-CW1-1, from Khashaatiin Davaa- Shurag Bridge 50 km road which is part of Western Regional Road Corridor Investment Program, Contractor China Huashi Enterprises Company Limited in Shurag, and Khongio Bags, Erdenebure Soum.

3. Conclusion

For 18-35 degree reclining and forming technical recovery of 11 borrow areas, and 2 quarries of road structure project which are 2-3 m depth, 28.5 hectare area, was fulfilled 100% of requirement (it is up to standard), according to Environmental Management Plan fulfillment, the project was done under Laws of Environmental Impact Assessment, Environmental Protection, Water, Land, Natural Plant, Plant Protection.

Technical recovery was done as Mongolian MNS5915:2008 MNS5917:2008 Standard and following Laws of Environmental Protection, Common Mineral Resource and Environmental Specification Assessment, Environmental Management Plan, and Environment Protection Plan, Technical General Specification in inspection process of 13 borrow areas used for Construction work of Package-CW1-1 which is part of Western Regional Road Corridor Investment Program, Contractor China Huashi Enterprises Company Limited in Erdeneburen Soum.

Attachment: 1 page

Conclusion by: Environmental State Inspector Kh. Munkhjargal





Acceptance Letter issued by Erdeneburen soum. Original version. Page 1.



"ЧАЙНА ХУАШИ ЭНТЕРПРАЙЗИС  
ЛИМИТЭД ХХК"-НД

Карьерийн нөхөн сэргээлтэнд  
хяналт шалгалт хийсэн тухай

Монгол Улсын Засгийн Газраас Азийн Хөгжлийн Банк (АХБ)-ны зээлийн санхүүжилтээр хэрэгжүүлж буй "Баруун бүсийн босоо тэнхлэгийн авто зам хөгжүүлэх төсөл"-ийн нэг хэсэг болох Ховд аймгийн Эрдэнэбүрэн сумын Шураг,Хонгио багийн нутаг дэвсгэрт баригдаж байгаа 50км хатуу хучилттай авто замын гүйцэтгэгч "Чайна хуаши энтерпрайзис лимитэд " ХХК-ны зам барих үйл ажиллагаанд ашигласан шороон болон чулуун карьерүүдийн нөхөн сэргээлтийг газар дээр нь хүлээн авах ажлаар сумын Засаг дарга У.Цэрэнтогтох, Байгаль орчны хяналтын улсын байцаагч Х.Мөнхжаргал нар болон "Чайна хуаши энтерпрайзис лимитэд "" ХХК-ний төслийн удирдагч Li zhao long байлцуулан 2018 оны 09 дүгээр сарын 25-ны өдөр газар дээр нь очиж гүйцэтгэлтэй танилцаж ажиллалаа.

Нэг: Чайна хуаши энтерпрайзис лимитэд ХХК-ны үйл ажиллагааны талаар:

Тус компани нь 2014 оны 06 сарын 02 өдрөөс эхлэн Эрдэнэбүрэн сумын Шураг,Хонгио багуудын нутаг дэвсгэрт авто замын салбарт хэрэгжүүлэх авто зам, гүүрийг барихад шаардагдах түгээмэл тархацтай ашигт малтмал ашиглах нийт арван гурав карьер ашигласан бөгөөд холбогдох хууль, журам, стандартын дагуу ашиглаж, нөхөн сэргээлтийг бүрэн хийж дуусгасан байна.

Хоёр. Шалгалтын явц, илэрсэн зөрчил:

"Баруун бүсийн босоо тэнхлэгийн авто зам хөгжүүлэх төсөл"-ийн нэг хэсэг болох Ховд аймгийн Эрдэнэбүрэн сумын Шураг, Хонгио багуудын нутаг дэвсгэрт зам барилгын үйл ажиллагаа явуулж буй "Чайна хуаши энтерпрайзис лимитэд" ХХК-ны CW 1-1хэсэг нь зам барилгын ажилд ашигласан карьерүүдэд Байгаль орчныг хамгаалах тухай, Ашигт малтмалын тухай, Түгээмэл тархацтай ашигт малтмал ашиглах тухай хууль болон Байгаль орчны нарийвчилсан үнэлгээ, Байгаль орчныг хамгаалах нөхөн сэргээх үйл ажиллагааны төлөвлөгөөний дагуу хяналт шалгалтын ажлыг хийж гүйцэтгэхэд зохих стандартын дагуу бүрэн нөхөн сэргээсэн ба ямар нэгэн зөрчил дутагдал илрээгүй болно.

Гурав: Дүгнэлт:

Төслийн зам барилгын ажилд сумын Засаг даргын захирамжаар шороон карьер 11, чулуун карьер 2 ашигласан буюу 28,5 га талбайд 2-3м-ийн гүн ухашийг 18-35 градусаар налуужуулан хэлбэршүүлэх техникийн нөхөн сэргээлтэд газар шорооны ажил хийж, төлөвлөгөөний гүйцэтгэл 100 хувь хэрэгжсэн болно. Мөн БОМТ-ний хэрэгжилтийг хангах зорилгоор "Байгаль орчинд нөлөөлөх байдлын үнэлгээний тухай" хууль, "Байгаль орчныг хамгаалах тухай" "Усны тухай" хууль, "Газрын тухай" хууль,



**Acceptance Letter issued by Erdeneburen soum. Original version. Page 2.**

"Газрын хэвлийн тухай" хууль, "Байгалийн ургамлын тухай" хууль, "Ургамал хамгааллын тухай" хуулиудыг мөрдөж, ажилдаа удирдлага болгон ажилласан байна.

Баруун бүсийн босоо тэнхлэгийн дагуу зам тавьж байгаа "Чайна хуаши энтерпрайзис лимитэд" компани нь Эрдэнэбүрэн сумын нутаг дэвсгэр дээр ашигласан 13 карьерын газрыг Байгаль орчныг хамгаалах тухай хууль, Түгээмэл тархацтай ашигт малтмал ашиглах тухай хууль болон Байгаль орчны нарийвчилсан үнэлгээ, байгаль хамгаалах төлөвлөгөө, техникийн ерөнхий шаардлага, Монгол улсын MNS5915:2008, MNS5916:2008 MNS5917:2008 стандартуудыг бүрэн хангаж ажилласан байна.

ДҮГНЭЛТ ГАРГАСАН:

БОХ-ЫН УЛСЫН БАЙЦААГЧ

Х.МӨНХЖАРГАЛ

**Acceptance Letter issued by Tolbo Soum administration. Translated.****General Inspection Agency, State Inspector's Conclusion**19<sup>th</sup> September 2018

Number:04/04/324-3

Delivering to: China Huashi Enterprises Company Limited, Package- CW1-1

**Regarding Inspection for Reinstatement of The Borrow Area**

Construction work of Package-CW1-1, from Khashaatiin Davaa- Shurag Bridge for 50 km road which is part of Western Regional Road Corridor Investment Program, financed by Mongolian Government and Asian Development Bank . Contractor is China Huashi Enterprises Company Limited is in Duroonuur Bag, Tolbo Soum, and it's borrow area reinstatement was inspected by Environmental State Inspector Kh. Bakhitkhan, Foreman B. Salauat, Environmental Inspector Kh. Suragan with Contractor Deputy Project Manager Kh. Unortugs. Environmental Specialist B. Uyanzorig of Contractor China Huashi Enterprises Company Limited on August 7<sup>th</sup> 2018 and August 17<sup>th</sup> 2018.

**1. Activity of China Huashi Enterprises Company Limited, Package- CW1-1:**

Company excavated 2 borrow areas for road structure starting from May 2016 in right hill of Zamtiin Amnii Nukhtei Tolgoi km2-200 (48°23'10.91", 90°47'54.52"), left side of Khukh Bogoch hill km5-700 (48°24'03.67", 90°50'20.55"), 4<sup>th</sup> Bag, Tolbo Soum and borrow areas are used under law, regulation, standard, and reinstatement is fulfilled.

**1. Inspection process, detected breaches:**

There was no breach of local government regulation, and technical recovery is up to standard and Laws of Environmental Protection, Mineral Resource, Common Mineral Resource and Environmental Specification Assessment, Environmental Management Plan, and Environment Protection, Recovery Process Plan in inspection process of borrow areas for Construction work of Package-CW1-1, from Khashaatiin Davaa- Shurag Bridge 50 km road which is part of Western Regional Road Corridor Investment Program, Contractor China Huashi Enterprises Company Limited in Duroonuur Bag, Tolbo Soum

**2. Conclusion**

For 18 degree reclining and forming technical recovery of 2 borrow areas of road structure project which are 2-4 m depth, 7.5 hectare area, total 225,000 m<sup>3</sup> earthwork, was fulfilled 100%, according to Environmental Management Plan fulfillment, the project was done under Laws of Environmental Impact Assessment, Environmental Protection, Water, Land, Natural Plant, Plant Protection,


Technical recovery of borrow area was done and up to Mongolian standard and following Laws of Environmental Protection, Common Mineral Resource and Environmental Specification Assessment, Environmental Management Plan, and Environment Protection Plan, Technical General Specification in inspection process of 2 borrow areas used for Construction work of Package-CW1-1 which is part of Western Regional Road Corridor Investment Program, Contractor China Huashi Enterprises Company Limited in Duroonuur Bag, Tolbo Soum.

Attachment: 1 page

Conclusion by: Environmental State Inspector Kh. Bakhithan



Acceptance letter issued by Tolbo soum administration. Original version. Page 1.

 <p>МОНГОЛ УЛСЫН ЗАСГИЙН ГАЗРААС УЛСЫН БАЙГААЛЧ ДЭГНЭЛТ</p> <p>Баруун бүсийн босоо тэнхлэгийн авто зам хөгжүүлэх төсөл Толбо сум нутаг дэвсгэрт ХХК-ны CW 1-1 багцын зам барих үйл ажиллагаанд</p>	<p>“ЧАЙНА ХУАШИ ЭНТЕРПРАЙЗИЗ” ХХК-НЫ CW1-1 БАГЦ-Д</p>
<p>2018.09.19 № 04/04/324-3</p>	
<p>Карьерийн нөхөн сэргээлтэнд хяналт шалгалт хийсэн тухай</p>	
<p>Монгол Улсын Засгийн Газраас Азийн Хөгжлийн Банк (АХБ)-ны зээлийн санхүүжилтээр хэрэгжүүлж буй “Баруун бүсийн босоо тэнхлэгийн авто зам хөгжүүлэх төсөл”-ийн нэг хэсэг болох Хашаат-Шургын гүүр чиглэлийн 50 км хатуу хучилттай авто замын гүйцэтгэгч “Чайна Хуаши Энтерпрайзиз” ХХК-ны CW 1-1 багцын зам барих үйл ажиллагаанд Толбо сумын Дөрөөнуур багийн газар нутгаас ашигласан карьерүүдийн нөхөн сэргээлтийн гүйцэтгэлийг газар дээр нь хяналгах авах ажлаар Байгаль орчны хяналтын улсын байцаагч Х.Бахытхан, газрын даамал Б.Салауат, байгаль хамгаалагч Х.Сураган нар болон гүйцэтгэгч “Чайна Хуаши Энтерпрайзиз” ХХК-ны CW 1-1 багцын төслийн менежерийн орлогч Х.Өнөртөгс, байгаль орчны мэргэжилтэн Б.Уянзориг нарыг байлцуулан 2018 оны 08 дүгээр сарын 7,17-ны өдрүүдэд газар дээр нь очиж гүйцэтгэлтэй танилцлаа</p>	
<p>Нэг. “Чайна Хуаши Энтерпрайзиз” ХХК-ны CW 1-1 багцын -ны үйл ажиллагааны талаар</p>	
<p>Тус компани нь 2016 оны 05 сараас эхлэн Толбо сумын дөрөвдүгээр багийн нутаг дэвсгэрт хатуу хучилттай авто зам барих үйл ажиллагаанд Замтын амны нүхтэй толгойн баруун дэнж: ПК2-200 /48°23'10.91", 90°47'54.52" /, Хөх богочийн дэнжийн зүүн талд: ПК5-700 /40°24'03.67", 90°50'20.55" / буюу нийт хоёр карьер ашигласан бөгөөд холбогдох хууль, журам, стандартын дагуу ашиглаж, нөхөн сэргээлтийг бүрэн хийж дуусгасан байна</p>	
<p>Хоёр. Шалгалтын явц, илэрсэн зөрчил</p>	
<p>“Баруун бүсийн босоо тэнхлэгийн авто зам хөгжүүлэх төсөл”-ийн нэг хэсэг болох Баян-Өлгий аймгийн Толбо сумын Дөрөөнуур багийн нутаг дэвсгэрт зам барилгын үйл ажиллагаа явуулж буй гүйцэтгэгч “Чайна Хуаши Энтерпрайзиз” ХХК-ны CW 1-1 багцын зам барилгын ажилд ашигласан карьерүүдэд Байгаль орчныг хамгаалах тухай, Ашигт малтмалын тухай, Түгээмэл гархайтай ашигт малтмал ашиглах тухай хууль болон Байгаль орчны нэрийвчилсэн үнэлгээ, Байгаль орчны менежментийн төлөвлөгөө мөн Байгаль орчныг хамгаалах нөхөн сэргээх үйл ажиллагааны төлөвлөгөөний дагуу хяналт шалгалтын ажлыг хийж гүйцэтгэхэд техникийн нөхөн сэргээлтийн ажлыг зохих стандартын дагуу бүрэн нөхөн сэргээсэн ба ямар нэгэн зөрчил дутагдал илрээгүй болно</p>	



Acceptance letter issued by Tolbo soum administration. Original version. Page 2.

Гурав. Дүгнэлт

Төслийн зам барилгын ажилд нийт 2 шорооны карьер ашигласан буюу 7.5 га талбайд 2-4 м-ийн гүн ухашийг 18 градусаар налуужуулан хэлбэршүүлэх техникийн нөхөн сэргээлтэд нийт 225 000 м<sup>3</sup> газар шорооны ажил хийж төлөвлөгөөний гүйцэтгэл 100% хэрэгжсэн болно. Мөн БОМТ-ний хэрэгжилтийг хангах зорилгоор "Байгаль орчинд нөлөөлөх байдлын үнэлгээний тухай" хууль, "Байгаль орчныг хамгаалах тухай" хууль, "Усны тухай" хууль, "Газрын тухай" хууль, "Газрын хэвлийн тухай" хууль, "Байгалийн ургамлын тухай" хууль, "Ургамал хамгааллын тухай" хуулиудыг мөрдөж, ажилдаа удирдлага болгон ажилласан байна.

Баруун бүсийн босоо тэнхлэгийн дагуу зам тавьж байгаа гүйцэтгэгч "Чайна Хуаши Энтерпрайзиз" ХХК-ны 3-р багц нь Толбо сумын нутаг дэвсгэр дээр ашигласан 2 карьерын газрыг Байгаль орчныг хамгаалах тухай хууль, Түгээмэл тархацтай ашигт малтмал ашиглах тухай хууль болон Байгаль орчны нарийвчилсан үнэлгээ, байгаль хамгаалах төлөвлөгөө, техникийн ерөнхий шаардлага, Монгол улсын холбогдох стандартуудыг хангаж ажилласан байна.

ДҮГНЭЛТ ГАРГАСАН

БАЙГАЛЬ ОРЧНЫ ХЯНАЛТЫН УЛСЫН БАЙЦААГЧ

Х БАХЫТХАН



Acceptance Letter issued by Jargalant Soum administration. Translated.

(iv) Jargalant Soum

Unofficial translation  
From Mongolian to English

The Conclusion of Inspector of State Specialized  
Inspection Department of Khovd province,  
84140 Khovd, Khovd province  
Tel/Fax: 7043-2235, e-mail: [khovdmhg\\_48@yahoo.com](mailto:khovdmhg_48@yahoo.com)  
[http://www.p\\_hov@inspection.gov.mn](http://www.p_hov@inspection.gov.mn)  
Date: 17 September 2018 No. 21-04-047/105

TO: HKB INTERNATIONAL HOLDING CO., LTD

Regarding Carrying out the Inspection for the Reinstatement of Borrow areas.

In accordance with Deputy Governor's (Jargalant Soum, Khovd province) the letter No. 1/573 dated 17 September 2018 addressed to Khovd Inspection Department, we carried out the inspection to reinstate the borrow areas of "Bichigt Hill", in presence of the Contractor's representative, Mr. Zhang Xi Chao, the Project manager and Mr. Bayankhangai, Interpreter of the Contract Package CW1-2.

Condition and situation:

According to project of 189.7 km the road of WRRICP and on the basis of the order A/143 dated 21 June, 2016 issued by Governor of Jargalant Soum, "HKB" International Holding Co., Ltd are granted a permission temporary to use land with 200 x 200 m<sup>2</sup> for the purpose of borrow area which is located at the territory of Bichigt, Rashaant bags of Jargalant Soum, Khovd province.

Conclusion

This is to certify that "HKB" International Holding Co., Ltd has recovered the technical reinstatement of borrow areas.


ISSUED THE CONCLUSION BY

G. GANZORIG. — Khovd State Inspector of Environment, Geodesy and Topography

project manager:



Acceptance letter issued by Jargalant soum administration. Original version.



ЭЙЧ КЭЙ БИ ХХК-д

ХОВД АЙМГИЙН  
МЭРГЭЖЛИЙН ХЯНАЛТЫН ГАЗАР  
УЛСЫН БАЙЦААГЧИЙН ДҮГНЭЛТ

2018.09.17 № 21-04.047-05

Хяналт шалгалт хийсэн тухай

Жаргалант сумын Засаг даргын орлогчоос Мэргэжлийн хяналтын газарт 2018 оны 09 дүгээр сарын 17-ны өдрийн 1/573 тоот албан бичгээр ирүүлсэн хүсэлтийн дагуу Эйч Кэй Би ХХК-ий менежер н.Хангайг байлцуулан Бичигтийн хөтлийн шороон ордны карьерийн газарт нөхөн сэргээлт хийсэн эсэхэд хяналт шалгалтыг хийлээ.

Хяналт шалгалтаар тогтоогдсон нөхцөл байдал


Ховд аймгийн Жаргалант сумын Засаг даргын 2016 оны 06 дугаар сарын 21-ний өдрийн А/184 тоот захиралжаар Азийн хөгжлийн банкний эзэлээр санхүүжигдэн Жаргалант сумын Бичигт Ринлант багийн нутаг дэвсгэрээр дайран өнгөрч байгаа Баруун бүсийн босоо гэнхлэгийн 189.7 км авто замын төслийн хүрээнд Эйч Кэй Би ХХК-д 200x200 м<sup>2</sup> газрыг карьерийн элриулалтаар олгосон байна.

Дээрх байдлаас үндэслэн ДҮГНЭЛТ БОЛГОХ нь:

Тус газарт Эйч Кэй Би ХХК нь техникийн нөхөн сэргээлтийг хийж гүйцэтгэсэн нь үнэн болно.

ДҮГНЭЛТ ГАРГАСАН

БАЙГАЛЬ ОРЧИН, ГАЗАР  
ГЕОДЕЗИ, ЗУРАГ ЗҮЙН ХЯНАЛТ  
УЛСЫН БАЙЦААГЧ



Г.ГАНЗОРИГ

000773





**Acceptance Letter issued by Khovd Soum administration. Translated.**

*Unofficial translation  
From Mongolian to English*

The Conclusion of Inspector of State Specialized  
Inspection Department of Khovd province ,  
84140 Khovd , Khovd province  
Tel/Fax: 7043-2235, e-mail: [khovdmhg\\_48@yahoo.com](mailto:khovdmhg_48@yahoo.com)  
[http://www.p\\_ho@inspection.gov.mn](http://www.p_ho@inspection.gov.mn)  
Date: 25 September 2018 No. 21-04-337/01

TO: HKB INTERNATIONAL HOLDING CO., LTD

Regarding Inspecting the Reinstatement of Quarry area.

HKB International Holding Co., Ltd is Contractor of the project Contractor Package CW1-2, 53.9 km road from Shurga Bridge to Khovd road being executed under the WRRICIP – Tranch-2 financed by ADB.

I, Aibol.Sh, am a State Inspector for Environment Protection of Khovd inspected the reinstatement of borrow areas on 23 September 2018 which are utilized for during road construction works by the Contractor. The borrow areas are located at the territory of Khovd soum , Khovd province. During inspecting the reinstatement borrow areas, in presence of the Contractor's representative, Mr. Zhang Xi Chao , the Project manager and Mr. Bayankhangai, Interpreter of the Contract Package CW1-2.

One: Regarding the activity of road construction work of HKB International Holding Co., Ltd During road construction period, the 7 (seven) borrow areas have been used for road construction work since 2016 according to the framework of applicable law, legislative and standard and he completed to reinstate the borrow areas.

Two: Regarding defects and violation:

The Contractor of Contract Package CW1-2 has been completed to reinstate of borrow areas according to Environmental Protection law, Mineral Resources law, Widespread Mineral Resources of Law, Law on Detailed Environmental Impact Assessment and The Plan of Reinstatement & Protection Environment and there is no any defects and violations are detected from the Contractor.

Three: Conclusion

The quarry areas has been used for road construction work by HKB International Holding Co., Ltd which are located at the territory of Khovd Suom, he has worked to follow and adhered Law on Environment Protection , Widespread Mineral Resources of Law , Environmental Impact Assessment of Law, Environment Protection, Technical requirements of Mongolian MNS5915:2008, MNS5916:2008 and MNS 5917:2008, the Contractor are satisfied to meet above requirements .

ISSUED CONCLUSION BY:

AIBOL.SH. – State Inspector for Environment Protection of Khovd



## Acceptance letter issued by Khovd soum administration. Original version.

"ЭЙЧ КЭЙ БИ ИНТЕРНЭШНЛ  
ХОЛДИНГ ХХК"-ндХОВД АЙМГИЙН  
ХӨГЖЛИЙН ХЯНАЛТЫН ГАЗАР  
УЛСЫН БАЙЦААГЧИЙН ДҮГНЭЛТУтас: 7543-2215, E-mail: khovd77@4800.gov.mn  
http://www.p142.gov.mn/4800.gov.mn

2018.09.25 № 21-04-337/01

Бутлуурын үйлдвэрийн нөхөн  
сэргээлт хийсэн тухай

Монгол Улсын Засгийн газраас Азийн Хөгжлийн Банкны санхүүжилтээр хэрэгжүүлж буй "Баруун бүсийн босоо тэнхлэгийн авто зам хөгжүүлэх төсөл"-өөр Ховд аймгийн Ховд сумын нутаг дэвсгэрт баригдаж байгаа хатуу хучилттай автозамын ажлыг гүйцэтгэгч "Эйч Кей Би интернэшнл холдинг" ХХК-ны зам барих үйл ажиллагаанд ашигласан бутлуурын үйлдвэрийн нөхөн сэргээлтийг газар дээр нь хүлээн авах ажлаар Байгаль орчны хяналтын улсын байцаагч Ш.Айбол би "Эйч Кей би интернэшнл холдинг" ХХК-ний төслийн менежер Жан Ши Чао, орчуулагч Н.Хангай нарыг байлцуулан 2018 оны 09 дүгээр сарын 23-ны өдөр газар дээр нь очиж гүйцэтгэлтэй танилцлаа.

Нэг: Эйч Кей Би интернэшнл холдинг ХХК-ны үйл ажиллагааны талаар:

Тус компани нь 2016 оноос эхлэн Ховд сумын Баянбулаг багийн нутаг дэвсгэрт хатуу хучилттай авто зам барих үйл ажиллагаанд бутлуурын үйлдвэр ашигласан бөгөөд холбогдох хууль, журам, стандартын дагуу ашиглаж, нөхөн сэргээлтийг бүрэн хийж дуусгасан байна.

Хоёр. Шалгалтын явц, илэрсэн зөрчил:

"Баруун бүсийн босоо тэнхлэгийн авто зам хөгжүүлэх төсөл"-өөр Ховд аймгийн Ховд сумын нутаг дэвсгэрт зам барилгын үйл ажиллагаа явуулж буй "Эйч Кей би интернэшнл холдинг" ХХК-ны зам барилгын ажилд ашигласан бутлуурын үйлдвэрт Байгаль орчныг хамгаалах тухай, Ашигт малтмалын тухай, Түгээмэл тархацтай ашигт малтмал ашиглах тухай хууль болон Байгаль орчны нарийвчилсан үнэлгээ, Байгаль орчныг хамгаалах нөхөн сэргээх үйл ажиллагааны төлөвлөгөөний дагуу хяналт шалгалтын ажлыг хийж гүйцэтгэхэд зохих стандартын дагуу бүрэн нөхөн сэргээсэн ба ямар нэгэн зөрчил дутагдал илрээгүй болно.

Гурав: Дүгнэлт:

Баруун бүсийн босоо тэнхлэгийн дагуу зам тавьж байгаа "Эйч Кей Би интернэшнл холдинг" компани нь Ховд сумын нутаг дэвсгэр дээр ашигласан бутлуурын үйлдвэрийн газрыг Байгаль орчныг хамгаалах тухай хууль, Түгээмэл тархацтай ашигт малтмал ашиглах тухай хууль болон Байгаль орчны нарийвчилсан үнэлгээ, байгаль хамгаалах төлөвлөгөө, техникийн ерөнхий шаардлага, Монгол улсын MNS5915:2008, MNS5916:2008, MNS5917:2008 стандартуудыг хангаж ажилласан байна.

ДҮГНЭЛТ ГАРГАСАН:

БОХ-ЫН УЛСЫН БАЙЦААГЧ Ш.АЙБОЛ



000074





Acceptance Letter issued by Buyant Soum administration. Translated.

(v) Buyant soum

Unofficial translation  
From Mongolian to English

The Conclusion of Inspector of State Specialized  
Inspection Department of Khovd province,  
84140 Khovd, Khovd province  
Tel/Fax: 7043-2235, e-mail: [khovdmhg\\_48@yahoo.com](mailto:khovdmhg_48@yahoo.com)  
[http://www.p\\_ho@inspection.gov.mn](http://www.p_ho@inspection.gov.mn)  
Date: 13 September 2018 No. 21.06.226

TO: HKB INTERNATIONAL HOLDING CO., LTD.

Regarding Carrying out the Inspection for the Reinstatement of Borrow areas.

Mr. Purev M., Governor of Buyant Soum and Mr. D. Erdenezaya, State Inspector for Environment Protection of Khovd, Mr. Ankhbayar, land foreman inspected the reinstatement of borrow areas on 08 September 2018 which are utilized for during road construction works by the Contractor. The borrow areas are located at the territory of Norjinkharkhan Bag of Buyant Soum, Khovd province. During inspecting the reinstatement borrow areas, in presence of the Contractor's representative, Mr. Zhang Xi Chao, the Project manager and Mr. Bayankhangai, Interpreter of the Contract Package CW1-2.

According to Environmental Protection law, Mineral Resources law, Widespread Mineral Resources of Law, Law on Detailed Environmental Impact Assessment and The Plan of Reinstatement & Protection Environment, we carried out the inspection the reinstatement of the two borrow areas.

The Contractor has used for two (2) borrow areas for during road construction work and worked to follow and adhered according to Law on Environmental Impact Assessment, Law on Environment Protection and Widespread Mineral Resources of Law.

The Conclusion

According to Law on Environment Protection, Law on Environmental Impact Assessment, Widespread Mineral Resources of Law and Technical General Requirements of Mongolian MNS5918:2008, the Contractor are satisfied the above requirements and laws.

ISSUED THE CONCLUSION BY:

D. ERDENEZAYA – Khovd State Inspector of Protection for Environment

Project manager:



Acceptance letter issued by Buyant soum administration. Original version.



"Эйч Кей Би" компанид

ХОВД АЙМГИЙН  
МЭРГЭЖЛИЙН ХЯНАЛТЫН ГАЗАР  
УЛСЫН БАЙЦААГЧИЙН ДҮГНЭЛТ

84140 Ховд, Ховд сум  
Телефон: 7443-2235, 6-төлөгч, факс: 7443-2235  
Мэдээллийн утас: 7443-2235

2018.09.13 № 21.06.226

Карьерийн нөхөн сэргээлтэнд  
хяналт шалгалт хийсэн тухай

Буянт сумын Норжинхайрхан багийн нутаг дэвсгэрт баригдаж байгаа улсын чанартай босоо тэнхлэгийн зам барих үйл ажиллагаанд ашигласан карьерийн газрыг хүлээн авах ажилтай сумын Засаг дарга М.Пүрэв, БОХ-ын улсын байцаагч Д.Эрдэнэзаяа, Газрын даамал Н.Анхбаяр нар болон "Эйч Кей би" компаний менежер Жан Ши Чао, орчуулагч Э.Хангай нарыг байлцуулан 2018 оны 09 сарын 08-ны өдөр газар дээр нь танилцлаа.

Хяналт шалгалтаар Байгаль орчныг хамгаалах тухай, Түгээмэл тархацтай ашигт малтмал ашиглах тухай хууль болон Байгаль орчны нарийвчилсан үнэлгээ, Байгаль орчныг хамгаалах нөхөн сэргээх үйл ажиллагааны төлөвлөгөөний дагуу хяналт шалгалт хийж ажиллаа.

Хяналт шалгалтаар Баруун бүсийн босоо тэнхлэгийн дагуу баригдаж байгаа авто замын барилга, байгууламж барих үйл ажиллагаанд 2 карьерын газрыг ашиглаж, Байгаль орчныг хамгаалах тухай, Түгээмэл тархацтай ашигт малтмал ашиглах тухай хууль болон Байгаль орчны нарийвчилсан үнэлгээ, Байгаль орчныг хамгаалах нөхөн сэргээх үйл ажиллагааны дагуу мөрдөж ажилласан байна.

Иймд дээрх байдлыг үндэслэн ДҮГНЭХ НЬ:

Баруун бүсийн босоо тэнхлэгийн дагуу зам тавьж байгаа "Эйч Кей Би" компани нь Буянт сумын нутаг дэвсгэр дээр ашигласан 2 карьерын газрыг Байгаль орчныг хамгаалах тухай хууль, Түгээмэл тархацтай ашигт малтмал ашиглах тухай хууль болон Байгаль орчны нарийвчилсан үнэлгээ, эвдэрсэн газрыг ургамалжуулах, техникийн ерөнхий шаардлага МИС5918:2008 стандартыг хангаж ажилласан байна.

ДҮГНЭЛТ ТАРГАСАН  
БОХ-ЫН УЛСЫН БАЙЦААГЧ



Д.ЭРДЭНЭЗАЯА

000005



**Acceptance letter issued by Erdeneburen soum administration for HKB LLC. Translated.**

(111) Erdeneburen Soum

Unofficial translation  
From Mongolian to English

The Conclusion of Inspector of State Specialized  
Inspection Department of Khovd province,  
84140 Khovd, Khovd province  
Tel/Fax: 7043-2235, e-mail: [khovdmhg\\_48@yahoo.com](mailto:khovdmhg_48@yahoo.com)  
[http://www.p\\_ho@inspection.gov.mn](http://www.p_ho@inspection.gov.mn)  
Date: 17 September 2018 No. 2104340/01

TO: HKB INTERNATIONAL HOLDING CO., LTD

Regarding Inspecting the Reinstatement of Borrow areas.

HKB International Holding Co., Ltd is Contractor of the project Contractor Package CW1-2, 53.9 km road from Shurga Bridge to Khovd road being executed under the WRRICIP –Tranch-2 financed by ADB.

Mr. Tserentogtokh. U - Governor of Erdeneburen Soum and Munkhjargal. Kh. – State Inspector for Environment Protection of Khovd inspected the reinstatement of borrow areas on 12 September 2018 which are utilized for during road construction works by the Contractor. The constructed 11 km road from 53.9 km by the Contractor, is covered at the territory of Shurag bag, Erdeneburen soum, Khovd province. During inspecting the reinstatement borrow areas, in presence of the Contractor's representative, Mr. Zhang Xi Chao, the Project manager and Mr. Bayankhangai, Interpreter of the Contract Package CW1-2.

One: Regarding the activity of road construction work of HKB International Holding Co., Ltd  
During road construction period, The Contractor had used 4 borrow areas for road construction work under the framework of applicable law, legislative and standard and he completed to reinstate the borrow areas.

Two: Regarding defects and violation

The Contractor of Contract Package CW1-2 has been completed to reinstate of borrow areas according to Environmental Protection law, Mineral Resources law, Widespread Mineral Resources of Law, Law on Detailed Environmental Impact Assessment and The Plan of Reinstatement & Protection Environment and there is no any defects and violations are detected from the Contractor.

Three: Conclusion

The Contractor has used total 4 borrow areas for during road construction work and made slope of the reinstated borrow area are 18 degrees at total 4.2 hectare area.

Also the Contractor has worked to follow and adhered Law on Environmental Impact Assessment, Law on Environment Protection, Law of Water, Law on Land, Law on Sub-Soil and Law on Fauna.


According to Law on Environment Protection, Law on Environmental Impact Assessment, Widespread Mineral Resources of Law and Technical requirements of Mongolian MNS5915:2008, MNS5916:2008 and MNS 5917:2008, the Contractor are satisfied the above requirements.

ISSUED CONCLUSION BY:

Munkhjargal. Kh. – State Inspector for Environment Protection of Khovd



Acceptance letter issued by Erdeneburen soum administration for HKB LLC. Original version.  
Page 1.

  
**ХОВД АЙМГИЙН  
МЭРГЭЖЛИЙН ХЯНАЛТЫН ГАЗАР  
УЛСЫН БАЙЦААГЧИЙН ДҮГНЭЛТ**  
84 140 Ховд Хөгж Банк  
Утас/Факс: 7043-2235, E-mail: khovdmhg\_48@yahoo.com,  
http://www.p\_ho@erdeneburen.gov.mn

2018.09.17 № 2104340/1

Карьерийн нөхөн сэргээлтэнд  
хяналт шалгалт хийсэн тухай

Монгол Улсын Засгийн Газраас Азийн Хөгжлийн Банк (АХБ)-ны зээлийн санхүүжилтээр хэрэгжүүлж буй "Баруун бүсийн босоо тэнхлэгийн авто зам хөгжүүлэх төсөл"-ийн нэг хэсэг болох Ховд аймгийн Эрдэнэбүрэн сумын Шураг багийн нутаг дэвсгэрт баригдаж байгаа 11 км хатуу хучилттай авто замын гүйцэтгэгч "Эйч Кей Би интернэшнэл холдинг" ХХК-ны зам барих үйл ажиллагаанд ашигласан карьерүүдийн нөхөн сэргээлтийг газар дээр нь хүлээн авах ажлаар сумын Засаг дарга У.Цэрэнтогтох, Байгаль орчны хяналтын улсын байцаагч Х.Мөнхжаргал нар болон "Эйч Кей би интернэшнэл холдинг" ХХК-ний төслийн менежер Жан Ши Чао, орчуулагч Н.Хангай нарыг байлцуулан 2018 оны 09 дүгээр сарын 12-ны өдөр газар дээр нь очиж гүйцэтгэлтэй танилцлаа.

Нэг: Эйч Кей Би интернэшнэл холдинг ХХК-ны үйл ажиллагааны талаар:  
Тус компани нь 2016 оны 06 сарын 02 өдрөөс эхлэн Эрдэнэбүрэн сумын Шураг багийн нутаг дэвсгэрт хатуу хучилттай авто зам барих үйл ажиллагаанд нийт дөрвөн карьер ашигласан бөгөөд холбогдох хууль, журам, стандартын дагуу ашиглаж, нөхөн сэргээлтийг бүрэн хийж дуусгасан байна.

Хоёр. Шалгалтын явц, илэрсэн зөрчил:

"Баруун бүсийн босоо тэнхлэгийн авто зам хөгжүүлэх төсөл"-ийн нэг хэсэг болох Ховд аймгийн Эрдэнэбүрэн сумын Шураг багийн нутаг дэвсгэрт зам барилгын үйл ажиллагаа явуулж буй "Эйч Кей би интернэшнэл холдинг" ХХК-ны CW 1-2 хэсэг нь зам барилгын ажилд ашигласан карьерүүдэд Байгаль орчныг хамгаалах тухай, Ашигт малтмалын тухай, Түгээмэл тархацтай ашигт малтмал ашиглах тухай хууль болон Байгаль орчны нарийвчилсан үнэлгээ, Байгаль орчныг хамгаалах нөхөн сэргээх үйл ажиллагааны төлөвлөгөөний дагуу хяналт шалгалтын ажлыг хийж гүйцэтгэхэд зохих стандартын дагуу бүрэн нөхөн сэргээсэн ба ямар нэгэн зөрчил дутагдал илрээгүй болно.

Гурав: Дүгнэлт:

Төслийн зам барилгын ажилд нийт 4 шороон карьер ашигласан буюу 4,2 га талбайд 2-3м-ийн гүн ухмлыг 18 градусаар налуужуулан хэлбэршүүлэх техникийн нөхөн сэргээлтэд газар шорооны ажил хийж, төлөвлөгөөний гүйцэтгэл 100% хэрэгжсэн болно. Мөн БОМТ-ний хэрэгжилтийг хангах зорилгоор "Байгаль орчинд нөлөөлөх байдлын үнэлгээний тухай" хууль, "Байгаль орчныг хамгаалах тухай" хууль, "Усны тухай" хууль, "Газрын тухай" хууль, "Газрын хэвлийн тухай" хууль, "Байгалийн

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ургамлын тухай" хууль, "Ургамал хамгааллын тухай" хуулиудыг мөрдөж, ажилдаа удирдлага болгон ажилласан байна.

Баруун бүсийн босоо тэнхлэгийн дагуу зам тавьж байгаа "Эйч Кей Би интернэшнэл холдинг" компани нь Эрдэнэбүрэн сумын нутаг дэвсгэр дээр ашигласан 4 карьерын газрыг Байгаль орчныг хамгаалах тухай хууль, Түгээмэл тархацтай ашигт малтмал ашиглах тухай хууль болон Байгаль орчны нарийвчилсан үнэлгээ, байгаль хамгаалах төлөвлөгөө, техникийн ерөнхий шаардлага, Монгол улсын MNS5915:2008, MNS5916:2008 MNS5917:2008 стандартуудыг хангаж ажилласан байна.

ДҮГНЭЛТ ГАРГАСАН:

БАЙГАЛЬ ОРЧНЫ ХЯНАЛТЫН  
УЛСЫН БАЙЦААГЧ

Х.МӨНХЖАРГАЛ



### APPENDIX 3. PHOTOS.

*Source of photos: PIU Environmental Monitoring Consultant.*

**Restored borrow pit at the lot CW1-1. STA. 49+700. September, 2018.**



**Restored borrow pit at the lot CW1-1. STA. 38+000. September, 2018.**





**Restored borrow pit at the lot CW1-1. STA. 29+200. September, 2018.**



**Restored borrow pit at the lot CW1-1. STA. 19+840. September, 2018.**







**Restored borrow pit at the lot CW1-1. STA. 24+460. September, 2018.**



**Restored borrow pit at the lot CW1-1. STA. 12+100. September, 2018.**





**Restored borrow pit at the lot CW1-1. STA. 2+200. September, 2018.**



**Restored borrow pit at the lot CW1-1. STA. 35+350. September, 2018.**





**Photo. Restored borrow pit at the lot CW1-2. STA.103+000 , September, 2018**



**Photo. Restored borrow pit at the lot CW1-2. STA.57+000, September, 2018**





**Photo. Restored borrow pit at the lot CW1-2. STA.65+360, September, 2018**



**Photo. Restored borrow pit at the lot CW1-2. STA.68+800, September, 2018**







**Photo. Restored borrow pit at the lot CW1-2. STA.52+300, September, 2018**



**Photo. Restored borrow pit at the lot CW1-2. STA. 90+500, September, 2018**





**Photo. Quarry site site and crusher, CW1-1 lot. September, 2018.**



**Photo. Quarry site site and crusher, CW1-3 lot. September, 2018.**



**Photo. Water reservoir, CW1-3 lot. September, 2018.**



**Photo. Water protection embankment over Hongor Ulun river, CW1-3 lot. September, 2018.**





**Photo. Buraat river valley, CW1-3 lot. September, 2018.**



**Photo. Temporary waste collection point at main camp of CW1-2 lot. September, 2018.**





**Photo. Road junction, CW1-2 lot. September, 2018.**



**Photo. Waste water holding tank underneath, CW1-2 lot. September, 2018.**

