

# Environmental Monitoring Report

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Loan 3293  
July-December 2016

## ARM: Sustainable Urban Development Investment Program – Tranche 2

Prepared by the Yerevan Municipality for the Asian Development Bank.

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# Environmental Monitoring Report

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Bi-annual Report

July-December 2016

## **ARM: Sustainable Urban Development Investment Program, Tranche 2**

**Project Number: 42417-033**

**Loan Number: L3293-ARM**

**Prepared: January 2017**

**Prepared by the Yerevan Municipality**

**Yerevan Project Implementation Unit**

## ABBREVIATIONS

ADB	Asian Development Bank
AP	affected people
DESC	detailed engineering and construction supervision consultant
EARF	environmental assessment and review framework
EIA	environmental impact assessment
EMP	environmental management plan
EMR	environmental Monitoring Report
ES	environmental specialist
GRM	grievance redress mechanism
IEE	initial environmental examination
MNP	Ministry of Nature Protection
NPE	nature protection expertise
PIU	project implementation unit
PPMS	project performance monitoring system
REA	rapid environmental assessment
RA	Republic of Armenia
RE	resident engineer
SEMP	site-specific environmental management plan
SNCO	state non-commercial organization
SPS (2009)	Safeguards Policy Statement (2009)
SUDIP	Sustainable Urban Development Investment Program
YM	Yerevan Municipality

## Contents

I.	Introduction .....	4
A.	Project Description .....	4
B.	Implementation Progress .....	5
a.	Construction Implementation Progress for Argavand-Shirak street road link, Tender 3.....	5
b.	Davitashen-Ashtarak highway Tender 4 .....	5
c.	Babajanyan-Ashtarak highway Tender 5 .....	6
C.	Institutional Arrangements of the Project.....	7
II.	Environmental Management.....	7
A.	Environmental Safeguards Program .....	7
a.	ADB mission .....	8
b.	Archaeological Works Program Tender 3 .....	8
c.	Grievance Redress Mechanism and Public Consultation.....	8
d.	Meetings and Communication.....	9
e.	Awareness Raising and Environmental Training.....	10
III.	Environmental Monitoring .....	11
A.	Environmental Monitoring Program.....	11
a.	Environmental Monitoring for Tender 3.....	11
B.	Non-compliance Notices.....	14
C.	Corrective Action Plans.....	14
IV.	Findings and Recommendations .....	14
V.	Future program.....	15
VI.	Annexes .....	16
A.	Annex 1: Letter from Erebuni Preserve on the completion of excavations and permission to proceed with civil works .....	16
B.	Annex 2: List of training participants for Tender 3 .....	17
C.	Annex 3: Status of the action from previous environmental monitoring report .....	26
D.	Annex 4: Corrective action plan for Tender 3.....	26
E.	Annex 5: Status of the previous weekly environmental site monitoring reports for Tender 3 .....	29
F.	Annex 6: The results of air quality, noise and vibration monitoring for Tender 3 .....	31
G.	Annex 7: Template of weekly environmental monitoring checklist.....	32

## I. Introduction

1. This bi-annual environmental monitoring report covers the time period of July-December 2016. The report was prepared by PIU ES.

### A. Project Description

2. The Government of Armenia received a loan in October of 2015 from ADB to finance SUDIP, Tranche 2. The main objective of the Project is to complete the missing links of Yerevan bypass: Argavand - Shirak road link Tender 3, Davitashen-Ashtarak road link Tender 4 and Babajanyan – Ashtarak Tender 5. The two captioned road projects will help to divert through-traffic around the city center.

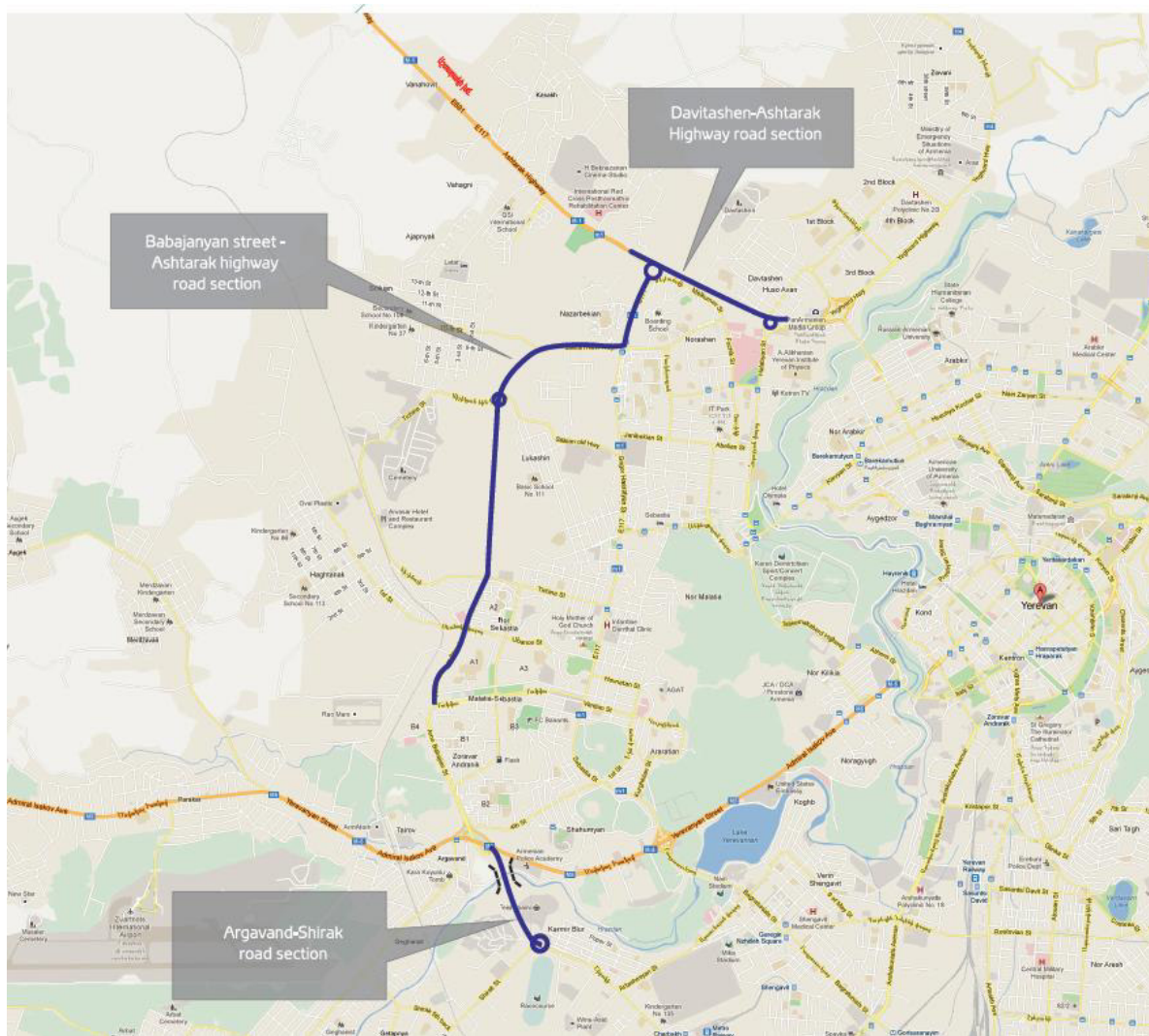


Figure 1: Map showing the Tranche 2 location

## B. Implementation Progress

### a. Construction Implementation Progress for Argavand-Shirak street road link, Tender 3

3. During the reporting period the construction works of the Tender 3 is in the implementation stage.

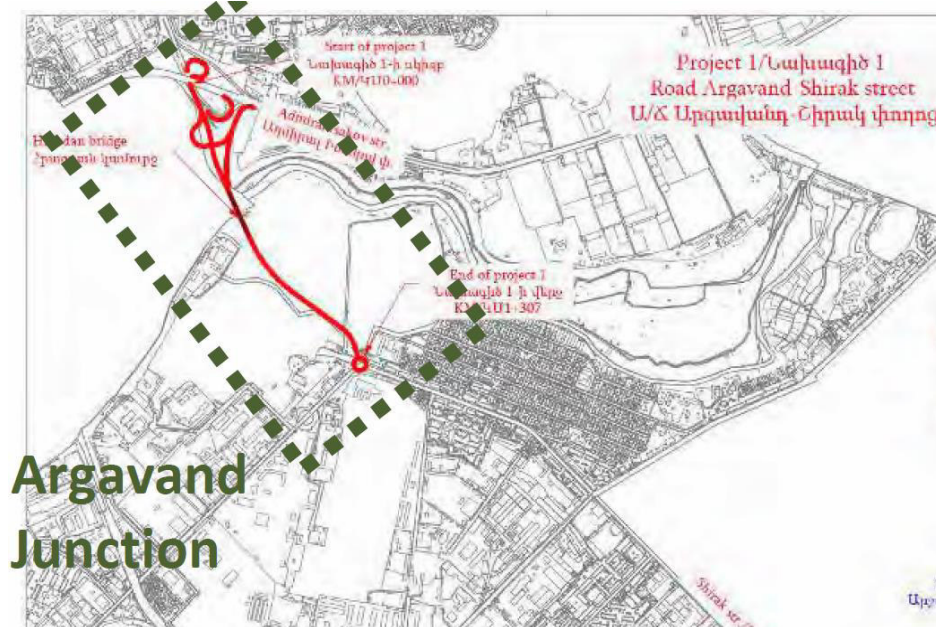


Figure 2: Map showing Tender 3 for the Argavand-Shirak street road link location

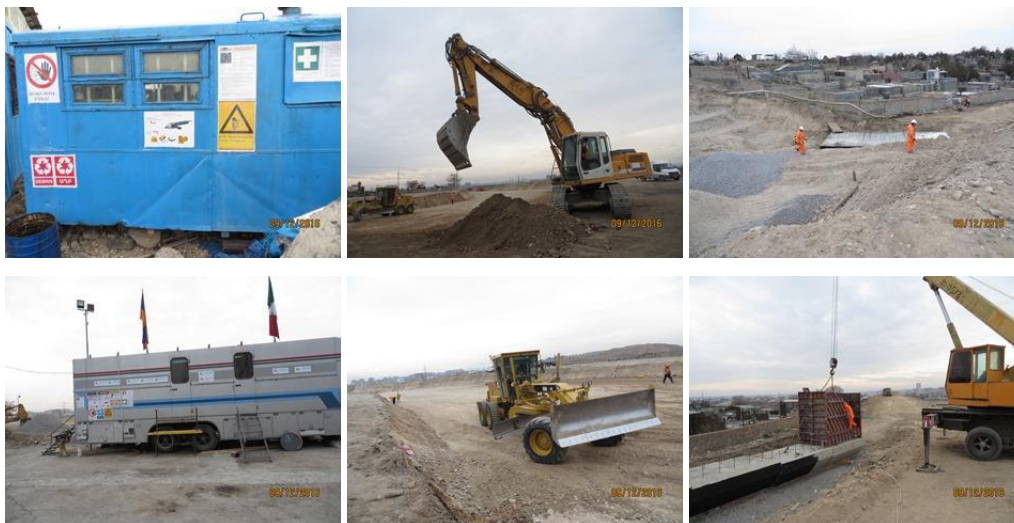


Figure 3: Tender 3 for the Argavand-Shirak street road link pictures

### b. Davitashen-Ashtarak highway Tender 4

4. On 20 December 2016 SUDIP signed the contract with joint venture “Company Black Sea Group” LTD (Georgia) with “Vahagn and Samvel” LLC (Armenia) Contractor for Davitashen-Ashtarak highway Tender 4. The works comprise of 5.4 km in length of the construction of new highway both to dual three lane cross section. The duration of the construction will be 18 months. The



commencement of construction works for the Davitashen-Ashtarak highway Tender 4 will be granted in the beginning of the next reporting period.



Figure 4: Map showing Tender 4 for the Davitashen-Ashtarak highway location

### c. Babajanyan-Ashtarak highway Tender 5

5. The preparation of the IEE for Babajanyan-Ashtarak highway Tender 5 is in the finalization stage based on ADB comment. The final IEE will be submitted to ADB for approval in the beginning of the next reporting period.



Figure 5: Map showing Tender 5 for the Babajanyan-Ashtarak highway location



## **C. Institutional Arrangements of the Project**

6. The major tasks of the PIU ES are to carry out the overall environmental management ensuring full compliance of the Project implementation with Armenian legislation and ADB SPS (2009). The ES serves as a liaison between the safeguard team of DESC-Egis International Company, YM, the executing agency, MNP of the RA and Ministry of Culture of the RA, project affected people, ADB and develops and maintains direct relationships with government authorities, with the help of DESC ES organizes and conducts public consultations, etc. PIU ES Ruzanna Voskanyan manages all construction site activities related to the environmental issues and PIU land acquisition and resettlement specialist Sirak Gyulbudaghyan manages all resettlement and social aspects issues.

7. DESC environmental management team is responsible for the preparation of environmental assessment of Tranche 2 documents and is responsible for environmental supervision of construction works for Argavand-Shirak street road link Tender 3. Pierre Bourguignon international ES and Edita Vardgesyan national ES are supervision of the construction works of New Shirak street – Artashat highway Tender 3. Hasmik Aleksanyan social specialist of the supervision company is responsible for all aspects of the social issues.

8. The Tender 3 Contractor's ES Son Amirkhanyan is responsible for preparation and implementation of the SEMP in accordance with EIA/EMP, monitoring of the construction environmental and social activities. Contractor's ES reports to DESC ES after which the DESC ES reports to PIU ES.

## **II. Environmental Management**

### **A. Environmental Safeguards Program**

9. The implementation of the environmental safeguards program started in January 2013 and was in progress during the reporting period.

10. Based on ADB comments PIU together with the consultants is revising the IEE for Babajanyan-Ashtarak road link Tender 5. The revised IEE will be submitted to ADB in the next reporting period.

11. The final version of SEMP for Argavand-Shirak road link Tender 3 developed by the Contractor based on the EIA and EMP and was approved by the RE in August 2016. The SEMP was updated with regard to:

- Yerevan Municipality permission for disposal of unusable waste within the designated landfill and the contract with Davars LLC, the licensed company on waste disposal;
- the sites used by Contractor for establishment of construction facilities: mobile house, storage and parking of machinery and contract with Erebuni cultural preserve;

- updated GRM;
- incident report template.

The updated SEMP was approved by RE on 30 September 2016.

#### **a. ADB mission**

12. An ADB mission to check compliance of Tender 3 activities to the ADB SPS (2009) safeguard requirements took place in October 2016. The mission was implemented by Armine Yedigaryan, ADB National Environmental Consultant. Ruzanna Voskanyan, the PIU's, Edita Vardgesyan, the DESC's ESs and Contractor's representatives also joined the mission. The mission visited construction site at Argavand-Shirak street road link. The issue of storm water flow at Argavand road section was discussed. It was stated that currently there are no rain water flows from the construction site because of the natural landscape slopes and was decided that the measures planned in SEMP shall be implemented by Contractor as soon as needed that is when construction site comes close to Hrazdan River and irrigation channels.

#### **b. Archaeological Works Program Tender 3**

13. On 3 November 2016 an archaeological site was discovered during the construction works in Shirak section at pk1+240 (previous Karmir Blur). Contractor stopped the works, implemented fencing of the site and other preventive measures and informed Engineer on the finding. By the Letter Engineer applied to Erebuni preserve informing on the finding and requesting further actions according to the legislative procedures. In response letter head of the Erebuni preserve responded that the archaeological investigation shall be implemented by the preserve. After the completion of archaeological excavations the letter N 01/85 dated 1 December 2016 (see Annex:1) was sent by Erebuni preserve informing that the civil works can proceed.

#### **c. Grievance Redress Mechanism and Public Consultation**

14. For feedback, concerns and complaints from the APs, a GRM, inspired by the problem solving function of ADB's guidelines and policies should be maintained for the duration of the Project. The GRM is intended to assist aggrieved persons in lodging their complaints and to describe the mechanism designed to redress their grievances in a timely and effective manner. The parties potentially involved are: the complainants, Contractor, DESC, PIU, EA, NGOs, and the courts. The details of the GRM operation could be found in EIA for Tender 3 and Davitashen-Ashtarak road links<sup>1</sup>.

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<sup>1</sup> EIA/EMP for Tender 3 H.2. Grievance Redress Mechanism, page 47 of 62 and in EIA for Davitashen-Ashtarak road link Tender 4 H.2. Grievance Redress Mechanism, page 45 of 61.

15. Based on ADB requirements GRM part in SEMP for Tender 3 was updated and approved by ER in September 2016.

16. During the reporting period a pre-construction public hearing was organized by Contractor's EHSS under the Argavand-Shirak road link Tender 3 held on 4 August 2016 in Argavand community. General social and environmental issues, GRM had been discussed with APs. APs were informed that the Grievance redress mechanism to address the complaints/ suggestions of APs on excessive dust, noise, improper waste dumping and on other construction related issues is established by the Contractor. Also special posters with contact information are posted at highly visible places next to residential area in both Shirak and Argavand road sections and placed at company's web page. The posters are informing that in order to ensure permanent communication with APs the Complaints Register log-books are kept available at the Contractor's mobile on- site offices. No environment related concerns were raised by the participants of the pre-construction public hearing.

17. The proper functioning of GRM in all important communities was regularly checked by contractor and reported. No environmental related complaints were raised both verbally and in written by impacted population during the reporting period.

#### **d. Meetings and Communication**

18. During the reporting period environmental safeguards issues were regularly discussed during the joint meetings with YM, PIU and DESC. Particularly the following issues were repeatedly discussed: preparation and finalization of the IEEs for Babajanyan-Ashtarak road link Tender 5 approval process and related issues.

19. Video conference took place in December 2016 with Mrs. Zehra Abbas, the ADB senior ES, Mrs. Armine Yedigaryan, ADB National Environmental Consultant, Mr. Cesar Llorens ADB Deputy Country Director, PIU ES and Mr. Julien Guyot Egis acoustic engineer. The comments on IEE Babajanyan-Ashtarak road link Tender 5 were discussed.

20. Joint meeting at ADB office with ADB Deputy Country Director, ADB Environmental Consultant, Project Team leader, PIU, DESC and Contractor's environmental and social specialists took place in September 2016. Vibration, cracks issues and required actions as well as update of the GRM were discussed.

21. Regular meetings and discussions within PIU, DESC and the Contractor's environmental team during the reporting period took place via joint meetings, official correspondence and emails, phone calls and personal contacts. Particularly the issue on the dust control measures; on work safety; on

the findings of environmental parameters; removal of construction waste long-term left on-site, as well as preparations to the tree planting, site closure procedures, the non-conformances detected during the monitoring visits and action measures on their implementation were discussed.

#### **e. Awareness Raising and Environmental Training**

22. The awareness raising and environmental orientation program was developed in the scope of capacity building in the EIAs/IEEs and EMPs for Tender 3 and Davitashen-Ashtarak highway road links. According to the program the Contractor should be responsible to arrange general orientation session about project activities and environmental awareness. During this session, all the people working on the site should focus their efforts to protect environment and insure the safe handling of the social issues during construction period in accordance with ADB SPS (2009), Armenian environmental legislation, EIA and EMP. Further details about the awareness raising and environmental orientation program could be found in final EIA and EMP Tender 3 and Davitashen-Ashtarak road links Tender 4<sup>2</sup>.

23. According to EIA, Annex 7 EMP for Tender 2 and SEMP the Contractor organized trainings on environmental and H&S safeguards for the Contractor's and sub-contractor's staff on 27, 28 and 29 July 2016, as well as regular trainings during all next months for newly hired staff during this reporting period on minimizing waste at source, proper handling of the waste, workers' safety measures during work and emergency preparedness in case of incidents, and health risks and prevention which include information and education on sexually transmitted diseases and HIV/AIDS (see Annex 2: list of training participants for Tender 3). The following topics had been discussed in detail during sessions and stressing the significance of strict implementation of the points.

- ✓ Occupational Health and Safety plan;
- ✓ Emergency response plan;
- ✓ Vegetation clearing plan and;
- ✓ Environmental Protection plan.

24. DESC's national environmental Consultant is providing supervision of Contractor's ongoing training, timely guidance to the Contractor's environmentally responsible staff during the reporting period. She regularly briefed both Contractor's and sub-contractor's staff during the monitoring.

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<sup>2</sup> EIA/EMP for Tender 3, I.3. Implementation arrangement, c) Awareness raising and environmental training, page 58 of 60; Annex 4, Table 1, para 7, page 7 of 36 and EIA/EMP for Davitashen-Ashtarak highway road link Tender 4 I.3. Implementation arrangement, c) Awareness raising and environmental Training, page 55 of 61; Annex 3, Table 1, para 6, page 5 of 31.

### III. Environmental Monitoring

#### A. Environmental Monitoring Program

25. Environmental monitoring program with a view to ensure compliance with the ADB's environmental requirements and all applicable environmental laws, regulations and standards for environmental protection of RA has been developed in the scope of IEEs/EIAs and EMPs for Tranche 2. The EIAs and EMPs contain monitoring activities to be considered during project implementation: management during engineering design phase, preconstruction, construction through the operation and maintenance periods. Details of monitoring activities and reporting are presented in approved final EIAs and EMPs for Tender 3 and Davitashen-Ashtarak highway Tender 4<sup>3</sup>.

##### a. Environmental Monitoring for Tender 3

26. According to the contract the specialized monitoring company implemented the measurements in accordance with the approved measurement of environmental parameters: air pollution, noise, vibration plan during the reporting period July-December 2016.

27. During the reporting period construction work site monitoring visits (see Annex 7: Example of weekly environmental monitoring checklist) and dump site monitoring visits were organized jointly with PIU, Contractor's and DESC's ESS. RE and other responsible representatives of the Contractor participated in some of the monitoring visits.

28. Relationship with Contractors, Owners, Lenders, etc. PIU's relationships with Contractor are implemented through the DESC/RE who is implementing the supervision (including environmental and health & safety) of works. All the documents submitted by Contractor are being reviewed and approved/disapproved by RE. Communication with PIU and Contractor's environmental team takes place via joint meetings, official correspondence and emails, phone calls and personal contacts. Particularly the issues on SEMP, status of permissions for waste disposal, permissions of owners for the use of territories at Shirak and Argavand road sections for preliminary accumulation of excavated subsoil, findings of baseline and regular instrumental measurements of dust, noise and vibration, archaeological chance find procedures and proper fencing of newly discovered archaeological tomb, as well as work and public safety issues were discussed.

29. The status of environmental permits and licenses submitted by the contractors/sub-contractors are reflected in the Table 1 below:

Table 1: Status of environmental permits and licenses

<sup>3</sup> EIA/EMP for Tender 3, I. Environmental Management Plan, I.2 Monitoring page 56 of 62; Annex 4 Table 2, page 28 of 36 and EIA/EMP for Tender 4, I. Environmental Management Plan, I.2 Monitoring page 54 of 61; Annex 3 Table 2, page 23 of 31.



Item	status	Comment
Tender 3		
Commencement of works	Yes	Permission to start civil works (commencement permission) issued by PIU on 25 May 2016.
Disposal of construction waste	Yes	YM instructed to implement the waste disposal based on the contract with "Davars" Limited Liability Company in accordance with YM Decree N 2391-U dated 30.06.2016. The contract for waste disposal is signed on 20 July 2016.
Permission on cutting trees hindering construction process	Yes	Trees hindering construction process were identified within EIA/ EMP. Permission on cutting trees was issued by PIU on 18 February 2016.
Construction camp	Yes	By the Letter Ref N136/A224/EL/ENG Contractor informed the Engineer on the use of the territory (about 1845,7 m2) next to RoW in Shirak road section by the subcontractor "Road-Transport Cars" CJSC for establishment of mobile house office, parking of machinery and storage of construction materials. A "no objection" permission letter of the head of Erebuni historical - archaeological cultural preserve, the owner of the territory, along with the location scheme map, is available.
Preliminary accumulation sites	Yes	<p>By the Letter Ref N176/A224/EL/ENG dated 29 September Contractor applied to the Engineer on the use of the territory next to RoW in Shirak road section by the subcontractor "Road-Transport Cars" CJSC for temporary stockpiling of some excavated subsoil in preliminary accumulation site for the further re-use in construction. Permission from "Erebuni" Historical and Archaeological Culture Preserve and signed a rent contract are available</p> <p>For the use of another site in Argavand road section for preliminary accumulation of usable excavated material Contractor obtained an agreement from the land owner, Mrs. Verjine Matevosyan. Agreement with land owner is available.</p>
Disposal of municipal and construction waste	Yes	A permission to proceed the construction works in Shirak road section was issued by the Head of Erebuni cultural preserve and provided to the Contractor after the archaeological chance find procedures were completed (Letter 01/85 dated 1 December).
Archaeological chance find at Pk 1+240		
Crash machine installation	Yes	Contractor is using a territory outside the RoW for installation and operation of rock and crash machine for treatment and further re-use of excavated subsoil. The contract with the owner is available.

Treatment of excavated usable subsoil	Yes	By the Letter 327 dated December 8, 2016 Contractor informed Engineer on the intention to transport the part of excavated subsoil to the area which belongs to "Slober" company for further treatment and re-use in the construction. The permission of the Head of "Slober" company is available.
Borrow pits	N/A	The Contractor does not use quarries or borrow pits at this stage of project implementation. In the future the Contractor will buy materials from licensed subcontractor.
Inventory of Emissions of hazardous substances in to ambient air from batching plant	Not needed	Contractor has not own batching plant. In the future the Contractor will buy concrete material from licensed subcontractor.

30. Contractor's Environmental Monitoring Procedures and Health and Safety Management. In accordance with the EIA/EMP, and the Contractor's SEMP, the Contractor is required to undertake parametric instrumental measurements and observations on dust, noise, vibration and water quality, Locations for the measurements were identified in the SEMP together with RE. Measurements are being implemented through the contracted specialized laboratory two times per month. Frequency can be re-considered depending on necessity.

31. During the reporting period the water instrumental monitoring at km 0+525 (Hrazdan River) was not carried out due to the fact that construction works were not implemented in the areas where instrumental monitoring was envisaged according to the approved plan on measurements.

32. During the reporting period Contractor provided measurements of environmental parameters on dust, air pollution, noise and vibration levels implemented by "ATMS Solutions" Limited Liability Company specialized laboratory. The measurements were implemented according to approved monitoring plan at the points approved by RE. The summary of the measurements could be presented as follows: Noise level measurements conducted during the different daytime periods were mostly within the legislative standard, only at the Argavand section non- essential exceeding of the TLV could be explained by the presence of noisy gas station next to the construction site. According to the results of vibration instrumental measurements, no vibration exposures were detected near the all measurement points. Dust emissions at all selected points measured in different daytime periods both for daily average and for maximum were about the baseline level and far below the MPC level permitted by Armenian legislation for residential areas. The baseline level was sometimes non-essentially exceeded which could be considered normal for construction earth works. Detailed information on the results of regular monitoring measurements are available at Contractor's and

Engineer's offices being attached to the Contractor's monthly progress reports and are summarized in Annex 6 of the present report.

## **B. Non-compliance Notices**

33. Non-compliance notices were not issued by the Engineer during the reporting period.

34. All the non-conformances which were detected during the upcoming monitoring visits are treated according to the adopted procedure: Contractor was being requested via the Engineer's monitoring report to correct the non-conformances within the deadline set for correction otherwise the non-compliance notice shall be issued. Correction is being checked during the upcoming site visits.

35. During the reporting period Contractor and Sub-contractor showed satisfactory attitude towards the correction of detected non-conformances: the all detected defects (except one) were corrected (at least partly) within the deadline.

## **C. Corrective Action Plans**

36. During the reporting period construction site monitoring visits were held by DESC once a week and by PIU ES on 31.08.2016, 23.09.2016, 28.10.2016, 09.11.2016, and 09.12.2016 in Argavand Junction Tender 3 (see Annex 3: Status of the previous weekly environmental site monitoring reports). Dump site monitoring visits were organized by PIU and DESC's ESs on 23.09.2016.

37. Corrective action plans were developed to address each non-conformance found during monitoring (see Annex 4: Corrective action plan for Tender 3).

## **IV. Findings and Recommendations**

38. Joint meeting at ADB office with Contract's and Engineer's safeguard staff and ADB's and PIU ESs took place in September 2016. Vibration issues and need to update GRM were discussed.

39. Based on ADB requirement GRM part in SEMP for Tender 3 was updated and approved by ER in September 2016.

## V. Future program

<b>N</b>	<b>Action</b>	<b>Time frame</b>	<b>Responsible</b>
1.	Finalize the IEE for Babajanyan-Ashtarak road link for Tender 5	March 2016	PIU, DESC
2.	Finalization of SEMP for Tender 4	April 2016	PIU, DESC, Contractor
3.	Public consultations (if needed)	On July-October 2016	PIU, DESC
4.	Regular monitoring visits of construction works according to the EMP/SEMP for Tender 3 & Tender 4	Once a month/once a week	PIU/DESC
5.	Review of the environmental monitoring data on dust, noise, water quality, vibration and NO/NO2/SO2 for Tender 3 & Tender 4	Every month /twice a month	PIU/DESC
6.	Review and approval of the construction updated SEMP for Tender 3 (if needed)	Next reporting period (July-December 2016)	PIU, DESC
7.	Contractors staff safeguard training for Tender 3 & Tender 4	During reporting period 2016	PIU, DESC, Contractor
8.	Review and addressing the GRM for Tender 3 & Tender 4	End of every month/ every week	PIU/DESC
9.	Other routine issues	Upon the need	PIU, DESC, Contractor
10.	Reporting on environmental safeguards	Weekly, Monthly, Quarterly Bi-annual	PIU, DESC, Contractor

## VI. Annexes

### A. Annex 1: Letter from Erebuni Preserve on the completion of excavations and permission to proceed with civil works

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МЭРИЯ г. ЕРЕВАН

ИСТОРИКО- АРХЕОЛОГИЧЕСКИЙ

МУЗЕЙ – ЗАПОВЕДНИК  
"ЭРЕБУНИ"

YEREVAN MUNICIPALITY

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N 01/85

01-ը դեկտեմբերի 2016թ.

Էջիա Ինթերնեյշնլ ընկերության

Գործառնությունների տնօրեն

Պրն Դեվիդ Պուշեյին

Հարգելի՛ պարոն Պուշեյ

Ի պատասխան Ձեր խնդրանքի՝ Կարմիր բլուրում հայտնաբերված դամբարանի ուսումնասիրության և հետազոտության մասին, հայտնում ենք, որ ս/թ նոյեմբերի 26-28-ը «Էրեբունի» պատմահնագիտական արգելոց-թանգարանի հնագիտական խումբը՝ «Կարմիր բլուր» մասնաճյուղի վարիչ, հնագետ, պ. գ. թ. Միքայել Բաղայանի գլխավորությամբ իրականացրել է վերը նշված դամբարանի ուսումնասիրությունն ու հետազոտությունը:

Սույն նամակով հաստատում ենք, որ վերը նշված դամբարանի հետազոտման աշխատանքները ամբողջովին ավարտված են և Կապալառուն կարող է իր աշխատանքները շարունակել T3 Արգավանդ – Շիրակ ճանապարհահատվածի 1+240 կմ-ի տարածքում:

Խնդրում ենք նոր գտածոների հայտնաբերման դեպքում տեղեկացնել «Էրեբունի» պատմահնագիտական արգելոց-թանգարանի տնօրինությանը՝ դրանք ևս ուսումնասիրելու և հետազոտելու համար:

Հարգանքով՝

Տնօրեն՝

Գ. Գյուրջյան



## B. Annex 2: List of training participants for Tender 3

 Serenissima Construction Spa Armenian Branch Սերենիսիմա Կոնստրուկցիոնի ՓԸ ՀԱ		
<b>Name:</b> ARGAVAND JUNCTION TO SHIRAK STREET	<b>HSW TRAINING COURSE</b> Training and information on Health and Safety at Work	Date: 07/04/2008 Page 1 of 3

**NAME OF THE COURSE:**

Date: 07/04/2008
Type of course: CONSTRUCTION
Venue: ARGAVAND JUNCTION TO SHIRAK STREET

**Details of the company giving the course**

Company giving the course: Serenissima Construction Spa Armenian Branch  
 Lecturers: Sir Anikhanian, Boris Gagaryan

**Contents of the course**

- INTRODUCTION
- EMERGENCY PLAN
- RISK OF WORK, WORK SAFETY STANDARDS (EARTH WORKS), TO DO IN CASE OF ACCIDENT AND PROPER USE OF PPE'S
- ENVIRONMENTAL IMPACTS AT THE CONSTRUCTION SITES
- MITIGATION AND PREVENTIV MEASURES OF ENVIRONMENTAL IMPACTS
- CHANCE FIND PROCEDURES

**Information given**

- ARMENIA EMERGENCY TELEPHONE NUMBERS
- WORK INSTRUCTIONS FOR TRUCK DRIVERS, EXCAVATOR OPERATORS, BULDOZER OPERATORS
- WORK INSTRUCTIONS FOR USING EXTINGUISHERS
- FIRST AID MEDICAL CARE

 Serenissima Construction Spa Armenian Branch Մեքենային Կոնստրուկցիոն ԻՈՒ ՉԻԲ		
<b>Name:</b> ARGAVAND JUNCTION TO SHIRAK STREET	<b>HSW TRAINING COURSE</b> Training and information on Health and Safety at Work	Date: 07/02/2024 Page 2 of 3

ATTENDANCE LIST			
ԱՄՆԱԿԱՆՈՒԹՅԱՆ ԿՈՐՄԱՆԻՏԵ			
Date: 07/02/2024			
NAME AND SURNAMES ԱՄՆԱԿԱՆՈՒԹՅԱՆ	COMPANY / DIVISION ՄԱՍՆԱԿԱՆՈՒԹՅԱՆ ԻՈՒ ՉԻԲ	SIGNATURE ՍԻԳՆԱԿԱՆՈՒԹՅԱՆ	NOTES ԿՈՐՄԱՆԻՏԵ
Արթուր Արթուրյան	ԳՊՆ-ԿՈՆ ՍՊԸ		
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Արթուր Արթուրյան	ԳՊՆ-ԿՈՆ ՍՊԸ		

PERSON RESPONSIBLE FOR THE COURSE:

 Boris Gasparyan  
 Sas Harachanyan

	<p align="center"><b>Serenissima Costruzioni Spa Armenian Branch</b></p> <p align="center"><b>Սերենիսիմա Կոնստրուկցիոն ՓԲ ըԴ</b></p>	
<p><b>Name: ARGAVAND JUNCTION</b> <b>TO SIZIRAK STREET</b></p>	<p align="center"><b>HSW TRAINING COURSE</b> Training and information on Health and Safety and Environment at Work</p>	<p align="right">Date: <i>2/26 / 2008</i> Page 2 of 3</p>

[illegible]

PERSON RESPONSIBLE FOR THE COURSE: 

 Serenissima Construction Spa Armenian Branch Մերեքսիմա Կոնստրուկցիոնի ԲԸ ՀՄ		
<b>Name:</b> ARGAVAND JUNCTION TO SHIRAK STREET	<b>HSW TRAINING COURSE</b> Training and information on Health and Safety at Work	<b>Date:</b> 27/04/2006

<b>NAME OF THE COURSE:</b>
----------------------------

		<b>Date:</b> 29/04/2006
<i>Type of course:</i> CONSTRUCTION		
<i>Venue:</i> ARGAVAND JUNCTION TO SHIRAK STREET		

<b>Details of the company giving the course</b>
<i>Company giving the course:</i> Serenissima Construction Spa Armenian Branch
<i>Lecturers:</i> Sos Amirkhanyan

<b>Contents of the course</b>
<ul style="list-style-type: none"> <li>- INTRODUCTION</li> <li>- EMERGENCY PLAN</li> <li>- RISK OF WORK, WORK SAFETY STANDARDS (EARTH WORKS, SAFETY OF DRIVERS, EXCAVATOR AND BULDOZER OPERATOR), TO DO IN CASE OF ACCIDENT AND PROPER USE OF PPE'S</li> <li>- ENVIRONMENTAL IMPACTS AT THE CONSTRUCTION SITES</li> <li>- MITIGATION AND PREVENTIVE MEASURES OF ENVIRONMENTAL IMPACTS</li> <li>- FIRST AID MEDICAL CARE</li> </ul>

<b>Information given</b>
<ul style="list-style-type: none"> <li>- ARMENIA EMERGENCY TELEPHONE NUMBERS</li> <li>- WORK INSTRUCTIONS FOR TRACK DRIVERS, EXCAVATOR OPERATORS, BULDOZER OPERATORS</li> <li>- WORK INSTRUCTIONS FOR USING EXTINGUISHERS</li> <li>- FIRST AID MEDICAL CARE</li> </ul>





 Serenissima Costruzioni Spa Armenian Branch Մեկնիքային Դասընթացիկ ԲՇ ՀՄ		
<b>Name:</b> ARGAVAND JUNCTION TO SHIRAK STREET	<b>HSW TRAINING COURSE</b> Training and information on Health and Safety at Work	Date: 07/07/20016


<b>NAME OF THE COURSE:</b>	
Date: 07.07.2016	
Type of course: CONSTRUCTION	
Where: ARGAVAND JUNCTION TO SHIRAK STREET	

<b>Details of the company giving the course</b>	
Company giving the course: Serenissima Costruzioni Spa Armenian Branch	
Lecturers: Sor Anikhanjan	


<b>Contents of the course</b>	
<ul style="list-style-type: none"> <li>- INTRODUCTION</li> <li>- EMERGENCY PLAN</li> <li>- RISK OF WORK, WORK SAFETY STANDARDS (EARTH WORKS, SAFETY OF DRIVERS, EXCAVATOR AND BULLDOZER OPERATOR), TO DO IN CASE OF ACCIDENT AND PROPER USE OF PPE'S</li> <li>- ENVIRONMENTAL IMPACTS AT THE CONSTRUCTION SITES</li> <li>- MITIGATION AND PREVENTIVE MEASURES OF ENVIRONMENTAL IMPACTS</li> <li>- FIRST AID MEDICAL CARE</li> </ul>	
<b>Information given</b>	
<ul style="list-style-type: none"> <li>- ARMENIA EMERGENCY TELEPHONE NUMBERS</li> <li>- WORK INSTRUCTIONS FOR TRACK DRIVERS, EXCAVATOR OPERATORS, BULLDOZER OPERATORS</li> <li>- WORK INSTRUCTIONS FOR USING EXTINGUISHERS</li> <li>- FIRST AID MEDICAL CARE</li> </ul>	

 Serenissima Construction SpA Armenian Branch Մեթաբոլիզմի Կոնստրուկցիոն ՓԸ ՀԴ		
<b>Name:</b> ARGAVAND JUNCTION TO SHIRAK STREET	<b>HSW TRAINING COURSE</b> Training and information on Health and Safety at Work	Date: 07/07/2006 Page 2 of 3

ATTENDANCE LIST ՄԱՐՈՒՄԻՆԻՍՏԻԿ ԶԵՆՆ			
Date: 07/07/2006 Մասնագիտ			
NAME AND SURNAMES ԱՌԱՄԱՆԱԿԱՆՈՒԹՅՈՒՆ	COMPANY / DIVISION ՄԱՐՈՒՄԻՆԻՍՏԻԿԱՆ ՓԸ ՀԴ	SIGNATURE ՍԻԳՆԱՏՈՒՐԱ	NOTE ՆԱԾԱԿԱՆ
Արգավանդի Մարտիրոս	Մեթաբոլիզմի ՓԸ ՀԴ		
Արգավանդի Մարտիրոս	1-2		
Արգավանդի Մարտիրոս	2-2		
Արգավանդի Մարտիրոս	1-1		
Արգավանդի Մարտիրոս	2-1		
Արգավանդի Մարտիրոս	1-1		
Արգավանդի Մարտիրոս	2-1		
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Արգավանդի Մարտիրոս	2-1		
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Արգավանդի Մարտիրոս	2-1		
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Արգավանդի Մարտիրոս	2-1		
Արգավանդի Մարտիրոս	1-1		
Արգավանդի Մարտիրոս	2-1		

PERSON RESPONSIBLE FOR THE COURSE:



 <b>Serenissima Costruzioni Spa Armenian Branch</b> Սերենիսսիմա Կոստրուցիոնի ՖԸ ՀՄ		
<b>Name:</b> ARGAVAND JUNCTION TO SHIRAK STREET	<b>HSW TRAINING COURSE</b> Training and Information on Health and Safety at Work	<b>Date:</b> 18 / 11 / 20016

**NAME OF THE COURSE:**

		<b>Date:</b> 18 / 11 / 2016
<i>Type of course:</i> CONSTRUCTION		
<i>Venue:</i> ARGAVAND JUNCTION TO SHIRAK STREET		

**Details of the company giving the course**

*Company giving the course:* Serenissima Costruzioni Spa Armenian Branch, Real World LLC  
*Lecturers:* Sos Amirkhanyan, Ani Narinyan

**Contents of the course**

- INTRODUCTION
- EMERGENCY PLAN
- RISK OF WORK, WORK SAFETY STANDARDS (EARTH WORKS, SAFETY OF DRIVERS, EXCAVATOR AND BULDOZER OPERATOR), TO DO IN CASE OF ACCIDENT AND PROPER USE OF PPE'S
- ENVIRONMENTAL IMPACTS AT THE CONSTRUCTION SITES
- MITIGATION AND PREVENTIV MEASURES OF ENVIRONMENTAL IMPACTS
- FIRST AID PROCEDURES

**Information given**

- ARMENIA EMERGENCY TELEPHONE NUMBERS
- WORK INSTRUCTIONS FOR TRACK DRIVERS, EXCAVATOR OPERATORS, BULDOZER OPERATORS
- WORK INSTRUCTIONS FOR USING EXTINGUISHERS
- FIRST AID MEDICAL CARE

 Sevanima Costruzioni Spa Armenian Branch Մեթմեթսիսի Կոնստրուկցիոն ԲՈՒՄ		
<b>Name:</b> ARGAVAND JUNCTION TO SHIRAK STREET	<b>HSW TRAINING COURSE</b> Training and information on Health and Safety at Work	Date: 01/07/2006 Page 2 of 3

ATTENDANCE LIST ՄԱՐԱԿԱՆՈՒՄԻ ՏԵՂԵԿ			
Date: 01/07/2006 Ստորագրված:			
NAME AND SURNAMES ԱՎԱԴԱՆԴՅԱՆՆԵՐ	COMPANY / DEVISION ՎԵՐԱԿԱՆՈՒՄԻ ՆՈՒՄԵՐԱՎԱՐՈՒՄ ԲՈՒՄ	SIGNATURE ՍՏՈՐԱԳՐՈՒՄԻՆԻՍ ԻՆՍԿՐԻՍ	NOTES ՆՈՒՄԱՐՆԵՐ
Արգավանդ Ջանգի	Մեթմեթսիս		
Արգավանդ Արման	Մեթմեթսիս		
Արգավանդ Երվանդ	Մեթմեթսիս		
Արգավանդ Զարգ	Մեթմեթսիս		
Արգավանդ Զարգ	Մեթմեթսիս		
Արգավանդ Զարգ	Մեթմեթսիս		
Արգավանդ Զարգ	Մեթմեթսիս		
Արգավանդ Զարգ	Մեթմեթսիս		
Արգավանդ Զարգ	Մեթմեթսիս		

PERSON RESPONSIBLE FOR THE COURSE:  
 ԲՈՒՄ ՆԱԶԱՐԱՆ ԶԱՆԿ  
 ՏՈՒՄ ԱՐԿԱՎԱՆԴՅԱՆ  


### C. Annex 3: Status of the action from previous environmental monitoring report

N	Action	Responsible	Status of the action from previous EMR
1.	Finalize the IEE for Babajanyan-Ashtarak road link for Tranche 2	PIU, DESC	implementing
2.	Finalization of SEMP	PIU, DESC, Contractor	implemented
3.	Public consultations	PIU, DESC	implemented
4.	Regular monitoring visits of construction works according to the EMP/SEMP for Tender 3	PIU/DESC	implementing
5.	Review of the environmental monitoring data on dust, noise, water quality, vibration and NO/NO2/SO2 for Tender 3	PIU/DESC	implementing
6.	Review and approval of the construction updated SEMP for Tender 3 (if needed)	PIU, DESC	implemented
7.	Contractors staff safeguard training for Tender 3	DESC, Contractor	implemented
8.	Review and addressing the GRM for Tender 3	PIU/DESC	implementing
9.	Other routine issues	PIU, DESC, Contractor	implementing
10.	Reporting on environmental safeguards	PIU, DESC, Contractor	implementing

### D. Annex 4: Corrective action plan for Tender 3

Corrective action plan for Tender 3 the construction period from August to December 2016:

N	Deadline for request	Corrective action request	Date of corrective action	Corrective action status
1	11.08.2016	Contractor is requested to increase the number of posters in public places.	11.08.2016	Corrected
2	11.08.2016	Trucks are either not provided with covers or provided but not used.	11.08.2016	Corrected
3	11.08.2016 18.08.2016 25.08.2016	Contractor is being requested to provide the masks for protection of unavoidable dust.	25.08.2016	Corrected
4	11.08.2016	Damage of the pipe and 3 cables were detected on-site. Contractor is requested to clear the issue and provide explanation in the weekly report.	11.08.2016	Corrected
5	25.08.2016	Contractor is requested not to leave the excavated pits uncontrolled.	25.08.2016	Corrected
6	25.08.2016	The work site is kept clean from debris, garbage, etc. Some limited amount of garbage is detected. Contractor is requested to clean the site	25.08.2016	Corrected
7	18.08.2016 25.08.2016	Contractor is requested to widen the gravel layer in Argavand section in order to increase efficiency	25.08.2016	Corrected

8	25.08.2016	Unsafe practice like the metal sticks without any visible marks were present on- site	25.08.2016	Corrected
9	25.08.2016	Contractor provided the uniform but control of using the proper uniform by workers is not sufficient.	25.08.2016	Corrected
10	11.08.2016 18.08.2016 25.08.2016	Newly hired workers of sub-contractor needed trainings	25.08.2016	Corrected
11	11.08.2016 18.08.2016 25.08.2016	Sanitary-hygienic conditions for workers need improvement	25.08.2016	Corrected partly
12	11.08.2016 18.08.2016	Tape fencing along the cemetery, posters prohibiting the entry to the construction site are needed.	11.08.2016	Corrected partly
13	11.08.2016 18.08.2016 25.08.2016	Watering is not sufficient in Argavand section. Contractor is requested to increase the frequency of watering.	25.08.2016	Corrected partly
14	18.08.2016 25.08.2016 31.08.2016	Contractor is using the territory for parking machinery and installation of mobile house outside the RoW without Engineer's approval.	31.08.2016	Corrected partly

N	Deadline for request	Corrective action request	Date of corrective action	Corrective action status
1	23.09.2016	Warning signs and exclusion barriers erected around work site areas needed improvement	23.09.2016	Corrected
2	9.09.2016 16.09.2016 23.09.2016	Sanitary-hygienic conditions for workers need improvement	23.09.2016	Corrected
3	16.09.2016 23.09.2016	Contractor is using the territory for parking machinery and installation of mobile house outside the RoW without Engineer's approval.	23.09.2016	Corrected
4	23.09.2016 30.09.2016	Materials are stored in regular heaps and in approved areas	30.09.2016	Corrected
5	9.09.2016	Trucks are operating using covers	9.09.2016	Corrected
6	23.09.2016 30.09.2016	Tape fencing along the cemetery, posters prohibiting the entry to the construction site are needed.	30.09.2016	Corrected partly

N	Deadline for request	Corrective action request	Date of corrective action	Corrective action status
1	12.10.2016 20.10.2016 28.10.2016	Dismantled utilities are disposed in preliminary accumulation site	28.10.2016	Corrected
2	28.10.2016	Work site is cleaned from garbage	28.10.2016	Corrected
3	20.10.2016	Cleaning of the access road at Argavand section was needed	20.10.2016	Corrected
1	12.10.2016 20.10.2016 28.10.2016	Contractor is requested install entrance prohibiting posters	28.10.2016	Corrected
2	20.10.2016 28.10.2016	The pits open for archaeological excavations in Shirak section are not safely fenced.	28.10.2016	Corrected
3	12.10.2016	Traces of spillages detected at camp area need cleaning and drivers trained	12.10.2016	Corrected

	20.10.2016		20.10.2016	
4	12.10.2016	Job-specific environmental and safety training for newly hired workers is needed	12.10.2016	Corrected
5	12.10.2016	Safety of oxygen balloons was not ensured	12.10.2016	Corrected
6	20.10.2016 28.10.2016	The covers used by the trucks are poor. Contractor is requested ensure proper covering of transported waste and material.	28.10.2016	Corrected partly

<b>N</b>	<b>Deadline for request</b>	<b>Corrective action request</b>	<b>Date of corrective action</b>	<b>Corrective action status</b>
1.	4.11.2016	The area at the beginning of Shirak section is not fenced	8.11.2016	Corrected
2.	4.11.2016	Unauthorised people are on- site making fire	4.11.2016	Corrected immediately
3.	4.11.2016 9.11.2016	Some workers were detected on-site without uniform. Contractor is requested provide uniforms.	8.11.2016 10.11.2016	Corrected
4.	4.11. 2016	Safety belts or other PPE for working on height is not ensured	5.11.2016	Corrected
5.	4.11. 2016	Some improvement of sanitary conditions at Serenissima section at Shirak is needed	9.11.2016	Corrected
6.	4.11. 2016	First aid kit is missing at Serenissiam section at Shirak	5.11.2016	Corrected
7.	4.11. 2016	Copy of ERP and emergency contact list is missing at Serenissima section at Shirak	5.11.2016	Corrected
8.	4.11. 2016	Water stagnation is detected at the beginning of Shirak section, Contractor is being requested to find the source of water spillages and take measures.	8.11.2016	Corrected
9.	4.11. 2016	Training of Serenissima staff working at the beginning of Shirak section is needed	8.11.2016	Corrected
10.	4.11.2016	Contractor is requested to mark the trees and provide the relevant training the workers related to tree cut	8.11.2016	Corrected
11.	9.11.2016	Unauthorised people are on- site	10.11.2016	Corrected
12.	9.11.2016	Mud preventive measures are not implemented by Serenissima at Shirak road section	10.11.2016	Corrected
13.	9.11.2016	Some dust control measures are needed at Shirak section	10.11.2016	Corrected
14.	18.11.2016	The worker was not using PPE while doing the metal cutting works	18.11.2016	Corrected immediately
15.	24.11.2016	Warning signs are missing at crash machine area	25.11.2016	Corrected
16.	24.11.2016	First aid kit is missing at crash machine area	25.11.2016	Corrected
17.	24.11.2016	Fire extinguish is missing at crash machine area	25.11.2016	Corrected
18.	24.11.2016	Copy of ERP and emergency contact list is missing at crash machine area	25.11.2016	Corrected
19.	24.11.2016	Additional training of workers working at crash machine area is needed	25.11.2016	Corrected
20.	24.11.2016	Bins for garbage collection is missing at crash machine area	25.11.2016	Corrected
21.	24.11.2016	Some dismantled pipes are present on-site.	25.11.2016	Corrected



		Contractor is being requested accumulate in preliminary site		
22.	18.11.2016	Mud preventive measures are not implemented at crash machine area	21.11.2016	Corrected partly
23.	18.11.2016 24.11.2016	Contractor is established the crash machine area for treating and re-use the rocks and stones excavated from RoW which is not approved by Engineer	-	Not corrected

N	Deadline for request	Corrective action request	Date of corrective action	Corrective action status
24.	30.11.2016	Warning signs and exclusion barriers were missing at crash machine area	2.12.2016	Corrected
25.	30.11.2016	Access of unauthorised people at crash machine area and safety of the public was not excluded.	2.12.2016	Corrected
26.	30.11.2016	Sanitary-hygienic conditions for workers were poor at crash machine area	2.12.2016	Corrected
27.	30.11.2016	First aid kit and fire extinguisher were not available on-site at crash machine area	2.12.2016	Corrected
28.	30.11. 2016	Copy of ERP at crash machine area was missing and additional training of workers on ERP was needed	2.12.2016	Corrected
29.	30.11. 2016	Some cleaning of area next to mobile house at Shirak road section was needed	2.12.2016	Corrected
30.	30.11. 2016	Bins for garbage collection at crash machine area were missing	2.12.2016	Corrected
31.	30.11. 2016	Some dismantled pipes were present on- site. Contractor was requested accumulate in preliminary site	9.12.2016	Mostly corrected
32.	30.11. 2016 2.12.2016 9.12.2016	Contractor is established the crash machine area for treating and re-use the rocks and stones excavated from RoW which is not approved by Engineer	21.12.2016	Corrected
33.	9.12.2016	Material which could be re-used should be temporarily properly stored in permitted areas.	9.12.2016	Corrected
34.	9.12.2016	There was some amount of metallic parts and dismantled utilities which need to be removed and accumulated in preliminary sites	9.12.2016	Mostly corrected

### **E. Annex 5: Status of the previous weekly environmental site monitoring reports for Tender 3**

During the reporting period regular weekly and monthly monitoring visits by PIU and Engineer's ESs and the monitoring sheets completed. Improvement of the detected non- conformances was checked during the next site visit. The summary of compliance/ non- conformance is presented in the Matrix below:

Monitoring visit	Fully compliant	Partly compliant	Non-conformity	Non- conformities corrected (F/P)	Non-conformities not corrected
Week 1 5 August	22	4	6	-	-
Week 2 11 August	30	7	1	2/5	0
Week 3 19 August	26	12	1	0/2	0
Week 4 25 August	23	16	0	2/3	0
Week 5 31 August	27	12	0	7/2	0

Monitoring visit	Fully compliant	Partly compliant	Non-conformity	Non- conformities corrected (F/P)	Non-conformities not corrected
Week 1 9 September	35	5	1	9/1	0
Week 2 16 September	34	3	2	1/0	2
Week 3 23 September	31	0	0	2/0	0
Week 4 30 September	31	6	1	2/0	0

Monitoring visit	Fully compliant	Partly compliant	Non-conformity	Non- conformities corrected (F/P)	Non-conformities not corrected
Week 1 7 October	35	3	1	3/1	1
Week 2 14 October	37	3	1	2/0	1
Week 3 20 October	33	5	2	1/1	1
Week 4 28 October	34	5	1	3/0	0

Monitoring visit	Fully compliant	Partly compliant	Non-conformity	Non- conformities corrected (F/P)	Non-conformities not corrected
Week 1 4 November	25	14	2	1/0	0
Week 2 9 November	33	9	0	8/2	0

Week 3 18 November	35	5	1	3/2	0
Week 4 24 November	25	14	1	1/1	1

Monitoring visit	Fully compliant	Partly compliant	Non-conformity	Non-conformities corrected (F/P)	Non-conformities not corrected
Week 1 2 December	33	4	2	6/0	2
Week 2 9 December	30	8	1	1/1	1

## F. Annex 6: The results of air quality, noise and vibration monitoring for Tender 3

Results of Instrumental measurements																
Parameter	Location	Measured By	Monitoring Method / Equipment used	Dust, Noise and Vibration locations	Date Results, Maximum Single Event							Baseline	Maximum Permissible Concentration mg/m <sup>3</sup>	Reason for exceedance and Corrective Action Request if works related	Resolution Status of previous CAR	
Dust 2.5um and 10um size particles	2 measurement points	"ATMS Solutions" LLC	DT-96 equipment	Dust 1 (PM2.5) - 2.5um size particles (day average value)	06-Sep	20-Sep	04-Oct	17-Oct	04-Nov	18-Nov	05-Dec			PM2.5 and PM10 (dust particles of 2.5um and 10um accordingly) actual concentrations at points Dust 1 and Dust 2 in different daytime periods don't exceed the daily average and maximum permissible concentrations (MPC) for residential areas set by the RoA Government Decree №160-N "Norms of maximum permissible concentrations of atmospheric air pollutants in residential areas".		
					0.008	0.01	0.01	0.12	0.18	0.13	0.009	0.01	0.16			
				Dust 1 (PM10) - 10um size particles (day average value)		0.019	0.019	0.02	0.029	0.034	0.27	0.019	0.023			0.3
				Dust 2 (PM2.5) - 2.5um size particles (day average value)					0.008	0.007	0.009					
				Dust 2 (PM10) - 10um size particles (day average value)					0.016	0.014	0.018					
Noise	2 measurement points	"ATMS Solutions" LLC	Sound level meter (SLM) "WS1361"	Maximum Sound Level, dBA								Maximum acceptable equivalent	1. As a result of noise level measurements, conducted during the different daytime periods at point Noise 1, the actual values of equivalent and maximum sound levels (beside maximum noise level measured at 10:30-10:40 and 14:20-14:30) are above the defined TLVs (55 dBA and 70 dBA accordingly). One of the reasons of high noise level in point Noise 1 is the operation of Gas filling station located at the distance of 40-50 m to the South from the point Noise 1. The noise from Gas filling station also suppresses the traffic noise from the Argavand Junction and Admiral Isakov Ave. 2. As a result of noise level measurements, conducted during the different daytime periods at point Noise 2, both equivalent and maximum noise actual levels are above the defined TLVs (55 dBA and 70 dBA accordingly). The reason is high traffic density along the Shirak street and nearby junction.			
				Nose 1 - Sound level (equivalent to sound level), LAeq, dBA (day average value)	66.1	67.4	66.8	64.2	62.70	59.70	64.40	61.2			50	
				Noise 1 - Maximum sound level, L <sub>Amax</sub> , dBA (day average value)	70.8	73.9	72.1	73.9	74.50	69.50	73.60	73.9			70	
				Noise 2 - Sound level (equivalent to sound level), LAeq, dBA (day average value)					60.10	62.10	65.30					
				Noise 2 - Maximum sound level, L <sub>Amax</sub> , dBA (day average value)					75.4	78.4	73.6					
Vibration	3 measurement points	"ATMS Solutions" LLC	Vibration meter "AR63A"	Vibration actual exposure value, m/s <sup>2</sup>								Vibration ratio to exposure limit	According to the results of vibration instrumental measurements, no vibration exposures were detected near the measurement points Vibration 1 and Vibration 2.			
				Vibration 1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0			1.15	
				Vibration 2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0			1.15	
				Vibration 3								0			1.15	
Water	2 measurement points	"Environmental Impact Monitoring Center" state non-profit organization		Results of the physicochemical analysis of water samples								The ecological norm from the limit				
				pH (pH)								7.8			6.5-9.0	
				Electrochemical	Specific conductivity (µS/cm)							942			1000	
				Electrochemical	Total suspended solids (mg/l)							11.5			30	
				Electrochemical	Dissolved oxygen (mg/l)							4.52			>5	
				Electrochemical	Biochemical oxygen demand: 5-Day BOD test (mgO <sub>2</sub> /l)							1.1			9	
				Gas-chromatography	Petroleum hydrocarbons (mg/l)							<0.00005			0.0003	
				Bacteriological	Fecal coliform (count/100ml)							20000			not assigned	
During the construction period, the routine instrumental monitoring (vibration at km 1+300 and water routine instrumental monitoring at km 0+525 (Hrazdan River) was not carried out due to the fact that construction works were not implemented in the areas where instrumental monitoring was envisaged according to the approved plan on instrumental monitoring of vibration and water.																

## G. Annex 7: Template of weekly environmental monitoring checklist

### MITIGATION COMPLIANCE & INSPECTION MONITORING Report № 19

**Project:** SUDIP – Tranche 2

**Implementing Agency:** PIU

**Scope of Inspection:** Argavand Junction to Shirak Street Urban Road link PK 000 - PK 1+307

**Date:** 9 Dec 2016

**Weather Condition:** cloudy

**Attendees Name & Position:**




Mrs Ruzanna Voskanyan, PIU EO

Mrs, Edita Vardgesyan, EGIS HSE


**Monitoring visit was carried out with the presence of:**

Mr. Sos Amirkhanyan, Contractor's HSSE


<b>WORK SITE: General</b>						
<b>Environmental management: environmental team, health&amp; safety, emergency, trainings, grievance redress mechanism</b>						
Construction Activity		Mitigation Measure (as per EMP/SEMP)	Mitigation Implemented Yes/No/NA	Mitigation Effective* 1 to 5	Corrective Action Request (CAR) including deadline for effective CA.	Resolution Status of previous CAR (resolved/outstanding actions required)
<b><u>Environmental team</u></b>						
All activities	1.	Person in charge on environmental management is appointed and is present on-site.	Y	1 Sub-contractor's responsible persons in all road sections: Shirak and Argavand were on-site.		
All activities	2.	Person in charge on H&S management is appointed and is present on-site	Y	1 Responsible person was on-site.		
<b><u>Health&amp; safety</u></b>						
All activities	3.	Warning signs and exclusion barriers erected around work site areas.	Y	1		
All activities	4.	Access of strangers and outsiders is	Y	1		

		excluded.				
All activities	5.	Workers are provided with and are using the uniform, applicable safety/protection equipment for site conditions	Y	2 Mostly provided but ensure that also drivers are provided with and are wearing uniform 		
All activities	6.	Unsafe practices on-site are excluded	Y	2 More proper isolation of bare electrical wires is needed  	<b>Correct before 16 Dec 2016</b>	
Works on bridge	7.	Safety on the bridge is ensured	N/A	-		
All activities	8.	Worker's health checks implemented	Y	1		
All activities	9.	Sanitary-hygienic conditions for workers	Y	1		


		are provided: drinking and washing water supply, mealtime utilities, toilets, rest time, etc.				
All activities	10.	First aid kit is available on-site and is accessible to all workers.	Y	1		
All activities	11.	Fire extinguisher available	Y	1		
All activities	12.	Safety of the public is ensured	Y	1 All working areas are fenced, warning signs prohibiting entrance installed, barriers installed		
<b><u>Emergency Response Plan</u></b>						
All activities	13.	Person in charge on emergency is appointed and is present on-site	Y	1		
All activities	14.	Copy of ERP and emergency contact list are available, updated and posted in a visible place at all work sites.	Y	1		
All activities	15.	Accident report maintained	N/A	-		
All activities	16.	Damage of utilities and/or other structures managed.	N/A	-		
<b><u>Trainings and orientation courses</u></b>						
All activities	17.	Workers briefed on SEMP at time of starting employment.	Y	1		
All activities	18.	Workers briefed on ERP at time of starting employment.	Y	1		
All activities	19.	Job-specific environmental and safety training for workers provided	Y	1 The safety log- book is properly completed and updated		
<b><u>Work site cleanliness</u></b>						
All activities	20.	The work site kept clean from debris, garbage, etc.	N	3 Some cleaning is needed	Correct before 16 Dec 2016	


						
All activities	21.	Bins for garbage collection are installed	N	3 Missing at crash machine area	<b>Correct before 16 December 2016</b>	
All activities using machinery	22.	Tires of trucks are cleaned before entering city roads and roads are not dirtied by mud and other construction related dirt	Y	2 Cleaning of haul access road at Argavand section is needed	<b>Correct before 16 December 2016</b>	




						
All activities using liquid materials	23.	Spillages are managed properly	N/A	-		
<b><u>Public communication and grievance redress mechanism: environmental issues</u></b>						
All activities	24.	Meeting with community members on construction activities, environmental impacts and mitigation measures held	Y	2 The second meeting with Argavand community is needed.		
All activities	25.	Register of complaints maintained, Complaints observed during the last visit addressed	Y N/A	1 -		
All activities	26.	People are notified on inconveniences: water, electricity breaks, etc.	N/A	-		
<b><u>Environmental parameters: Dust control</u></b>						
Earth works, material delivery, removal of existing pavement, asphalt pavement	27.	Trucks are operating using covers	Y	1 All the machinery present on- site were provided with proper covers		
	28.	Dust control measures are effective	Y	1		Effectiveness of dust emission control equipment is assessed by visually monitoring of the level of dust emissions which was not excessive.
	29.	Equipment and haul vehicles are fitted	Y	1		Effectiveness of

		with effective emission control equipment				emission control equipment is assessed by visually monitoring of the level of gas emissions which was not excessive.
<b><u>Noise control</u></b>						
Operation of machinery while earth works, material delivery, removal of existing pavement, asphalt pavement	30.	Construction noise levels are acceptable at closest sensitive receptor	Y	1		Visually the noise level was not excessive.
	31.	Equipment fitted with effective silencers	Y	1		Effectiveness of silencers is assessed by visually monitoring of the noise level which was not excessive.
	32.	Managed by restricting operating hours	Y	1		
	33.	Managed by portable noise barrier panels	N/A	-		
<b><u>Vibration control</u></b>						
Operation of machinery while removal of existing pavement, asphalt pavement	34.	Managed by reducing time exposed to vibration	N/A	-		
<b><u>Erosion control:</u></b>						
Earth works	35.	excavated slopes stabilised	Y	1		
<b><u>Water control</u></b>						
Earth works	36.	Sediment laden runoff is prevented entering water course	N/A	- Water course is not impacted by current works The mitigation measures according to SEMP shall be implemented when needed.		
Earth works	37.	Water course is kept open and is not blocked by sediment.	N/A	-		
Earth works and	38.	Storm water flows from construction site	N/A	-		

pavement		are treated before entering Hrazdan River		There are no storm water flows originating from the construction site detected on- site.		
<b><u>Tree planting</u></b>						
All activities	39.	Proper maintenance of re-planted trees and shrubs, protection of existing vegetation and lawns.	N/A	-		
<b><u>Construction waste management</u></b>						
Earth works	40.	Materials and newly generated construction waste is retained in spoil dumps at temporary accumulation sites agreed with Engineer.	Y	1 There are two preliminary accumulation sites organised in both road sections and the waste is accumulated properly.		
Earth works	41.	Remains of materials and previously detected construction waste is hauled from work site	Y	1 The material which could be re-used is temporarily properly stored in permitted areas.		Corrected
Removal of existing asphalt pavement	42.	Hazardous waste is managed in accordance with SEMP	N/A	-		
Earth works, demolition of structures,	43.	Non-hazardous waste (excavation material, rocks, concrete and metallic parts, etc.) is managed in accordance with SEMP.	N	3 There is some amount of metallic parts at Argavand section which need to be removed and accumulated in preliminary sites 	Correct before 16 December 2016	Non- conformance repeated

Dismantling of utilities	44.	Utilities are dismantled and managed in accordance with SEMP	Y	2 Only remained at Argavand section 	<b>Correct before 16 December 2016</b>	<b>Mostly corrected</b>
Use of chemicals, fuel, lubricants, etc. while all activities	45.	Leakages and liquid waste is managed in accordance with SEMP.	N/A	- There were no traces of leakages detected on- site		
<b><u>Contractor's facilities and equipment</u></b>						
Contractor's facility area establishment	46.	Site Management Plan for the Contractor's facility area is available.	Y	1		
Parking of machinery	47.	Machinery is parked in approved area	Y	1		
Mobile house	48.	Mobile house is installed in approved area	Y	1		
Storage of materials	49.	Materials are stored in regular heaps and in approved areas	Y	1		
Compliance with SEMP	50.	Contractor's facilities are established according to SEMP	N	5 Contractor is establishing the crash machine area for treating and re-use the rocks and stones excavated from RoW which is not reflected in SEMP and is not approved by Engineer.	<b>Contractor is requested obtain Engineer's approval before 30 Dec 2016</b>	<b>Non- conformance repeated</b>

						
<b><u>Archaeological program</u></b>						
All activities	51.	Archaeologist is on-site supervising the civil works	Y	1		
All activities	52.	Workers trained on archaeological chance find procedures	Y	1		
All activities	53.	Archaeological chance finds discovered	N/A	- During the reporting week no further chance finds were discovered		
All activities	54.	Archaeologically sensitive area is undisturbed	Y	1		

\* Mitigation Effectiveness Rating Criteria

- |              |    |
|--------------|----|
| 1. Very Good | 30 |
| 2. Good      | 5  |
| 3. Fair      | 3  |
| 4. Poor      | 0  |
| 5. Very Poor | 1  |