

Semi-annual Environmental Monitoring Report

Project Number GEO 51257-001

Reporting period: July – December 2025

#13 Semi-annual Report

January 2026

Georgia: North-South Corridors (Kvesheti – Kobi) Road Project

Loan No GEO 3803

(Financed by the Asian Development Bank (ADB) and European Bank for Reconstruction and Development (EBRD))

Prepared by Roads Department of the Ministry of Infrastructure of Georgia for the Asian Development Bank

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CURRENCY EQUIVALENTS

(As of December 2025)

Currency unit	–	United State Dollars (USD)
{GEL}1.00	=	\$ 0.37 USD
\$1.00	=	2.69 GEL

Abbreviations

ADB	Asian Development Bank
CAP	Corrective Action Plan
CC	Construction Contractor
CH	Cultural Heritage
EBRD	European Bank for Reconstruction and Development
ECOW	Ecological Clerk of Works
FIDIC	The International Federation of Consulting Engineers
EIA	Environmental Impact Assessment
EDDR	Environment Due Diligence Report
CHDDR	Cultural Heritage Due Diligence
EG	Emergency Gallery
EMP	Environmental Management Plan
EMR	Environmental Monitoring Report
ESP	Environmental and Social Policy
ERP	Emergency Response Plan
GOGC	Georgian Oil and Gas Corporation
GARP	Gudauri Access Road Project
GRM	Grievance Redress Mechanism
GRCE	Grievance Redress Committee
H&S	Health & Safety
HSE	Health, Safety and Environment
HSMP	Health and Safety Management Plan
IFC	International Finance Corporation
MAC	Maximum Allowable Concentration
MoEPA	Ministry of Environmental Protection and Agriculture
MoESD	Ministry of Economy and Sustainable Development
MoI	Ministry of Infrastructure
MSs	Method Statements
m S/cm	Milli Siemens/ centimeter
N/A	Not Applicable, Not Available
NACHP	National Agency for Cultural Heritage preservation
NCN	Non-Conformance Notice
NCR	Non-Conformance Report
NFA	National Forest Agency
NOC	No Objection Certificate
PMSCS	Project Management and Construction Supervision Contract
PPE	Personnel Protective Equipment'
PR	Performance Requirements of EBRD
PS	Performance Standards of IFC
PIU	Project Implementation Unit
QC	Quality Control
RD	Road Department
RoW	Right of Way
SAEMR	Semi Annual Environmental Monitoring Report
SC	Supervision Consultant
SDA	Spoil Disposal Area
SSEMP	Site Specific Environmental Management Plan
SFF	State Forest Fund
SPS	Safeguard Policy Statement
TBM	Tunnel Boring Machine
TBN	To Be Nominated

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1. INTRODUCTION

1.1 Preamble

1. This report presents the Semi-annual Environmental Monitoring review of North-South Corridor (Kvesheti – Kobi section) Road Project for the period of July to December 2025.
2. This report is the 13th Semi-Annual EMR for the North-South Corridors (Kvesheti – Kobi section) Road Project.

1.2 Headline Information

3. The length of the new alignment is 22.7 km and is divided into two construction packages, or 'Lots' as follows:
 - Lot 1: Tskere – Kobi: Chainage KM 12.7 – KM 22.7 (10 km)
 - Lot 2: Kvesheti – Tskere: Chainage KM 0.0 – KM 12.7 (12.7 km)
4. The project involves construction of 6 bridges and 5 tunnels, 6 grade junctions (1 for Lot 1 and 5 for Lot 2).
5. The Contract for "Project Management and Construction Supervision Contract (PMCSC) was awarded to UBM on June 24, 2019, by Road Department (RD) of Ministry of Regional Development and Infrastructure (MoRDI).
6. There are two separate contractors for each Lot1 and Lot2 as given below:
 - Lot 1: China Railway Tunnel Group Co. Ltd. (CRTG), contract signed on 05-09-2019.
 - Lot 2: China Railway 23rd Bureau Group CO. Ltd (CRCC), contract signed on 15-08-2019.
7. The Kvesheti-Kobi Road Project is the part of the program launched by the Government of Georgia and the road department to upgrade the major roads of the country. This will cover around 23 km of the highway and will replace the existing Kvesheti to Kobi Road section which is around 35 km long and crosses the Jvari Pass at an altitude of around 2,400 m with poor driving safety conditions. Thus, saving the travelling cost, time delay by reducing the travelling distance of 12 km through very difficult mountainous terrain, especially during the winter and less fuel consumptions resulting in emissions savings.
8. The major benefits of the new Kvesheti-Kobi Road Project include: guaranteeing operational continuity during wintertime when transportation is hindered historically; locals having year-round access to the healthcare, education institutions; promoting trade and commerce, Improving quality of life in Kazbegi and Dusheti municipalities; Improvement of road safety by reduction in fatalities, injuries and accident rates; travel time savings for passengers and freight transport; Increase of tourist's flow in the region and less air pollution in Gudauri Resort.
9. The Project outline (km 0+000 – 22+700) from Kvesheti to Kobi:

Classification of road:	International highway
Design speed:	80 km/ hr.
Road length:	22.75 km (Lot1 10.03 km: Lot 12.72 km)
Road width:	15 m
Numbers of lanes:	2 ~ 3 lane

10. Based on Employer's letter # N2-05/10497 dated: 23-09-2020, PMCSC notified the Contractors through letter # 2020-09-UBM-CRTG-160 dated: 23-09-2020 that according to the subclause of 8.1 of the General Conditions of Contract (GCC), PMCSC hereby gives the CC notice to commencement of work and October 01, 2020 has been set up the date for the commencement.
11. Based on ADB Environmental Safeguards Policy (2009), this Project falls under ADB's project Category A as the project is considered to have significant diverse impacts over a wide area during construction and operation, such as noise and vibration on local residents and potentially on cultural heritage, significant quantities of spoil disposal, road safety impacts, impact on biodiversity and landscape. Road Department of Georgia submitted Environmental Impact Assessment (EIA) of the Project to the Ministry of Environment Protection and Agriculture in November 2018 in accordance to Georgian legislation, and that was approved by MoEPA on April 25, 2019 by order # N 2-354. The Project was also approved by the lenders, ADB approved the Project on August 1st and EBRD on October 2nd 2019.
12. Conditions of Approval from MoEPA include the implementation of EMPs, shall not disturb the water supply network of the communities, vibration monitoring, washing of vehicles tyres before coming on the road, submission of technical report on the Inventory of Stationary Sources of Atmospheric Air Pollution and their Emission, noise level monitoring, protection of rivers and proper design of water structures, mitigation measures to protect critical habitats and floral and faunal species in compliance with the international conventions and Red list of Georgia, installation of avalanches fences, protection of cultural heritages and prohibition for dumping of waste in Kazbegi National Park, etc.

2. PROJECT DESCRIPTION AND CURRENT ACTIVITIES

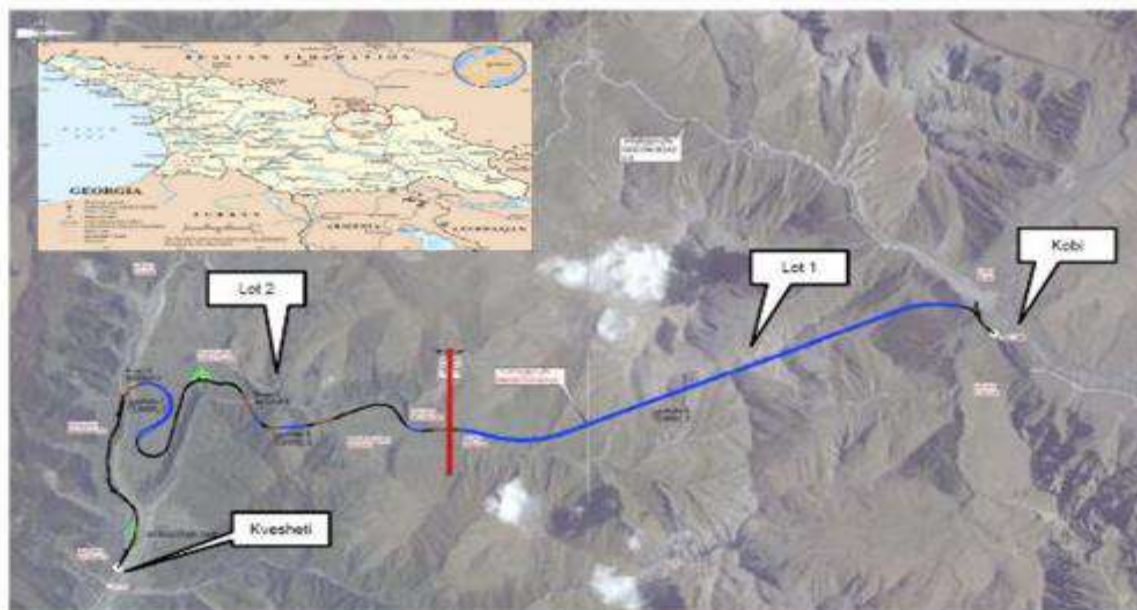
2.1 Project Description

13. Due to its geographic location, Georgia's role as a major transit country is momentous. Transport of goods into and through Georgia has increased over the past 10-15 years. Almost two-thirds of goods in Georgia are transported by road, and haulage by domestic and international truck companies is very evident on the country's highways. Many of the roads are, however, poorly equipped to cope with the volume of traffic and the proportion of heavy vehicles, and factors such as insufficient dual carriageways, routing through inhabited areas and inadequate maintenance and repair, hinder throughputs and increase transit times. This creates difficulties for haulage companies and their clients, truck drivers, Georgian motorists and local residents.
14. The Government of Georgia (GoG) has launched a program to upgrade the major roads of the country. The program is being managed by the Roads Department (RD) of the Ministry of Infrastructure (MoI). As a part of the program, upgrading of Kvesheti-Kobi section of the E117 is planned. This section includes the construction of 9 km long main tunnel that will cross the Caucasus ridge bypassing the existing road that connects Kvesheti to Kobi through Gudauri area and the Jivari pass. The project is located in Dusheti and Kazbegi municipalities, Mtskheta-Mtianeti region in the central northern part of Georgia (see Figure 1).
15. As for the residents of the Khadistskali gorge – the villages are poorly accessible in winter. According to official statistics (ref census 2002 and 2014) the decrease in community is significant. The decisive factor of decrease in population is the poor accessibility in winter especially for the localities at the higher altitude. The residents have to walk a long distance (for Tskere – around 7km) for basic food and medication. No first aid facilities are available in the area and no opportunity for children from the valley to remain in the villages and attend school. The road will improve access to the

settlements particularly those located higher in the gorge. Better access together with other benefits, ensured for permanent residents of the mountainous settlements under national legislation, can be considered as one of the ways for reversing migration from the area.

16. Kvesheti Kobi road section with six junctions and three service roads will play an important role in the development of Kazbegi and Dusheti municipalities by facilitating the communities of Kvesheti, Bedoni, Tskere and Kobi by providing year-round access to markets, educational institution, health facilities of capital Tbilisi and increasing the tourist attraction in Khada valley.

Figure 1: Location of Project Area



17. The length of the new alignment is 22.7 km and is divided into two construction packages, or 'Lots' as follows
 - Lot 1: Tskere – Kobi: Chainage KM 12.7 – KM 22.7 (10 km);
 - Lot 2: Kvesheti – Tskere: Chainage KM 0.0 – KM 12.7 (12.7 km).

Lot 1 Summary

18. The Tskere-Kobi portion of the Project Road, also referred to as 'Lot 1', includes 8.86 km long tunnel with two cut and cover sections and a junction connecting to the existing road near Kobi. More specifically Lot 1 includes:
 - 178 m long section of road from Tskere to the south portal of Tunnel 5;
 - Tunnel 5: 8.86 km long bidirectional, 2 lane tunnels (max. gradient 2.35%);
 - Two cut and cover (C&C) sections of Tunnel 5 (200m –south portal and 8m – north portal) to protect from avalanches and move entrance portal farther from the Tskere.
 - 9.062 km emergency gallery parallel to Tunnel 5 and 17 connections to the main tunnel (6.4 meters wide);
 - Technical buildings next to the north and south portals – the buildings include facilities building, pumping station and ventilation room.
 - 0.8 km long section of road connecting the north portal of the tunnel with existing road. The alignment has been adapted to the current road with a maximum gradient of 4.2 % to keep on using the existing bridge (bridge length 42m, height 6m); and
 - 214 m long local road diversion.

Lot 2 Summary

19. The Kvesheti – Tskere section, or 'Lot 2' includes 2.5 km of tunnels and 1.5 km of bridges. The main elements of this section are:

- Kvesheti bypass road (length 3.2 km),
- Bridge 1 (length 27.8m, height 14m, 2 lane)
- Bridge 2 over the Aragvi river (length 435.28m, height 62m, 3 lanes)
- Tunnel 1 (length 1540.64m, 2 lanes) with gallery (1092m) (New Austrian tunneling method- NATM)
- Bridge 3 – Arch bridge over the river Khadistskali (length 426m, height 164m, 3 lane)
- Tunnel 2 (length 193.42m, C&C, 3 lane)
- Bridge 4 over the left tributary of river Khadistskali (length 147.80m, height 26m, 3 lane)
- Tunnel 3 (length 388.38m)
- Bridge 5 (length 322m, height 55m, 3 lane)
- Tunnel 4 (length 299m, C&C, 3 lane)
- Bridge 6 (length 218m, height 48m, 3 lane)
- Five grade junctions are planned (KM0.3, KM1.7, KM3.1, KM7.7, KM10, 5) and 3 service roads.

20. Technical features of the alignment considered during detail design include:

Lot 1

Road class	International
Design speed	80 km/hr.
Outside Total width (paved)	12 m
Lane width	3.5 m
Min shoulder	2.5 m
Min road side	1 m
Structures Total width	15 m
Lane width	3.5 m
Min clearance	2.5 m
Min way side	1.5 m
Tunnel Total width	12.5 m
Lane width	3.5 m
Min shoulder	1.5 + 1m median
Min sidewalk	0.75 m
Number of Junction	01

Lot 2

Road class	International
Design speed	80 km/hr.
Outside Total width (paved)	12 m
Lane width	3.5 m
Min shoulder	2.5 m
Min road side	1m
Structures total width	15m
Lane width	3.5 m
Min clearance	2.5 m
Min wayside	1.5 m
Tunnel Total width	12.5 m
Lane width	3.5 m
Min shoulder	1.5 + 1m median
Number of Junctions	05
Min sidewalk	0.75 m

21. The Gudauri Access Road Project (ARP) comprises a short section of new road, approximately 5 km in length, connecting the KK Project Road at Zakatkari interchange with an existing road just south of Gudauri. The road will comprise two lanes, 3.5m in width with a design speed of 60 km per hour. The road is intended to serve as a link between the new KK Project Road and the existing road to Gudauri from Tbilisi, thereby avoiding a dangerous set of hairpin turns which currently provide access to Gudauri immediately after Arakhveti, adjacent to the Aragvi River. ARP is funded by ADB.

2.2 Project Contracts and Management

22. Information related to the project execution is given in Table 1:

Table 1: Project Information

Employer	Road Department of Georgia, Ministry of Regional Development and Infrastructure of Georgia
Funding Source	Lot 1: Asian Development Bank (ADB) & European Bank for Reconstruction and Development (EBRD) Lot 2: Asian Development Bank (ADB)
Project Management and Construction Supervision Contractor (PMCSC) (Engineer)	UBM
Contractor	Lot 1: CRTG (China Railway Tunnel Group Co. Ltd.) Lot 2: CRCC (China Railway 23rd Bureau Group CO. Ltd)
Contract Number	KKRP/CW/CP-01R, 02R
Contract Date	Lot 1: 05.09.2019 Lot 2: 15.08.2019
Commencement Date of Works	October 01, 2020.
Contract Period	Lot 1: 48 months (1460 days) Lot 2: 36 months (1080 days)
Project Completion date	Lot 1 16-09-2025 Lot 2 16-09-2025
Expired Time	63 months
Remaining Time	-
Defects Notification Period	2 years
Contract Price (GEL)	Lot 1: 909,024,280.61 GEL Lot 2: 316,370,802.91 GEL

23. The Terms of Reference (TOR) for the “Project Management and Construction Supervision Contract” (PMCSC) contains the following tasks for the environmental safeguard team:
- Ensure that the provisions of the approved Environmental Management Plan are reflected in the Contractor’s specific environmental management plan(s) (SEMPs) prior to its acceptance by the PMCSC, the Employer and ADB and EBRD, and thereafter ensure that the Contractor complies in every respect with the provisions of the SEMP.

- Preparation and implementation of Biodiversity Monitoring and Evaluation Program (BMEP) and contract with the organizations such as universities and NGOs in order to commission surveys to be completed as a part of implementation of BAP.
 - Protection of critical habitats to ensure that there is no net conservation loss or net conservation gain during the project implementation.
 - Conduct environmental training and briefings to provide awareness to ADB SPS 2009 and EBRD performance requirements (PRs elaborated in EBRD ESP 2014) and national environmental requirements.
 - Protection of cultural heritages in accordance with ADB SPS 2009, EBRD PR 8 and Georgian Law on cultural heritage 2007 updated in 2018, especially, Article 36 regarding buffer zones, perimeter of physical security of cultural heritage;
 - Develop an environmental auditing protocol for the construction period, regularly supervise the environmental monitoring, and submit the Monthly Environmental Monitoring Report (EMR) and Semiannual EMR based on the monitoring data and laboratory analysis reports. Monthly EMR will be included as an annex to the Consultant's Monthly Progress Report.
 - Develop a program for hands-on training of Contractor's staff in implementing the SEMP.
 - Ensure the safe work practices at the site, monitor the contractor is complying with all applicable safety regulations and safety of all persons entitled to be onsite:
 - Conduct post-construction environmental audit and prepare post-construction environmental audit report.
24. Obligation of the contractor, to safeguard, mitigate adverse impacts and rehabilitate the environment is addressed through environmental provisions in the FIDIC conditions of contract for construction, MDB harmonized addition – June 2010 and special clauses included in the contract related to environment, especially FIDIC clause 4.18 (protection of environment), 4.8 (safety procedures), 6.4 (labour laws), 16.3 (cessation of work/ remedial work), 2.3 b (employer's personnel), 4.21 (progress report) are important in this regard.
25. The PMCSC was awarded to UBM on June 24, 2019 for three phases of the project:
- Phase 1: Design review, to be completed in a period of three months and submitted to RD.
- Phase 2: Construction supervision and contract administration. The construction period is 36 months for Lot 1 and 48 months for Lot 2.
- Phase 3: Defects Notification Period, two years.
26. Summary of civil works contracts and works' progress is provided in Table 2. All awarded contracts included EMPs cleared by ADB and any conditions of applicable national EIA clearance by MoEPA. Subclause 4.18 in the contract KKR/CW/CP-01R and KKR/CW/CP-02 R contains all the information related to protection of environment and inclusion of the EIA and EMP in the contract.

Table 2. Summary of Civil Works Contracts and Works' Progress

Package	Contractor	Scope	Signed	Approval Date			Environmental Personnel		Civil Work		Progress as of	
				SSEMP	COVID-19 HSMP	ERP	Environmental officer	Health and Safety Manager	Start	End	June 2025	Dec 2025
Lot 1	CR TG	Tskere – Kobi: Chainage KM 12.7 – KM 22.7 (10 km) including 178 m long section of road from Tskere to the south portal of Tunnel 5; Tunnel 5: 8.86 km long bidirectional, 2 lane tunnels (max. gradient 2.35%); Two cut and cover (C&C) sections of Tunnel 5 (200m –south portal and 8m – north portal) to protect from avalanches and move entrance portal farther from the Tskere; 9.062 km emergency gallery parallel to Tunnel 5 and 17 connections to the main tunnel (6.4 meters wide); 0.8 km long section of road connecting the north portal of the tunnel with existing road.	05.09. 2019	12-06-202	26-11-2020	26-11-2020	Davit Gagoshidze	Vladimer Melia	October 01, 2020.	16-09-2024 (Planned)* 16-09-2025 After extension	100% (EG Excavation) 98% (EG total) 100 % Main Tunnel Boring 90% (Main Tunnel Total)	100% (EG Excavation) 99% (EG total) 100 % Main Tunnel Boring 95% (Main Tunnel Total)
Lot 2	CR CC	Kvesheti – Tskere: Chainage KM 0.0 – KM 12.7 (12.7 km) Including construction of 6 bridges, 4 tunnels and 5 grade junctions	15.08. 2019	12-06-202	27-11-2020	27-11-202	Tamta Kapanadze	Koba Gvalia	October 01, 2020.	16-09-2023 (planned)* 16-09-2025 After extension	50.2 %	63.97%

*Note: The Month/Years in brackets are planned schedule.

COVID-19 HSMP = COVID-19 Health and Safety Management Plan, ERP = Emergency Response Plan, SSEMP = Site-specific Environmental Management Plan

27. Information of ADB, EBRD, and Construction Contractor (CC), Project Management and Construction Supervision Contractor (PMCSC) and RD representatives involved in the project is given in Table 3; however, the contact details can be available on request.

Table 3: Main Environmental Staff of ADB, EBRD, RD, PMCSC and CC

Organization	Position	Name
ADB	Safeguard Specialist (Environment)	Armine Yedigaryan
	Associate Safeguards Officer Georgia Resident Mission	Nino Nadashvili
	Environment and Social Monitor	Tamar Lazarashvili
	Community Liaison Officer (CLO)	Tato Karelidze
EBRD	Principal Social Advisor Environment and Sustainability Department	Nurzhan Dzhumabaev
	Advisor, Environmental and Social - EBRD	Louis Collet
Client/ Borrower	Environmental Safeguard Consultant of RD	Luiza Bubashvili
	Environmental Specialist - RD	Rusudan Gholijashvili
	Head of Environmental and Social Division of RD	Mikheil Ujmajuridze
	Health and Safety consultant of RD	Mikheil Bagauri
Project Management and Construction Supervision Contractor (PMCSC) (Engineer)	International Environmental Specialist	Kashif Bashir
	Local Environmental Expert	Nikoloz Sopadze
	International Occupational Health and Safety Specialist	Kemal Karaduman
	National Occupational Health and Safety Specialist	Paata Tavdgiridze
Contractors	Project Manager	Lot 1 Cen Daoyong
		Lot 2 Yuan Yi
	Environmental Specialist	Lot 1 Davit Gagoshidze
		Lot 2 Tamta Kapanadze
		Olga Tsikoridze

	H&S Manager	Lot 1 Vladimer Melia
		Lot 2 Koba Gavalia
	CH Specialist	Lot 2 David Sulkhaniashvili (part time) Nikoloz Chaduneli (part time)

*Note: The above Table only includes the main environmental staff. The PMCS also has in place Cultural Heritage Monitors. PMCS also has in place the H&S specialists.

28. Under the Contract, the Contractor shall comply with all applicable national and local environmental laws and regulations as well as applicable respective standards under the Contract. The Contractor shall:
 - Establish an operational system for managing environmental impacts;
 - Develop the Specific EMPs as well as other site specific and topic specific EMPs by identifying environmental risks arising from the Works, the mitigation measures to be applied, and monitoring to be carried out;
 - Implement the required mitigation measures and monitoring;
 - Take any corrective or preventative actions set out in safeguards monitoring reports that the Employer will prepare from time to time to monitor implementation of the EMP/SEMP; and
 - Submit quarterly monitoring reports to the PMCS/RD as set in the EIA.
29. The Contractors, CRTG for Lot 1 and CRCC for Lot 2, are responsible for implementation of EMP/SEMP throughout the project during construction phase. The Project Management and Construction Supervision Contractor (PMCS) UBM (Engineer) is responsible for monitoring the implementation of EMP/SEMP by the Contractor at all its active construction sites and project associated facilities.
30. Responsibility of daily management for environmental monitoring and implementation of the SEMP is given to the Environmental Managers of the contractors CRTG and CRCC. The Environmental Managers have direct authority from the Project Manager to give instruction to all site staff regarding environmental issues.
31. Both contractors have on board H&S Specialists fulfilling the requirement of Article 7 "Organizing and Managing H&S" of Organic Law of Georgia on Labour Safety which states that "The employer having less than 20 employees can personally fulfil professional duties of an occupational safety specialist provided that s/he has completed the programme accredited according to paragraph 6 of this article. In case of 20-100 employees, the employer is obliged to appoint at least one OSH specialist. In case the number of employees is over 100 the special OSH unit needs to be set up, but with no less than two OSH specialist". H&S Specialists are available onsite on a daily basis and responsible for the maintenance of working environment, accident preventive measures and implementation of developed H&S requirements and procedures. Both contractors have established and are maintaining the medical facilities, and appointed medical staff practitioners.
32. At Lot 1, there are two national H&S Specialists: Vladimer Melia (Health and Safety Manager), and Mikheil Donadze (Safety Specialist). In addition to that, there is one

Chinese H&S Specialist: Li Yangie (Safety Specialist available at Kobi side). In total, there are 3 safety employees at Lot 1 Project.

33. At Lot 2, there are three National H&S Specialists: Koba Gvalia (H&S Manager), Achiko Otkavani (H&S Specialist/Certified Scaffolder), Gia Chitauri (H&S Specialist) and three Chinese H&S Specialists: Zhang Baojie, Zhang Xu and Leng Fuxiang. In total, there are 6 safety employees at Lot 2 Project.
34. Contractor for Lot 1 has one Environmental specialist Davit Gagoshidze. Lot 1 Ecological Clerk of Works (ECoW), Davit is carrying out the duties and responsibilities of ECoW. Contractor for Lot 2 has an Environmental Manager, Tamta Kapanadze who is also responsible for the duties of ECoW. She is responsible for the implementation of the Biodiversity Action Plan (BAP) and ensures that all the workers are aware of the sensitivity of the site in ecological perspective, carrying out pre-construction/pre-work surveys for identification of critical habitats and key species and conducting regular biodiversity monitoring of Project area. Lot 2 has one Environmental Field Officer Olga Tsikoridze. She is responsible for the site environmental supervision and preparation of environment documents.
35. Lot 2 has two part time cultural heritage specialists: Davit Sul Khanishvili and Nikoloz Chaduneli. At the current stage, the overall construction progress for Lot one has reached approximately 95%, with the majority of the remaining works being carried out within the tunnel. Accordingly, no CH Specialist is currently engaged for Lot 1. Furthermore, based on the latest available information and site conditions, there are no identified cultural heritage - sensitive areas within the Lot 1 project footprint at this stage.
36. The organizational charts for key management staff of CRTG and CRCC are given below in figures 2A & 2B respectively:

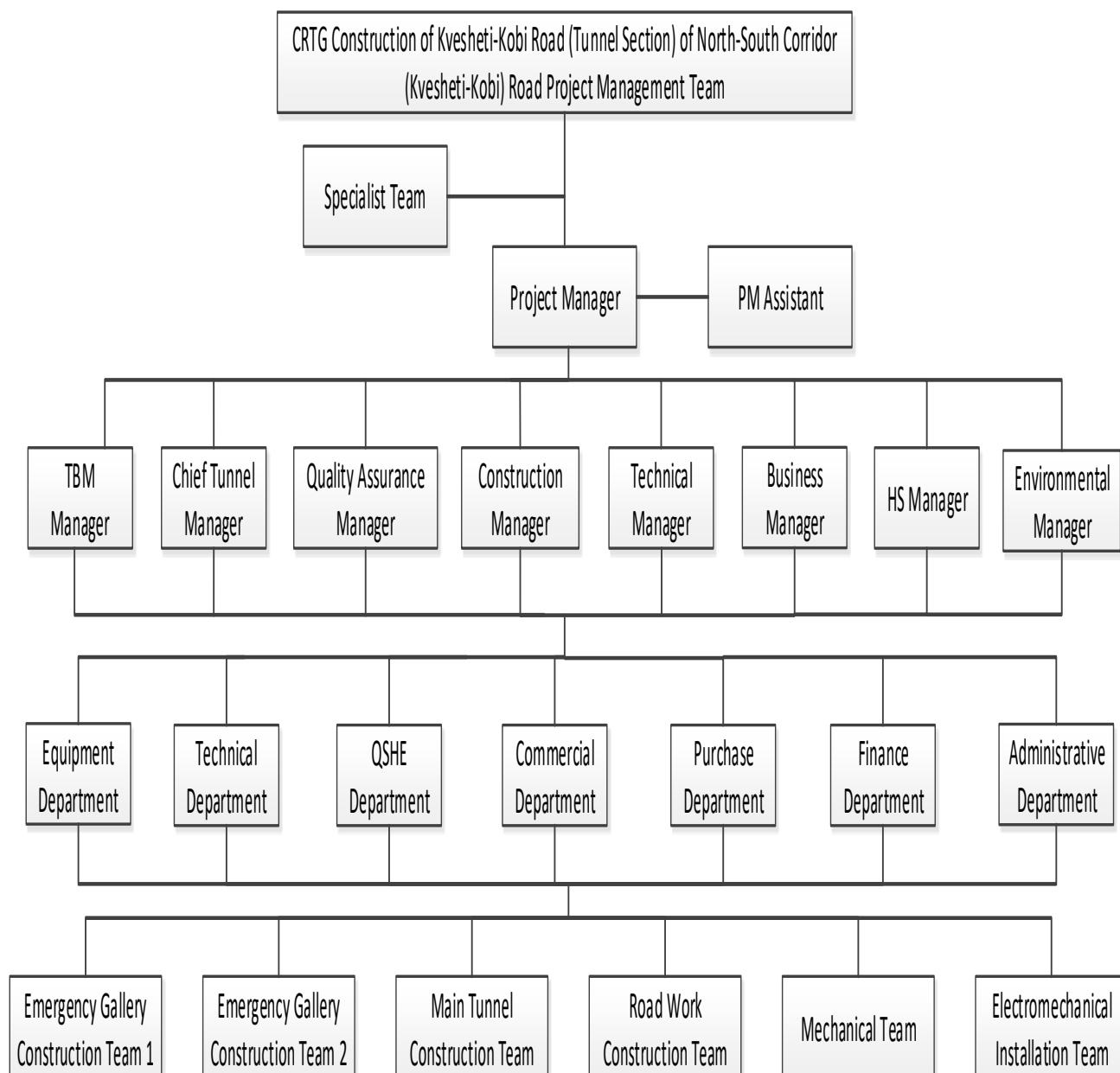
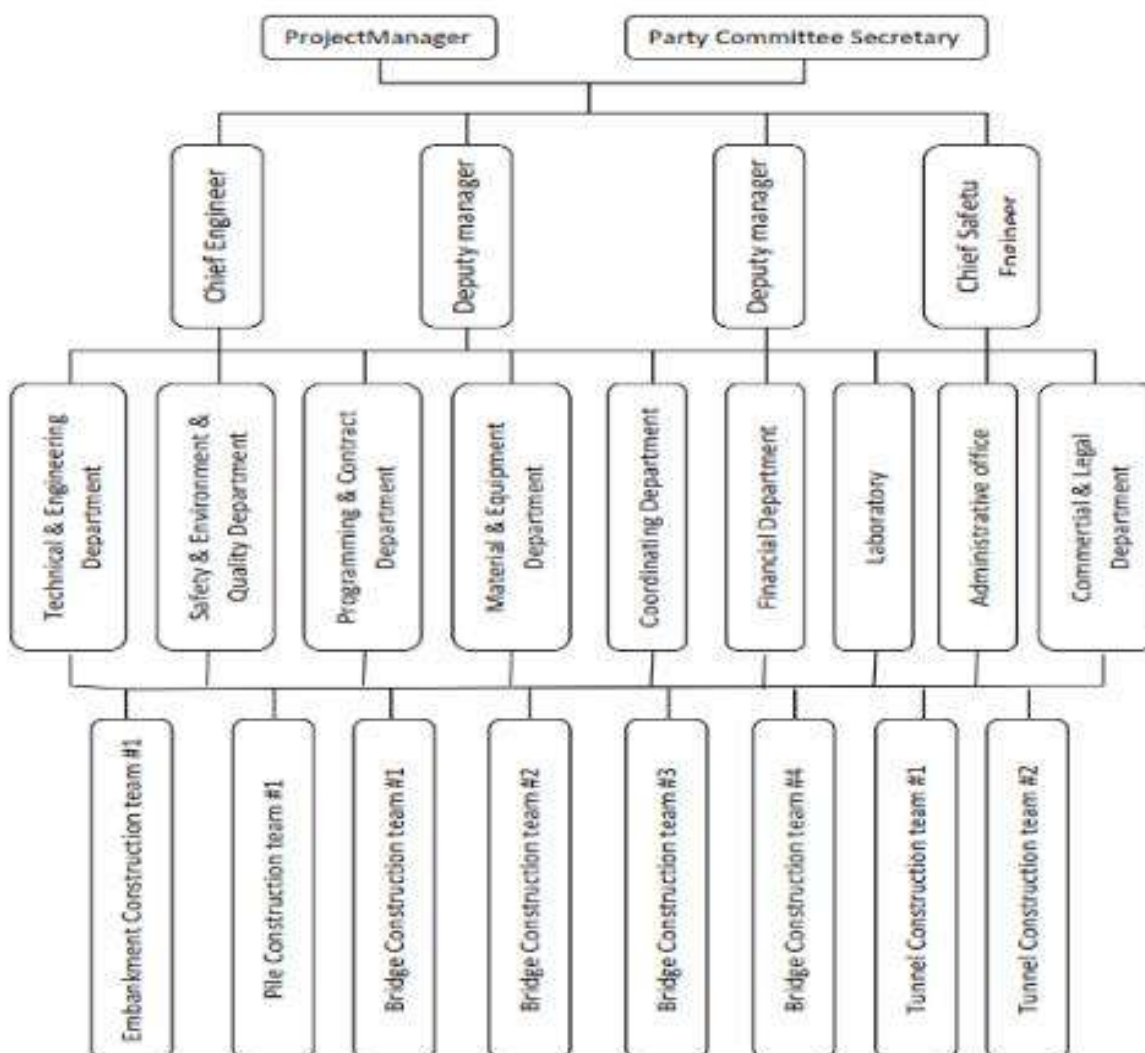
Figure 2A: Contractor (CRTG) Project Management Staff for Lot 1

Figure 2B: Contractor (CRCC) Project Management Staff for Lot 2



2.3 Project Activities in the Current Reporting Period

Lot 1 Progress of Works up to December 2025:

a) General Items:

- Contractor's equipment mobilization – 200 sets (unit of machinery / equipment), 100 %.
- TBM design and manufacturing – 100%.
- TBM installation 100%. (The TBM operation of excavation started in October 2021).
- Gas pipeline relocation design and approval – 100%.
- Plans and MSs Preparation and approval – 100 %.

b) Tunnelling:

- Excavation of the main tunnel – 8873 m.
- Pre-Tunnel and Post-Tunnel excavation and support – 8873 m.
- Main Tunnel north portal C&C excavation and support – 18.4 m.

- Main Tunnel south portal C&C excavation and support – 197.7 m.
- Main Tunnel north portal borehole drilling and grouting for fore poling – 100%.
- Main Tunnel south portal borehole drilling and grouting for fore poling – 100%.
- Emergency Gallery- D&B excavation and preliminary support – 100% is excavated.
- Emergency Gallery- D&B excavation and preliminary support – 8856 m.
- Emergency Gallery-lining support – until 100% is lining.
- Emergency Gallery north portal C&C excavation and support – 18.4 m.
- Emergency Gallery south portal C&C excavation and support – 210.4 m
- Emergency Gallery north portal borehole drilling and grouting for fore poling – 100%.
- Emergency Gallery south portal borehole drilling and grouting for fore poling – 100%.

c) Bridge:

- BRI-7 rehabilitation 0%.

d) Roads:

- K12+720-K12+900 Road slop excavation – 100%.
- K12+720-K12+900 Road subgrade construction – 50%.
- K12+720-K12+900 Road pavement construction – 0.
- K21+968-K22+751 Road embankment construction – 50%.
- K21+968-K22+751 Road pavement construction – 0m³.
- Local Road LRD-12.7 construction – 0m.
- Local Road LRD-12.9 subgrade and pavement construction – 0m.
- Local Road LRD-13.1 construction – 0m.
- Local Road GJ-22.3 subgrade and pavement construction – 0m.
- Local Road EAO-12.7 construction – 0m.
- Local Road EAO-22.5 construction – 430m.

e) Operation Area:

- OPA-12.8 slope excavation and support – 100%.
- OPA-22.0 slope excavation and support – 100%.
- OPA-12.8 Facility Building construction – 100%.
- OPA-12.8 Pump Station construction – 100%.
- OPA-22.0 Facility Building construction – 100%.
- OPA-22.0 Pump Station construction – 100%.

f) Retaining Wall:

- RWL-12.6 Rockery Wall construction – 98%.
- AWL-12.7 Anchored Concrete Wall construction – 100%.
- RWR-12.9 Rockery Wall construction – 0.
- RWR-21.9 Rockery Wall construction – 100%.

• Construction of Batching Plant, Segment Plant, Crusher and other Construction Facilities at Kobi and Tskere site.

- Kobi Batching Plant #1: 100%
- Kobi Segment Plant: 100%
- Kobi Crusher Plant: 100%
- Kobi Explosive Storage Area: 100% (The explosive storage area was cleared and returned to the landowner on 30-07-2024)
- Kobi Campsite #1: 100%
- Tskere Explosive Storage Area: 100%
- Tskere Campsite #2: 100%
- Tskere Batching Plant #2: 100%

- Quarries: Kobi near Tergi River, % completed ($303534 \text{ m}^3 / 412470 \text{ m}^3 \times 100$) = 73.6 %
- Quarries: Kobi upstream Tergi River, 100% completed ($113714 \text{ m}^3 / 113714 \text{ m}^3 \times 100$) = 100 % (License expired)

37. Progress of work carried out by Contractor for Lot 1 during the reporting period is summarized in Table 4A below:

Table 4A: Construction Progress during Reporting Period for Lot 1

WORK DESCRIPTION	DIMENSION	DESIGN	PROGRESS DURING JULY-DEC 2025	CUMULATIVE PROGRESS FROM START	OVERALL PERCENT AGE %
Bill No.2 Preparatory Works					
A) Demolish					
Demolition of building and bridges	m ²	351	0	0	0
Demolition of reinforced or mass concrete	m ³	350	0	350	100
B) Site Preparation					
General setting out (Repetitive survey by CC for setting out reference points and to confirm the bench marking of the project site for works)	set	1	0	1	100
Site clearance	m ²	55000	0	55000	100
Cutting trees of more than 0.1 m diameter (No red list species uprooted)	set	1	0	1	100
C) Utilities Relocation					
Gas pipeline D700 mm	m	834	0	834	100
Gas pipeline D1200 mm	m	797	0	797	100
D100 cast pipe	m	116	0	116	100
Temporary division of fiber cable	m	920	0	920	100
Division of single mode fiber cable	m	920	0	920	100
Trench excavation and filling for pipes	m	540	0	540	100
D) Surveys					
Additional geotechnical investigation	m	360	0	360	100
Bill No.3 Earthworks					
A) Excavation					
Mechanical excavation	m ³	61900.34	0	61900.34	100
Blasting (<20%) and ripper excavation	m ³	135785.20	0	135785.20	100
Excavation by blasting	m ³	12876.36	0	12876.36	100

WORK DESCRIPTION	DIMENSION	DESIGN	PROGRESS DURING JULY-DEC 2025	CUMULATIVE PROGRESS FROM START	OVERALL PERCENTAGE %
Excavation by pre-splitting blasting	m ³	850	0	850	100
B) Filling					
Embankment construction with material from excavations on site	m ³	276,226.12	82868	82868	30
Embankment construction with material from borrow pits	m ³	4500	0	0	0
Filling in spoil area, distance <2km	m ³	2135532.76	326404.8	1757945.25	82.3
Filling in spoil area, distance 2km~10km	m ³	548192.76	548192.76	548192.76	100
Riprap protection	m ³	43576.10	0	0	0
Filling on C&C structure	m ³	144672.77	43402	43402	30
B) Slope support and protection					
Spray concrete on slopes	m ³	91.58	0	91.58	100
Slope protection with wire mesh	m ³	915.84	0	915.84	100
Passive bolts for slope protection	M	465	0	465	100
Bill No.4 Road Pavements					
Asphalte surface course	t	26740.68	0	0	0
Asphalte base course	t	7168.59	0	0	0
Tack coat	m ²	142587.77	0	0	0
Prime Coat	m ²	46296.97	0	0	0
Crushed rock base course	m ³	5303.27	0	0	0
Frost blanket course	m ³	17506.74	0	0	0
Concrete pavement	m ³	9938.7	0	8711.5	87
Bill No.5 Drainage					
A) Longitudinal Drainage					
Triangular ditch, 0.4m width	m	1400.7	0	1400.7	100
Trapezoidal ditch, 2m width	m	585	380	380	65
Trapezoidal ditch, 1m width	m	730	0	0	0
Precast channel for drainage of spills from the tunnel	m	18136	0	0	0
Plain pvc pipe ø 350 mm	m	18196	12000	12000	66
Sewer manhole	set	353	300	300	85
B) Cross-drainage					
Reinforced concrete pipe on concrete bed ø 400 mm	m	134	34	34	25

WORK DESCRIPTION	DIMENSION	DESIGN	PROGRESS DURING JULY-DEC 2025	CUMULATIVE PROGRESS FROM START	OVERALL PERCENTAGE %
Precast siphon manhole	set	302	75	75	25
Reinforced concrete pipe on concrete bed ø 1800 mm	m	190	0	0	0
C) Spoil Area Drainage					
Drainage for existing water courses	m	1723.66	0	0	0
Bill No.6 Tunnel 5					
A) South Portal Tskere					
French drain construction	m	2099.76	1599.76	2099.76	100
Passive bolt for slope protection	m	9,866.88	1666.88	9,866.88	100
Steel mesh for support	m ²	5776	776	5776	100
Cable anchor for slope protection	m	7038	0	0	0
Reinforced concrete	m ³	1010.8	510.8	1010.8	100
Sprayed concrete	m ³	685.2	85.2	685.2	100
Umbrella micro pile ø 101 mm	m	705	0	705	100
Reinforced concrete in C&C section	m ³	13375.17	11346.17	13375.17	100
Corrugated steel bars in passive reinforcement	kg	1832374.35	1557518.35	1832374.35	100
PVC waterproofing	m ²	15,269.07	15,269.07	15,269.07	100
B) North Portal Kobi					
Passive bolt for slope protection	m	1976	0	1976	100
Cable anchor	m	475.8	0	475.8	100
Sprayed concrete	m ³	132.47	0	132.47	100
Umbrella micro pile ø 101 mm	m	1020	0	1020	100
Reinforced concrete in C&C section	m ³	642.33	0	642.33	100
Corrugated steel bars in passive reinforcement	kg	99561.03	0	99561.03	100
C) Underground Tunnel 5					
Main Tunnel excavation and support by TBM	m	8860	1501	8860	100
Pre-Tunnel and Post-Tunnel excavation and support	m	30	0	30	100
Emergency Gallery excavation and preliminary support	m	8854.59	0	8854.59	100
Emergency Gallery invert construction	m	5913.6	700	5913.6	100
Emergency Gallery Leveling concrete construction	m	8854.59	700	8854.59	100
Emergency Gallery lining construction	m	8854.59	3868.4	8757	99

WORK DESCRIPTION	DIMENSION	DESIGN	PROGRESS DURING JULY-DEC 2025	CUMULATIVE PROGRESS FROM START	OVERALL PERCENT AGE %
Cross Passages excavation and support	set	18	2	18	100
Traffic substructure construction	m	8860	97	8757	99
Ventilation structure construction	m	8860	3690	4048	46
Bill No.7 Bridge 7- Rehabilitation					
Bridge 7 rehabilitation	set	1	0	0	0
Bill No.8 Retaining Walls and Other Structures					
Rockery Wall RWL-12.6	set	1	0	0	0
Rockery Wall RWR-12.9	set	1	0	0	0
Rockery Wall RWR-21.9	set	1	0	0	0
Anchored Concrete Wall AWL-12.7	set	1	0.39	0.9	90
Cantilever Concrete Wall CWL-12.7	set	1	0.39	0.9	90
Bill No.9 Road Signaling, Marking and Safety Barriers					
Main roads	m	10031.16	0	0	0
Emergency Gallery	m	9068	0	0	0
Local roads	m	390	0	0	0
Bill No.10 Tunnel Facilities					
Power supply	set	1	0.44	0.50	50
Lighting	set	1	0	0	0
Ventilation	set	1	0	0	0
Fire fighting	set	1	0.647	0.74	74
Security, monitoring and control	set	1	0	0	0
Operation control center	set	1	0	0	0
Infrastructures	set	1	0.5	0.5	50
Bill No.11 Technical Buildings					
Facilities Building Tskere	set	1	0.95	0.95	95
Pumping Building Tskere	set	1	0.95	0.95	95
Facilities Building Kobi	set	1	0.08	0.98	98
Pumping Building Kobi	set	1	0.65	0.95	95
Facilities	set	1	0.9	0.9	90
Bill No.12 Road Equipment					
A) Infrastructure (Ducts)					
Duck bank	m	1350	0	0	0
Cast iron manhole	set	44	0	0	0
B) Medium Voltage					
Switching center	set	6	0	0	0
Three-phase line	m	9500	0	0	0
C) Road Lighting					
Main roads	m	963.16	0	0	0
Local roads	m	390	0	0	0
D) Telecom					
Fiber optic network	set	1	0	0	0
Lan multiservice network	set	1	0	0	0
Bill No.13 Environmental Measures					

WORK DESCRIPTION	DIMENSION	DESIGN	PROGRESS DURING JULY-DEC 2025	CUMULATIVE PROGRESS FROM START	OVERALL PERCENT AGE %
Top soil excavation	m ³	51004.09	3152	64012.09	125.5
Distribution of top soil	m ³	50000	0	0	0
Manual seeding	m ²	150000	0	0	0
Planting of trees, shrubs and plants	lump-sum	1	0	0	0
Hydro-seeding of green slopes	lump-sum	1	0	0	0
Special measures and treatments during construction	lump-sum	1	0.09	0.66	66
Noise barriers	PS	1	0	0	0
Soil stabilization treatments	lump-sum	1	0.14	0.67	67
Inspection, monitoring, control and reports	lump-sum	1	0.1	0.67	67
Fencing H=2.0 m	m	120	0	0	0
Asbestos PPE According to EMP	lump-sum	1	0	0	0
Bill No.14 Temporary Works and Diversions					
TD-13.1	SET	1	0	0	0
TD-22.3	SET	1	29%	100%	100
Bill No.15 Local Road Diversions, Service Roads and Emergency Access to OPAs					
LRD-12.9 (TSEKERE AXIS)	SET	1	0	0	0
LRD-13.1	SET	1	0	0	0
EAO-12.7	SET	1	0	0	0
EAO-22.5	SET	1	0	0	0

Lot 2 Progress of Works

General Items

- Contractor's equipment mobilization – 180 sets (unit of machinery / equipment), 80 %
- Plans and MSs preparation and approval – 100 %.

• **Tunnel 1**

T1:

- Top guide 1:1391.7m. (TOP Headings I, II)
- Top guide 2: 1391.7m.
- Bottom guide 3:1391.7m (Bench III, IV, V)
- Bottom guide 4: 1391.7m
- Bottom guide 5: 1391.7m
- Elevation arch 6:1391.7m
- Final lining : 1391.7m

(Note: Tunnel 1 completed)

g) Tunnel 2: Excavation 110000m³

h) Tunnel 3:

T3 exit:

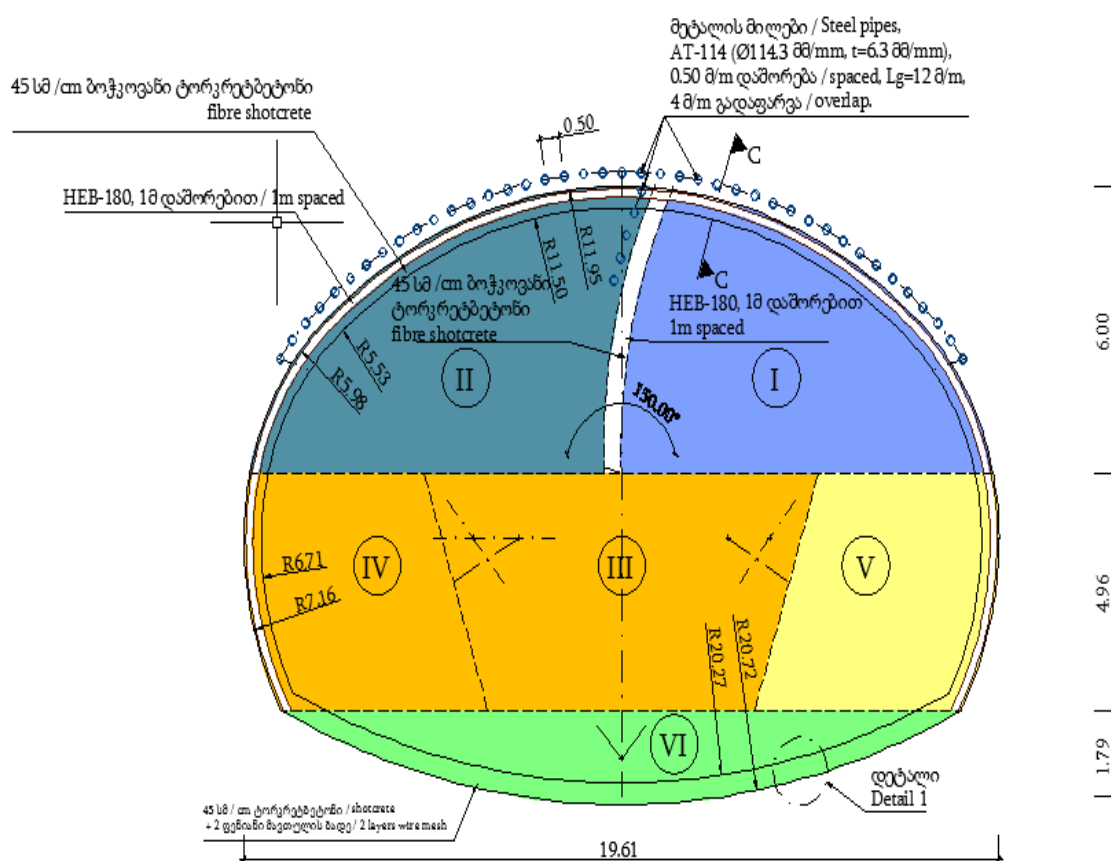
- Top guide 1: 434m. (TOP Headings I, II)
- Top guide 2: 434m.
- Bottom guide 3: 434m (Bench III, IV, V)
- Bottom guide 4: 434m
- Bottom guide 5: 434m
- Final lining: 434m

(Note: Tunnel 3 completed)

i) **Tunnel 4:** Excavation 210000m³

38. In the monitoring period the contractor for Lot 2 (CRCC) continued earthworks along the Gudauri access road and construction of embankments and relocating the utilities. This phase of the project involved the removal of topsoil, a process closely scrutinized by the Engineers' Cultural Heritage team.
39. The details about the working face of tunnel excavation inside the tunnel including top and bottom guide of the tunnel is given in Figure 3.

Figure 3: Working face for tunnel excavation



j) **Bridges:**

- B2 (Bridge N2): Beam has been completed 434m.
- B3: P1, P2, P19-P22, A2 pile foundations completed. Pile caps A1, P1-P3, and P19-P22 have been completed. Piers P3 and P19 have been completed.

P3 arch: 5 segments completed on the left and 3 segments completed on the right; P19 arch: 4 segments completed on the left and 1 segment completed on the right.

- B4: A1、P1、P2、P3、P4 pile foundations completed, 7 additional piles for A2 have not yet been completed. A1、P1 and P2 pile cap has been finished, A1 Abutment、P1 pier and P2 pier has been finished.
- B5: All pile foundations are complete. Pile caps are complete except for P4. Piers and abutments are complete except for A1 and P3/P4.
- B6: A1-P1 Cast-in-place Beams: Scaffolding erection and bottom and side formwork installation completed. P1-P2 Cast-in-place Beams: Steel pipe piers installed; distribution beams are being installed. P2-P3 Cast-in-place Beams: Steel pipe pier installation; of the 13 newly added piles, 11 have been completed, with 2 remaining.

k) Roads:

- KM0+200-400 - 50000 m³.
Filling 50000m³, Filling- 100%.
- KM0+400-800 220000 m³.
Filling 220000 m³, Filling- 100%.
- KM0+800-1+100 190000 m³.
Filling 190000 m³, Filling- 100%.
- KM1+100-km1+260 80000 m³
Filling 80000 m³ -100%.
- KM5+920-KM6+180 26000m³
Filling 26000 m³ -100%
- KM6+180-KM6+300 25000m³
Filling 25000- 100%
- KM6+300-KM6+400 14000m³
Filling 14000- 100%
- KM6+400-km6+770 32000 m³
Filling 32000 -100%
- KM6+870-KM7+545 40000 m³
Excavation completed 40000-100%
- KM9+020-KM9+140 40000
40000m³ of excavation, excavation completed-100%
- KM9+980-12+300 1102151 m³
418000m³ of excavation, excavation completed-37.93%
- **0.7 culvert:**
Has been finished
- **1.0 culvert:**
Has been finished
- **2.2 culvert:**
Has been finished
- **2.6 culvert:**
Has been finished
- **5.9 culvert:**
Has been finished
- **7.6 culvert**

- Has been finished
- **7.9 culvert**
Has been finished
- **CWR1.3**
Has been finished
- **CWL2.0:**
Has been finished
- **CWL2.7:**
Has been finished
- **CWL9.2:**
Has been finished
- **CWR10.1:**
Has been completed 60% (The pile foundation has been completed, but the remaining retaining wall and pile caps have not yet been constructed.)
- **Temporary Facilities:**
 - Camp # 1 100 %
 - Camp# 2 100 %
 - Camp # 3 100 %
 - Batching Plant 1 100 %
 - Batching Plant 2 100 %
 - Batching Plant 3 100%
 - Parking and maintenance area 100%
 - Explosive Storage Area: 100 %
- **Quarry Area:**
 - Mleta Quarry –100%
 - Quarry Near Parking Area – 90%

40. Progress of works carried out by Contractor for Lot 2 during the reporting period is summarized in Table 4B below:

Table 4B: Construction Progress During Reporting Period for Lot 2

Work description	Dimension	Design	Actual during reporting period	Cumulative	%
Bill No.2 Setting Out and Site Clearance					
Site clearance, average depth=20 cm	m ²	200000	0	358906.88	100
Tree felling, trunk diameter	each	350	0	350	100
BILL No. 3. Earthworks					
Excavation of soil mechanically	m ³	624751.30	81235.2	429030.97	81.68
Excavation of soil by means of blasting	m ³	1100470.8	102152.3	495390.47	45.02
Construction of embankment	m ³	1138441.2	213973.01	1133065.93	99.54
Slope protection	m ³	2651.02	400.5	1957.6	73.84
BILL No. 4. Road Pavements					
Frost blanket course (fbc)	m ³	63663.16	25000	52000	81.7
Crushed rock base course (crbc)	m ³	33352.92	10000	23000	69
Asphalt base course (abc)	t	64940.45	30434	41110.6	63.3
Asphalt surface course (asc)	t	54012.21	38517	38917	72.1
BILL No. 5. Drainage					
Longitudinal ditches	m	27710	7705	10838	39.11
Cross-drainage	m	1742	200	1265	72.62
BILL No. 6. Tunnels 4 sets					

Tunnel 1	set	1	0.02	1	100
Tunnel 2 (C&C 9.0)	set	1	0.1	0.1	10
Tunnel 3	Set	1	0	0.99	99
Tunnel 4 (C&C 12.0)	set	1	0.1	0.1	10
BILL No. 7. Bridges 5 sets					
Bridge-2	set	1	0	1	100
Bridge-3	set	1	0.2	0.33	33
Bridge-4	set	1	0.1	0.56	56
Bridge-5	set	1	0.20	0.55	55
Bridge-6	set	1	0.20	0.64	64
BILL No. 8. Retaining walls and other structures					
Retaining walls	piece	10	1	9.2	92
Box culvert – 15m X 5.5m	Linear meter	45	0	45	100
Box culvert – 13m X 6.65m	Linear meter	14.6	0	14.6	100
Box culvert – 15.82m X 3.8m	Linear meter	15.82	15.82	15.82	100
Box culvert – 4m X 5.5m	Linear meter	18	0	18	100
Box culvert – 2.5m X3m	Linear meter	20.38	0	20.38	100
BILL No. 9. Road signaling, marking and safety barriers					
Main roads	Km	12.72	5	5	39.31
Secondary roads	Km	4.96	0	0	0
BILL No. 10. Tunnel facilities					
Tunnel 1	set	1	0.75	0.95	95
Tunnel 2 (C&C 9.0)	set	1	0	0	0
Tunnel 3	set	1	0	0	0
Tunnel 4 (C&C 12.0)	set	1	0	0	0
BILL No. 11. Technical buildings					
Technical buildings	set	4	2.5	3.5	87.5

41. During the monitoring period, the contractor for Lot 2 continued with asphalt work, earthworks along the Gudauri Access Road, and the construction of embankments while relocating utilities. The removal of topsoil and trenching were carefully monitored by the Cultural Heritage team of the PMSCS.

2.4 Information of Personnel Working on Construction Site

42. Overall staff hired by the Contractors CRTG and CRCC up to December 2025 and working at site are given below in Table 5A & 5B respectively:

Lot 1 (CRTG Contractor)

Total number of employees – 249

Foreign Staff – 167

National Staff – 82

Table 5A: Information of Personnel Working at Site during Reporting Period (Lot 1)

#	Position	Contractor		Subcontractor		Total
		Foreigner	National	Foreigner	National	
1	Project Manager	1	-	1	-	2
2	PM Assistant	1	-	-	-	1
3	Chief Tunnel Manager	1	-	-	-	1

4	TBM Manager	0	-	-	-	0
5	Deputy TBM Manager	0	-	-	-	0
6	Technical Manager	1	-	-	-	1
7	Construction Manager	2	-	-	-	2
8	QA/QC Manager	1	-	-	-	1
9	H&S Manager	-	1	-	-	1
10	H&S Specialist	1	1	-	-	2
11	Environmental Manager	-	1	-	-	1
12	ECOW	-	0	-	-	0
13	Environment Assistant	-	0	-	-	0
14	Technical Department	9	0	-	-	9
15	Finance & Administration	2	0	-	-	2
16	Commercial Engineer	2	0	-	-	2
17	Foreman	15	-	-	-	15
18	Repairman	7	0	-	-	7
19	Mechanical Department	3	-	-	-	3
20	Driver	19	17	-	-	36
21	Skilled Labour	58	22	16	-	96
22	Unskilled Labour	23	20	-	-	43
23	Community Liaison Officer	0	1	-	-	1
24	CH specialist	0	-	-	-	
25	Security Guards	0	12	-	-	12
26	Medical Staff	0	2	-	-	2
27	Kitchen Staff	3	3	-	-	6
28	Cleaners	1	2	-	-	3
	Total	150	82	17	-	249

Lot 2 (CRCC Contractor)

Total number of employees – 217

Foreign staff – 153

National staff – 64

Table 5B: Information of Personnel Working at Site During Reporting Period (Lot 2)

#	Position	Contractor		Subcontractor		Total
		Foreign	National	Foreign	National	
1	Project Manager	1	0	-	-	1
2	Deputy Project Manager	3	0	-	-	3
3	Chief Engineer	1	0	-	-	1
4	Deputy Chief Engineer	2	0	-	-	2
5	Deputy Project Manager	2	1	-	-	3
6	Chief Safety Manager	1	0	-	-	1
7	Technical & Engineering Department	13	2	-	-	15
8	Surveying Department	2	0	-	-	2

9	Programming & Contract Department	4	1	-	-	5
10	Material & Equipment Department	3	1	-	-	4
11	Social Coordination Department	1	5	-	-	6
12	Financial Department	2	1	-	-	3
13	Commercial & Legal Department	3	1	-	-	4
14	Administrative Office	3	0	-	-	3
15	Laboratory	3	0	-	-	3
16	Safety personel	3	3	-	-	6
17	Environment staff	0	2	-	-	2
18	Rear-service personnel in Project department	3	8	-	-	11
19	Subgrade Team	8	10	-	-	18
20	Mixing station	2	2	-	-	4
21	Pile Team	5	2	-	-	7
22	Tunnel Team	2	6	-	-	8
23	Equipment Installation	6	2	-	-	8
24	Bridge and Culvert Team	80	7	-	-	87
25	GSP	0	0	-	-	0
26	GOGC Relocation	0	10	-	-	10
	Total	153	64	0	0	217

43. The graphical presentation of number of foreign and local staff hired by the contractors CRTG and CRCC and working at site is shown in the figures 4A & 4B respectively.

Figure 4A: CRTG Personal at Site as of December 2025 (Lot 1)

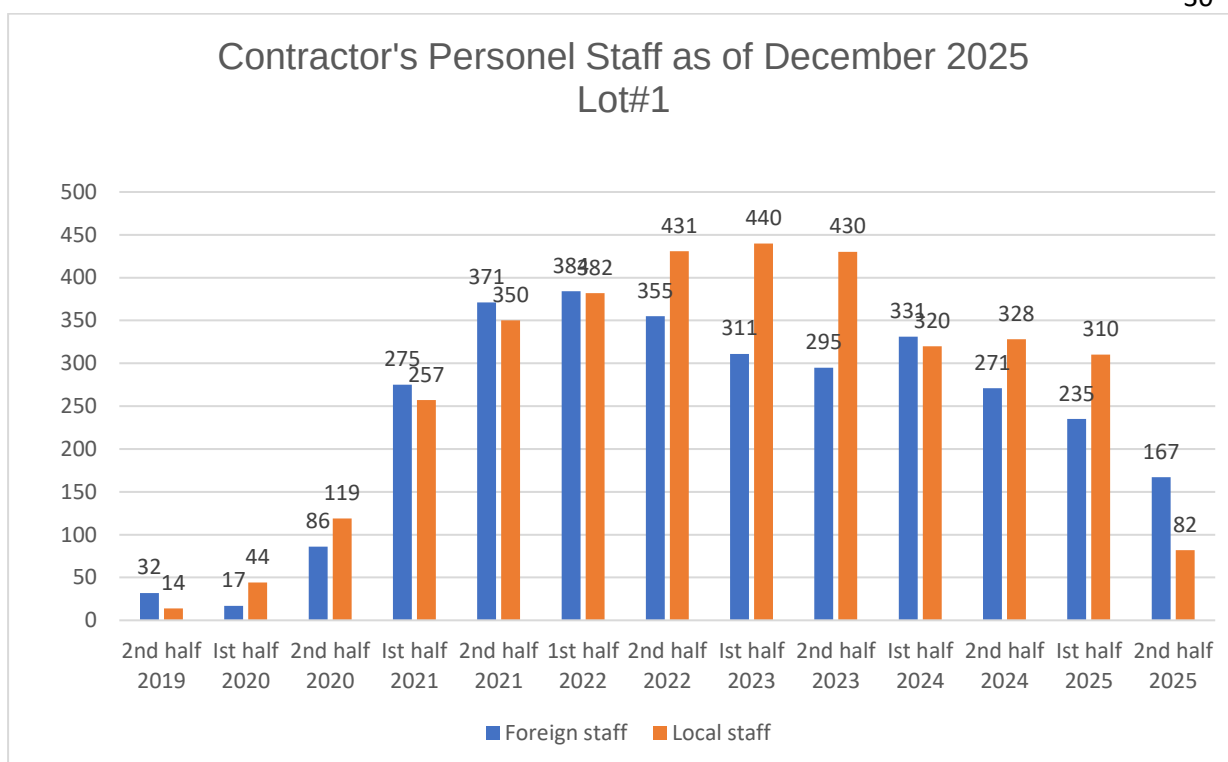
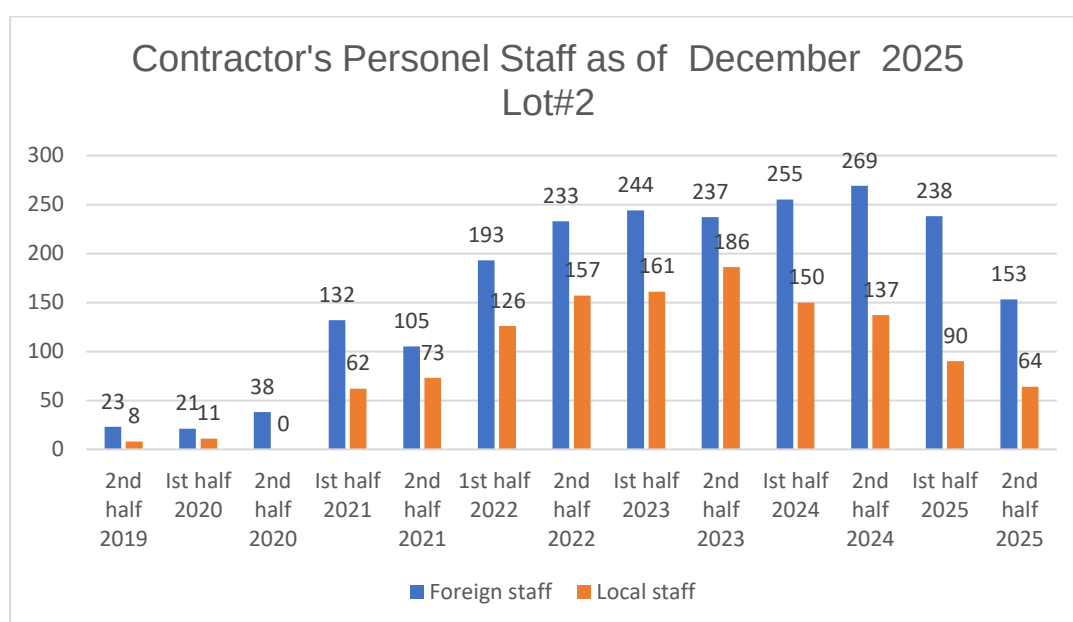


Figure 4B: CRCC Personal at Site as of December 2025 (Lot 2)



44. During the reporting period, Lot 1 experienced a change in the total number of staff, with a reduction of 295 workers. However, Lot 2 saw a reduction in the number of staff by 78 during the reporting period.
45. The worker distribution for Lot 1 is 33.2% national and 66.8% foreign, while Lot 2 is 29.4% national and 70.6% foreign workers.

46. Information regarding the mobilization of Project Management and Construction Supervision Contractor (PMCSC) staff is given in Table 6.

Table 6: Information of PMCSC (Engineer) Staff Status (December 2025)

#	Name of Team Member	Position Held	Mobilization Status
International Staff			
1	Kemal Karaduman (CP01, CP02)	Senior Occupational Health and Safety Specialist	Mobilized
2	Abdul Hameed (CP01, CP02)	Senior Resettlement/ Social Development Specialist	Mobilized
3	Kashif Bashir (CP01, CP02)	Senior Environmental Specialist	Mobilized
National Staff			
1	Nikoloz Sophadze (CP01, CP02)	Environment Specialist	Mobilized
2	Tamar Javakhi (CP01, CP02)	Resettlement/ Social Development Specialist	Mobilized
3	Paata Tavdgiridze (CP01, CP02)	Occupational Health and Safety Specialist	Mobilized
4	Zaza Devdariani (CP01, CP02)	Road Safety Engineer	Mobilized
5	Emir Ibrahimov (CP02)	Occupational Health and Safety Specialist	Left during reporting period
6	Lado Gotsiridze (CP01)	Occupational Health and Safety Specialist	Mobilized
Non-Key Staff			
1	Nikoloz Tskvitinidze (CP01, CP02)	Cultural Heritage Expert	Mobilized
2	Amiran Nadirashvili (CP01, CP02)	Cultural Heritage Expert	Mobilized
3	Simon Chachanidze (CP01)	Environment Field Officer	Mobilized
4	Giorgi Lagidze (CP02)	Environment Field Officer	Mobilized

2.5 Description of Any Changes to Project Design

47. No change in the project design was approved during the reporting period.

2.6 Description of Any Changes to Agreed Construction Methods

48. No changes to the agreed construction methods were approved during the reporting period.

3. ENVIRONMENT SAFEGUARD ACTIVITIES

3.1 Description of Environment Safeguards Activities

49. **General** - During the daily monitoring, the PMCSC's environmental specialists check the environmental impacts caused by the construction activities and compliance with the requirements of EIA, EMP, with national and international standards and conditions of contracts.

50. **Biodiversity** – The Project Management and Construction Supervision's international environmental expert prepared Biodiversity Monitoring and Evaluation Program (BMEP) and monitors the implementation of Biodiversity Action Plan (BAP) along with the Lot 2 Contractor Ecological Clerk of Works and Lot 1 Contractor's Environmental Specialist.
51. A standalone document "Biodiversity Action Plan (BAP)" for those specific species or habitats of greater note has been prepared. The BAP will help ensure no net loss, or if required, net gain of natural habitats and support notable species of conservation importance. The responsibility for the implementation of the BAP is both with the PMCSC and Contractor who will outsource specific components of the BAP to external organizations, such as conservation societies, NGOs or universities.
52. The contractor for Lot 2 carried out fish monitoring during November 2025 for the Khadistskali River and Aragvi River by hiring an independent ichthyologist (fish monitoring report is included as Annex 10). A detailed Section 4.1.1 is given on Biodiversity Monitoring in this report.
53. **Cultural Heritage** - Cultural Heritage (CH) Monitors of PMCSC and Contractors are responsible for ensuring the protection of cultural heritage in the Project Area of Influence (AoI) in accordance with the Georgian Law on Cultural Heritage and coordinating with the Ministry of Culture and Monument Protection of Georgia.
54. The cultural heritage specialists of PMCSC maintain an online map dedicated to CH sites. This innovative tool, developed by the PMCSC CH Specialists, serves as a dynamic and accessible resource for project stakeholders, construction teams, and the IFIs. The online map includes all cultural heritage assets identified by the National Agency for Cultural Heritage Preservation (NACHP) during their thorough survey. This encompasses archaeological sites, historical structures, cultural landscapes, and other significant elements. One of the primary advantages of this online map is its ability to provide real-time updates. Cultural Heritage Specialists can input data about chance finds as they occur, ensuring that the map remains current and accurate. The map also serves as a vital tool for risk mitigation. It highlights construction zones in relation to known cultural heritage sites, enabling construction teams to take proactive measures to avoid or minimize potential impacts.
55. Detailed information about cultural heritage and archaeological activities carried out in the reporting period is presented in section 4.1.2 Cultural Heritage Monitoring.
56. **Occupational and Community Health and Safety** – Health and Safety Specialists of PMCSC and Contractors are responsible for ensuring an effective health and safety management system is maintained during implementation of the Project. Detailed information about HS related activities carried out in the reporting period is presented in section 4.1.3 Health and Safety.
57. **Non-compliance** – PMCSC's Environment and Health and Safety specialists are responsible for identification and reporting of non-compliance at site, and finding solutions to improve non-compliance issues with the Contractor's relevant personnel and setting deadlines for corrective actions. PMSCS is following up on corrective actions and deadlines.
58. The non-compliances are recorded, and in case of corrective actions delay, the Contractor is informed by issuing the letter and Non-Compliance Report (NCR) to take corrective actions. The Contractor is required to take corrective action during the time mentioned in the NCR.

59. PMCSC follows up for corrective action and inspects the site. If during the inspection the Contractor fails to implement properly the corrective actions, another NCR will be issued. The contractor is providing Corrective Action Reports (CARs) to close these issues.
60. During the reporting period, PMCSC issued letters to the contractors for Lot 1 and Lot 2, requesting corrections for the non-compliance issues observed during previous monitoring periods and urging a quicker response from the contractors. The contractors are taking corrective action to address these non-compliance issues; however, their responses to PMCSC's letters have been slow. Details of the important correspondence can be found in Table 8D. During the reporting period, one NCR related to improper asphalt waste management was issued # 091 dated 14-11-2025 through letter # 2025-11-UBM-CRCC-1740 dated 14-11-2025. The contractor has corrected the non-compliance however, official close out report is still awaited.
61. **Reporting** - The PMCSC's international and national environmental specialists prepare the monthly and semi-annual reports that are submitted to the RD. These reports depict the ongoing construction activities, environmental safeguard issues and the status of compliance. Contractors are submitting the monthly and quarterly Environmental Monitoring Reports to PMCSC as set in the EIA.
62. **Site Visits** - Environmental specialists of the Contractor and the PMCSC conduct weekly joint site visits to monitor compliance with EMP. Besides that, PMCSC's field officers conduct daily inspections of active and passive sites. Waste management at camps and construction sites, and wastewater management is supervised by PMCSC daily.
63. In addition to that, the Contractor's and PMCSC's H&S specialists monitor the compliance of the Project activities with the health and safety requirements and procedures through daily worksite visits and inspections. These visits include daily inspection of all tunnels' works, bridge construction activities, scaffolding systems, elevated platforms and behavior of workforce. During worksite inspections, attention is always paid to community health and safety to ensure proactive identification of the problems. Worksite fencing and signages are permanently checked and if necessary, replaced/fixed to alert locals about hazards associated with the construction process and prevent unauthorized access to worksites. HSE report is being prepared by PMCSC specialists regularly.
64. CH experts of PMCSC and the Contractors are available at sites for visual monitoring of the CH Sites. They are responsible for continuous monitoring of earth moving works, especially, close to the CH Sites and daily monitoring of preservation works of CH Site.
65. Activities carried out by PMCSC specialists during the reporting period (international and national, respectively) are provided in Table 7 below.

Table 7: Environmental Safeguards Activities Carried out During Reporting Period

Environmental Safeguard Activities	
The International Environmental Expert (Kashif Bashir) of PMCSC	
-	Field activities: Frequent site visits were carried out during the reporting period from July – December 2025 by the environmental experts of the PMCSC at the Lot 1 active construction site TUN5 North Portal and Emergency Gallery (EG) and South Portal at Tskere, spoil disposal areas and temporary facilities, and Lot 2 worksites, tunnels, bridges, temporary facilities and access roads and Gudaari Access road to monitor the compliance of mitigation measures suggested in the EMP. The methods adopted for inspection include visual inspection, interviews with workers and the community if required, and checking the accident records, permits obtained, and daily and weekly quality control reports.

- Prepared the SAEMR covering the period from July-December 2025.
- Observed that both contractors are maintaining the good housekeeping at the sites and camp areas and ensured that the waste trucks from the municipality are collecting the waste on regular basis. Additionally, monitored that the STPs are functioning in a proper way and contractor cleaning the sedimentation pits at batching plants and ponds to treat tunnel water.
- Prepared monthly reports during the period from July through December 2025.
- Conducted meetings with the contractors for both Lots, replied to the contractors and employers' letters and worked on shop drawings for noise barriers and recultivations of SDA3.
- Coordinated with RD and the lenders, and attended meetings with clients, lenders, and Contractors and prepared the minutes of meetings. Attended the ADB resident mission in October 2025.

The National Environmental Expert (Nikoloz Sofadze) and Field Environmental Officers (Simon Chachanidze, Giorgi Lagidze) of PMCSC (UBM)

- Field Activities: During the reporting period from July - December 2025 monitored the campsites and active construction sites on a daily basis and with CC environmental officer on weekly basis, gave instruction for the non-compliances observed in the field, uploaded the pictures on WhatsApp group, issued official letters along with instructions.
- Discussed sensitive issues at HSE meetings. Monitored the instrumental monitoring is being carried out by the certified laboratory for air, noise, ground water, surface water and vibration monthly.
- Monthly EMR: Coordinated with International Expert for preparation of monthly EMR and reviewed the CCs EMR and Environmental Instrumental Monitoring Reports.
- Coordinated site inspections with the field officers: Simon Chachanidze, responsible for site inspection at Lot 1 and Giorgi Lagidze, responsible for site inspection at Lot 2.

CH Expert Duties Performed: Nikoloz Tskvitinidze and Amiran Nadirashvili of PMCSC (UBM)

- Daily monitoring of CH Sites during the monitoring period from July – December 2025, including monitoring of CH Sites on Didveli Plateau and protection of CH #28 near bridge 6, fence the site.
- Ensured the corrective actions were implemented, followed up with the CC in weekly progress meetings to take corrective actions, and replied to the letters from RD and CCs. Provided advice to the Project Engineers and other staff to fulfil the requirements of the SEMP and CHMP.
- Preservation of known and unknown (archaeological) cultural heritage sites, the presence and nature of which could not be established (or established with sufficient accuracy) in advance of development.
- Ensured the Contractor follows his Cultural Heritage Management Plan and follows the Chance Find Procedure; remained present during site clearance (i.e. clearing, Topsoil stripping, grading, etc.) and earthworks to assist with the initial evaluation of archaeological chance finds, if identified, helping to distinguish archaeological finds from non-archaeological anomalies.
- Visual inspection of above ground cultural heritage that could be affected by vibration impacts as outlined in the EIA.
- Prepared monthly EMR and reviewed the CCs EMR and vibration monitoring reports.
- Permanently monitored vibration on certain CH Sites with a vibration monitoring device.
- Managed GIS online map/database system prepared within the project.

Activities Performed by H&S Team of PMCSC (UBM) & RD

- Conducted regular worksite inspections during the reporting period. These inspections were carried out separately by the Contractor and the PMCSC and together as well. The inspections were documented on the inspection checklist and signed by all parties.
- Attended the ADB mission in October 2025 and gave a briefing on HSE situation at the site.
- Supervised arrangement of a medical facility at worksite which were equipped with necessary medical equipment.
- Provided training related to working at height, welding works, safety training for drivers, safety trainings for tunnel lining works, organized and attended weekly meetings, and conducted Toolbox Talks.
- Ensured that First Aid Boxes and fire extinguishers are present at all the active construction sites, workers are provided with the PPEs according to the nature of the job.
- Provided several trainings on H&S requirements for both Contractors.
- The PMCSC takes a gas test at different, predetermined locations along the tunnels.

3.2 Site Audits and Inspections

66. Frequent site visits were carried out by the safeguard team of the PMCSC, RD and Lender's representatives of the following sites:
- Construction Campsites of the Contractors (Lot 1 and Lot 2)
 - Segment Plant and waste yard behind segment plant (Lot 1)
 - Access roads (Lot 1 and Lot 2)
 - Spoil Disposal Areas (Lot 1 and Lot 2)
 - Topsoil storage areas (Lot 1 and Lot 2)
 - Tunnels (Lot 1 and Lot 2)
 - Bridges (Lot 2)
 - Under Passes (Lot 2)
 - Culverts (Lot 2)
 - Batching Plants (Lot 1 and Lot 2)
 - Workshops (Lot 1 and Lot 2)
 - Explosive Storage Area (Lot 2)
 - Crushing Plant (Lot 1)
 - Quarries (Lot 1 and Lot 2)
 - Road Sections (Lot 2)
67. The method adopted for inspection by PMCSC and RD includes visual inspection (helping with relevant devices, JPS, drone and etc.), interview with workers and community, checking Contractors' documentation, conducting daily and weekly progress meetings with the Contractors' safeguard team as well as ad-hoc meetings to discuss the sensitive environmental safeguard issues with Contractors.
68. On October 20, 2025, an environmental and social safeguard review mission was conducted by the ADB which included specialists and consultants in safeguards. Representatives from ADB, RD, PMCSC, and the Contractors participated in a one-day field visit. The findings from the field observations were discussed, and actions were agreed upon with each Contractor at their respective campsites. RD and ADB mission raised the issues related to STPs functioning to treat wastewater at Camp 2 and Camp 3 in Lot 2, Tunnel water treatment at Lot-1, housekeeping at both the site and management of the scrap, used containers, and tyres at Lot-1

Figure 5: PMCSC presenting the Progress related to development and safeguard during ADB Mission at Lot 2 (October 2025)



69. ADB Environmental and Social Monitor (ESM) conducts regular field visits, which include inspection of Contractors' worksites and facilities, interviews with project personnel (RD, PMCSC, Contractors) and discussion of environmental safeguard issues, including findings from the field observations, with the relevant staff of RD, PMCSC and Contractors. The field observations with the agreed corrective actions and timeline are included in E&S Action Tracker as an annex to the Weekly Environmental and Social Monitoring Report prepared by ADB ESM. RD forwards the mentioned report to PMCSC for their follow-up on a weekly basis.
70. Table 8A displays the non-conformances with the EMP and SEMP identified by PMCSC during the reporting period, while Table 8C outlines pending non-conformances from the previous reporting period (January- June 2025), including the necessary corrective actions and their current status. Table 8B presents a summary of the issues identified by the ADB Social and Environment Monitor during the weekly field visits throughout the reporting period. Some issues identified by PMCSC and ADB ESM refer to the same issue of concern. The non-conformance issues are prioritized as Low, Medium and High as follows: (i) High risk – environmental, health and safety and CH related issues which require immediate action, risk to potential non-compliance with loan covenants, lack of readiness by Contractors to implement the agreed corrective actions or low progress which may result in potential safeguards non-compliance, systematic issues observed on specific safeguards areas. (ii) Medium risk – environmental, health and safety and CH related concerns requiring attention, moderate potential for non-compliance with loan covenants, some readiness by Contractors to implement corrective actions, gradual progress towards compliance with safeguards regulations, and occasional systematic issues noted in specific safeguards areas. (iii) Low risk – minimal environmental, health and safety and CH related challenges, low potential for non-compliance with loan covenants, adequate readiness by Contractors to implement corrective measures, steady progress towards compliance with safeguards regulations, and rare systematic issues observed in specific safeguards areas

Table 8A: Non-Conformances Identified by PMCSC (July – December 2026)

#	Locations	Date	Issue	Priority	Mitigation Measures	Target Date	Action Taken
Lot 2							
1	Lot 2 Access roads	July 2025	Fugitive dust emissions at access roads	Medium	Contractor to carry out regular water sprinkling at all the access roads.	July 2025	The contractor carrying out regular water sprinkling at the access roads.  
2	Campsites Lot 2	July 2025	Waste management at the campsites. Waste overflowing from containers.	Medium	The contractor to collect the waste from the campsites before filling of municipality containers.	July 2025	The contractor collected the waste from the campsites and delivered it to the municipality containers.

							 
3	Camp 2 Lot 2	July 2025	Collection of sewage from the septic tank	June 2025	The contractor to clean out the septic tank by calling cesspool truck for effective functioning of the septic tank	July 2025	The contractor cleaned drains at camp 3 
4	Batching Plant 3 Lot 2	July 2025	Cleaning of pit in batching plant	Low	Contractor to clean the pit of the batching plant to recycle the waste water.	July 2025	The contractor cleaned sediment pit at batching p 
5	Lot 2 Khada Valley CH 27	July 2025	Installation of fence around the CH27	July 2025	The contractor to fence the CH site	July 2025	The contractor fenced the

							
6	Lot 2 Kvesheti Section	July 2025	Installation of guard rail on the completed sections	July 2025	The contractor to install the guard rail at the completed sections of the road for the safety of road users.	July 2025	The contractor installed rail required.  
7	Lot 2 Gudauri Access road	July 2025	Installation of temporary barriers to guide road users	July 2025	The contractor to install soft barriers to guide road users.	July 2025	The contractor placed cones and demarkated the the red tap to guide road u  

							
8	Lot 2 E-117	July 2025	Installation of fence and signs to guide road users	July 2025	The contractor to install the fence and signs.	July 2025	The contractor fenced the area and posted the signs    
9	Lot 2 E-117	July 2025	Wearing of the PPEs	July 2025	The contractor to provided the	July 2025	All the workers wearing the

					PPEs and to enforce the workers to wear the PPES		
10	Lot 2 Constructi on site	July 2025	Posting of appropriate signs	July 2025	The contractor to post appropriate signs at the site	July 2025	The contractor posted the environment signs at the s    

							 
11	Camp 2 Lot 2	July 2025	Cleaning of the camp 2	July 2025	The contractor to clean out the whole camp.	July 2025	The contractor cleaned campsite.  

							
12	Lot 2 Access roads	August 2025	Fugitive dust emissions at access roads	Medium	Contractor to carry out regular water sprinkling at all the access roads.	August 2025	The contractor carrying out regular water sprinkling at the access roads.  
13	Campsites Lot 2	August 2025	Waste management at the campsites. Waste overflowing from containers.	Medium	The contractor to collect the waste from the campsites before filling of municipality containers.	August 2025	The contractor collected waste from the campsites and delivered it to municipality containers.  

14	Camp Lot 2	August 2025	Cleaning of the drains	August 2025	Contractor to clean the drains of the campsite.	August 2025	The contractor cleaned drains at camp 1 
15	Batching Plant 2 & 3 Lot 2	August 2025	Cleaning of pit in batching plant	Low	Contractor to clean the pit of the batching plant to recycle the wastewater.	August 2025	The contractor cleaned sediment pit at batching p 

							
16	Lot 2 Camp 3	August 2025	Maintenance of the Camp 3 STP	August 2025	The contractor to carry ou the maintenace of the STP 3 and clean out the drains.	August 2025	The contractor condu maintenance of the Camp  
17	Lot 2 Plateau Tunnel 1 exit	August 2025	Poor housekeeping	August 2025	The contractor cleaned out the area.	August 2025	The contractor cleaned ou 
18	Lot 2 Camp 3.	August 2025	Cleaning of the septic tank	August 2025	The contractor to call cesspole truck for the disposal of sewage.	August 2025	The contractor called th truck to deliver the sewage

							
19	Lot 2 E-117	August 2025	Installation of signs to guide road users	August 2025	The contractor to install the fence and signs.	August 2025	The contractor posted the    

							
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20	Camp 2 Lot 2	August 2025	Cleaning of the camp 2	August 2025	The contractor to clean out the whole camp.	August 2025	The contractor cleaned campsite.  

							
21	Camp 1 Lot 2	August 2025	Cleaning of the camp 1	August 2025	The contractor to clean out the whole camp.	August 2025	The contractor cleaned campsite.  
22	Camp 3 Lot 2	August 2025	Cleaning of the camp 3	August 2025	The contractor to clean out the whole camp.	August 2025	The contractor cleaned campsite. 

							
23	Lot 2 Access roads	September 2025	Fugitive dust emissions at access roads	Medium	Contractor to carry out regular water sprinkling at all the access roads.	September	The contractor carrying out sprinkling at the access roads. 
24	Campsites Lot 2	Sept. 2025	Waste management at the campsites. Waste overflowing from containers.	Medium	The contractor to collect the waste the campsites before filling of municipality containers.	Sept 2025	The contractor collected and delivered to municipality containers.  
25	Batching plant 2	Sept. 2025	Cleaning of the private land due to concrete spills.	Sept 2025	Contractor to clean the private land.	Sept 2025	The contractor cleaned the land.

							
26	BP 2 Lot 2	Sept. 2025	Cleaning of the drains	Sept 2025	Contractor to clean the drains of the batching plant	Sept 2025	The contractor cleaned drains at BP 2 

27	Camp Lot 2	Sept 2024	Cleaning of the access road	Loe	Contractor to clean out the road.	Sept 2025	Contractor cleaned out the 
28	Batching Plant 2 & 3 Lot 2	Sept 2025	Cleaning of pit in batching plant	Low	Contractor to clean the pit of the batching plant to recycle the wastewater.	Sept 2025	The contractor cleaned sediment pit at batching p 
29	Lot 2 Autumn Fish Monitoring	Sept 2025	Fish monitoring in Autumn	Sept 2025	The contractor carried out fish monitoring	Sept 2025	The contractor carried monitoring. 
30	Lot 2	Sept 2025	Posting of the signs	Sept 2025	The contractor posted the	Sept 2025	The contractor posted the

	Batching Plant 2				signs on the hazardous material storage area.		 
31	Camp 2 Lot 2	Sept 2025	Cleaning of the camp 2	Sept 2025	The contractor to clean out the whole camp.	Sept 2025	The contractor cleaned the 
32	Setrubi road	Sept 2025	Wood waste left at the side	Sept 2025	The contractor to remove all the wood logs from the site and collect at the designated site.	Sept 2025	The contractor to remove leftover wooden logs from and collect it at the designated near parking area to deliver  

33	Parking Area Lot 2	Sept 2025	Cleaning of the parking area	Sept 2025	The contractor to clean out the whole area	Sept 2025	The contractor cleaned the area. 
34	Lot 2 Access roads	Oct 2025	Fugitive dust emissions at access roads	Medium	Contractor to carry out regular water sprinkling at all the access roads.	Oct 2025	The contractor carrying out sprinkling at the access roads.

							
35	Campsites Lot 2	Oct 2025	Waste management at the campsites.	Medium	The contractor to collect the waste the campsites before filling of municipality containers.	Oct 2025	The contractor collected and delivered to municipalities containers.  
36	Bridge 2	Oct 2025	Cleaning of the bridge 2	Oct 2025	Contractor to clean out the slopes and surroundings of the Bridge 2.	Oct 2025	The contractor cleaned along the bridge. 

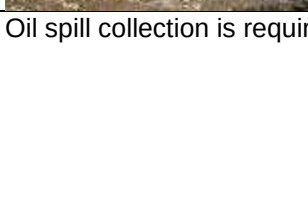
							
37	Batching Plant 2 & 3 Lot 2	Oct 2025	Cleaning of pit in batching plant	Low	Contractor to clean the pit of the batching plant to recycle the wastewater.	Oct 2025	The contractor cleaned sediment pit at batching p    

38	Camp 3 STP and drainage line	Oct 2025	Maintenance of STP 3 by calling the maintenance company	Oct 2025	The contractor to call the company for the maintenance of STP 3	Oct 2025	The contractor called the for the maintenance of Additionally the maintenance drainage line was carried 
39	Lot 2 Access roads	Nov 2025	Fugitive dust emissions at access roads	Medium	Contractor to carry out regular water sprinkling at all the access roads.	Nov 2025	The contractor carrying out sprinkling at the access 
40	Campsites Lot 2	Nov 2025	Waste management at the campsites.	Medium	The contractor to collect the waste the campsites before filling of municipality containers.	Oct 2025	The contractor collected and delivered to municipality containers. 

							
41	Bridge 3	Oct 2025	Cleaning of the bridge 3	Nov 2025	Contractor to clean the surrounding area of the bridge 3.	Nov 2025	The contractor cleaned around the bridge construction area.  
42	Batching Plant 2 & 3 Lot 2	Nov 2025	Cleaning of pit in batching plant	Low	Contractor to clean the pit of the batching plant to recycle the wastewater.	Nov 2025	The contractor repaired the concrete pit for batching plant 2 & 3, cleaned out the sediment, and installed a new concrete pit for batching plant 2 & 3. 

							
43	Camp 2 Lot 2	Nov 2025	Wastewater management	Medium	The contractor to build additional septic tank to treat wastewater.	Nov. 2025	The contractor build the septic tank to treat the wastewater from camp2 and batching 
44	Didveli Plateau Lot 2	Nov 2025	Asphalt waste management	Medium	The contractor to collect the asphalt waste.	Nov. 2025	The contractor collected the asphalt waste and cleaned out the 

							
45	Bridge 6	Nov 2025	Cleaning of the bridge 6	Medium	Contractor to clean out the pipes for the temporary bridge. .	Nov 2025	The contractor cleaned out 
46	CH 28	Dec 2025	Access restriction to the CH site	Medium	The contractor to restore the access to CH site	Dec 2025	The contractor fenced the site. However needs to restore the site for maintenance and repair accidental damage caused by diversion of the river so that it can cause damage to the 

47	Bridge 6 Khada River	Dec 2025	Boulders in the river blocking the river flow	Medium	The contractor to take the boulders out and clean the river.	Dec 2025	Required to take the boulders from the river 
48	Drainage of the BP 2 and Camp 2	Oct 2025	Maintenance of the STP 2 and pipe works for the drainage	Medium	The contractor to call the maintenance team for the repair of the STP and complete the installation of drainage pipes.	Nov 2025	The contractor completed the STP and pumps networks and the maintenance of the drainage pipes. calling the team.  
49	Bedoni spoil disposal Area	Dec 2025	Water pipe leakage	Medium	The contractor to repair the drinking water supply pipe.	immediately	Pipe repair should be completed instantly 
50	BP 1 Lot 2	Dec 2025	Oils spills	Medium	The contractor collects oil spills and treat them as hazardous waste and place in the hazardous waste disposal site.		Oil spill collection is required 

					waste storage areas.		
51	Tunnel 1 exit, Bridge 2	Dec 2025	Waste on slope near bridge 2	Low	The contractor to collect the waste from the slope	Dec 2025	Required to collect the wa 
52	BP 3 & Camp 3	Dec 2025	Concrete washout filled with sand Diesel container placed on the floor posing the risk of fire Used drums on the floor	Medium	The contractor to restore the washout facility, collect the diesel container and used drums and place it on designated area	Immediately	The contractor to remove container immediately and area.  

							
53	Concrete washout pit BP 2	Dec 2025	Maintenance of the pit	Low	The contractor to change the grass filter for the effective operation of the pit		The contractor changed filter. 
Lot 1							
1	Kobi Crushing Plant	July 2025	Fencing the ponds of crushing plant.	Low	The contractor required to fence the ponds of crushing plant to restrict the entry of the animals in that zone.	July 2025	The contractor fenced the crushing plant.  

							
2	Kobi Crushing plant	July 2025	Cleaning of sedimentation Ponds in Crushing Plant	Low	Clean the sedimentation ponds for effective treatment of crushing plant	July 2025	The contractor cleaned crushing plant sedimentat    

3	Kobi Batching Plant	July 2025	Cleaning of the sedimentation ponds	Low	Clean the sedimentation pits and ponds for the effective treatment of tunnel water.	July 2025	The contractor cleaned the sedimentation pond 
4	Kobi Old Bridge	July 2025	Broken fence at the old bridge Kobi. Restrict the movement of pedestrian and vehicles from the damaged bridge	Medium	Repair the fence of the bridge to avoid all kind of movements.	July 2025	Contractor fenced the bridge and posted signs indicating no movement on the bridge 
5	Kobi Campsite	July 2025	Housekeeping	Medium	The contractor to clean the camp	July 2025	The contractor cleaned the camp 
6	Septic tank near Engineer office	July 2025	Sewage system choked and need to be repaired.	Low	The contractor to repair the sewage system from engineer camp	July 2025	The contractor repaired the sewage system 

7	Chinese Kitchen Kobi	July 2025	Water leaking from the taps	Low	The contractor to repair the water supply system. In the kitchen.	July 2025	The contractor repaired the water supply system from Taps in Chinese kitchen.
8	Kobi Crushing plant	August 2025	Cleaning of sedimentation Ponds in Crushing Plant	Low	Clean the sedimentation ponds for effective treatment of crushing plant	August 2025	The contractor cleaned the sedimentation ponds at the crushing plant.
9	Kobi Batching Plant	August 2025	Cleaning of the sedimentation ponds	Low	Clean the sedimentation pits and ponds for the effective treatment of tunnel water.	August 2025	The contractor cleaned the sedimentation ponds at the batching plant.



							
10	Kobi Campsite	August 2025	Housekeeping	Medium	The contractor to clean the camp	August 2025	The contractor cleaned out 
11	Septic tank near Engineer office	August 2025	Sewage system choked and needed to be repaired.	Low	The contractor to repair the sewage system from engineer camp	August 2025	The contractor repaired and the sewage system 
12	Tskere	August 2025	Modification of the tunnel water system.	Low	The contractor to extend the pipe up to sedimentation ponds for pretreatment of the tunnel water.	August 2025	The contractor extended t 

							 
13	Kobi Crushing plant	Sept 2025	Cleaning of sedimentation Ponds in Crushing Plant	Low	Clean the sedimentation ponds for effective treatment of crushing plant	Sept 2025	The contractor cleaned crushing plant sedimentation ponds   
14	Kobi Batching Plant	Sept 2025	Cleaning of the sedimentation ponds	Low	Clean the sedimentation pits and ponds for the effective	Sept 2025	The contractor cleaned sedimentation pond

					treatment of tunnel water.		
15	Kobi Campsite	Sept 2025	Housekeeping	Medium	The contractor to clean the camp	Sept 2025	The contractor cleaned out  
16	E-117 Kobi	Sept 2025	Dust on the road	Low	The contractor to spray water on E-117 to suppress the dust	Sept 2025	The contractor sprinkled the road. 
17	Kobi	Sept 2025	Modification of the tunnel water system.	Low	The contractor to extend the pipe up to sedimentation ponds for pretreatment of	Sept 2025	The contractor cleaned the extended the pipe.

					the tunnel water.		 
18	Kobi Crushing plant	Oct 2025	Cleaning of sedimentation Ponds in Crushing Plant	Low	Clean the sedimentation ponds for effective treatment of crushing plant	Oct 2025	The contractor cleaned crushing plant sedimentation  
19	Kobi Behind Segment plant	Oct 2025	Management of the used containers	Low	The contractor to place the containers in upright position and cover them	Oct 2025	The contractor covered container with plastic sheet 

20	Kobi Batching Plant	Oct 2025	Cleaning of the sedimentation ponds and the area.	Low	Clean the sedimentation pits and ponds for the effective treatment of tunnel water and the area along the batching plant.	Oct 2025	The contractor clean sedimentation ponds and     
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21	Kobi Scrap yard	Oct 2025	Removing the scrap	Medium	The contractor to handover the scrap to third party and clean the site	Oct 2025	The contractor started removing scrap 
22	Tskere Tunnel water	Oct 2025	Tunnel water treatment	Medium	The contractor to divert tunnel water to sedimentation ponds	Oct 2025	The contractor diverted water to the sedimentation ponds 

							
23	Access road Tskere	Oct 2025	Access road management	Medium	The contractor to clean the access roads	Oct 2025	The contractor closed abandoned drainage channels and paved the road 
24	Kobi Campsite	Oct 2025	Housekeeping	Medium	The contractor to clean the camp	Oct 2025	The contractor cleaned the camp  
25	E-117 Kobi	Oct 2025	Dust on the road	Low	The contractor to spray water on E-117 to	Oct 2025	The contractor sprinkled water on the road.

					suppress the dust		
26	Kobi	Oct 2025	Modification of the tunnel water system.	Low	The contractor to extend the pipe up to sedimentation ponds for pretreatment of the tunnel water.	Oct 2025	The contractor cleaned the extended the pipe.  
27	Batching Plant 2	October 2025	Point source emission from the batching points	Medium	Contractor to carry out point source emission from the batching point on annual basis.	October 2025	Contractor carried out source emission from batching
28	Kobi Crushing plant	Nov 2025	Cleaning of sedimentation Ponds in Crushing Plant	Low	Clean the sedimentation ponds for effective treatment of crushing plant	Nov. 2025	The contractor cleaned crushing plant sedimentation 

							
29	Tskere Batching plant Pit	Nov 2025	Cleaning of sedimentation Ponds in batching Plant	Low	Clean the sedimentation ponds for effective treatment of washout pit.	Nov 2025	The contractor cleaned washout pit. 
30	Kobi Segment Plant	Nov 2025	Cleaning of the sedimentation ponds and the area.	Low	Clean the sedimentation pits and ponds for the effective treatment of tunnel water and the area along the batching plant.	Nov 2025	The contractor cleaned sedimentation ponds and  

31	Tskere Tunnel water	Nov 2025	Tunnel water treatment	Medium	The contractor to clean the sedimentation ponds	Nov 2025	The contractor diverted water to the sedimentation and cleaning the sedimentation ponds. 
32	Tskere Campsite	Nov 2025	Housekeeping	Medium	The contractor to clean the camp	Nov 2025	The contractor cleaned out the camp area. 
33	Kobi Campsite	Nov 2025	Housekeeping	Medium	The contractor to clean the camp	Nov 2025	The contractor cleaned the campsite area. 

							  
34	Kobi Campsite	Nov 2025	Wild grass grown in the corridors of the campsite causing nuisance and hiding place for invertebrates and insects.	Medium	The contractor to cut the grass and clean the area.	Nov 2025	The contractor cut the wild grass and cleaned out the campsite corridors. 
35	Kobi Campsite	Nov 2025	Maintenance of the sewage water .	Medium	The contractor to repair the sewage drains.	Nov 2025	The contractor maintenance carried out the maintenance of the toilets and drains.

							 
36	Kobi Truck washing area and sediment ponds.	Nov 2025	Maintenance of the truck washing area to avoid slush.	Low	The contractor to keep the truck washing area clean all the time and facility need to be maintained all the time.	Nov 2025	The contractor cleaned the area and maintained it. 
37	Kobi and Tskere	Nov 2025	Vaccination of the Dogs	Medium	The Dogs around the campsite must be vaccinated by calling the related department.	Nov 2025	The contractor called and the veterinaries with operation for vaccination of the 19 dogs.  

38	Kobi	Nov 2025	Temporary Diversion of the E-117 for road works of the alignment	Medium	The contractor to build the road for diversion of traffic while working neat intersection of new and old road.	Nov 2025	The contractor builds the road on E-117.
							 
39	Sedimentation ponds in Tskere	Dec 2025	Turbid water coming in the sedimentation ponds from tunnel 5 south portal	Med	The contractor to find out the source of contamination as the tunnel water is now clean and its getting contaminated on the way from tunnel entrance to sedimentation ponds.	Dec 2025	Contractor to clean the ponds and find out the source of contamination.
							
40	E-117	Dec 2025	Fugitive dust emission due to the movement of the vehicles	Low	The contractor to mobilize the water truck during windy and dry days	Dec 2025	Road surface covered with water.
							
41	In front of the CRTG office at	Dec 2025	Housekeeping	Low	The contractor to clean out the campsite	Dec 2025	The contractor cleaned out the campsite.

	Kobi campsite						
42	Cleaning of the batching plant in Kobi and sediment pit	Dec 2025	Cleaning of the site	Low	The contractor to clean the batching plant area, and sediment pits	Dec 2025	The contractor cleaned the batching plant area. Turbidity has been diverted to Baidya per design.  
43	Kobi Campsite	Dec 2025	Snow fall causing the risk of slipping	Medium	Contractor to remove snow on regular basis	Dec 2025	The contractor started removing snow from the corridors. 

71. During the reporting period, out of 96 issues (43 issues for Lot 1 and 53 issues for Lot 2) highlighted during the reporting period by PMCS. Contractors for Lot 1 and Lot 2 closed 87 issues (41 issues for Lot 1 and 46 issues for Lot 2) and 9 issues (2 issues for Lot 1 and 7 issues for Lot 2) remain outstanding.

Table 8B: Summary of Issues from ADB ESM's Weekly Monitoring Reports for the Reporting Period (July- December 2025)

Date	Location	Description	Priority	Area	Required Action	Target Date	Action Status	Close-out Date	Comments
24/07/2025	General	While the Contractor is responsible for tracking the volume of spoil generated, transported, and stored, and for submitting updated mass balance calculations for UBM verification, the Lot 2 Contractor did not fulfill this obligation. Specifically, the same data set from the second half of 2024 was re-submitted and incorporated into the January-June 2025 SAEMR.	Medium	Env.	The Lot 2 Contractor is recommended to reassess the current spoil management conditions and provide accurate, updated data to UBM for verification The UBM is recommended to verify the updated spoil mass balance data and incorporate the corrected data into the January-June 2025 SAEMR.	31/07/2025	Closed	06/11/2025	
24/07/2025	BR #2	During the site visit, it was observed that the Lot 2 Contractor had not removed construction waste following the completion of works at the base of BR #2 piles along the bank of the Aragvi River. As a result, the surrounding area was littered with waste, posing a potential risk of river water contamination. This condition is non-compliant with the project's waste management and pollution prevention requirements.	Medium	Env.	The Lot 2 Contractor is recommended to promptly remove all waste from the area surrounding the base of BR #2 to ensure compliance with project environmental requirements.	05/08/2025	In progress	-	
24/07/2025	CH #10	During the site visit, it was observed that a section of the wire fence at CH Site #10 had been damaged due to the dumping of spoil material onto it. According to the UBM CH Monitor, the Lot 2 Contractor did not breach the project footprint, as the fence had been installed within the designated RoW. However, as construction activities have resumed in the vicinity of CH Site #10 following the rerouting of gas pipelines, the Contractor should re-install the wire fence at the appropriate location to clearly demarcate the project footprint and prevent any unintentional encroachment.	Medium	CH	The Contractor is recommended to re-install the wire fence at the appropriate location at the CH Site #10 to clearly demarcate the project footprint and prevent any unintentional encroachment.	31/07/2025	Closed	25/09/2025	
07/08/2025	BR #2	Despite repeated recommendations from the ADB ESM, RD, and UBM H&S Specialists, the Lot 2 Contractor failed to install adequate entry barriers to restrict unauthorized entry to Bridge #2 and Tunnel #1. These measures were advised to prevent third-party access, particularly by residents of the Didveli Plateau, who were using these construction areas to travel between Arakhveti village and the Plateau. The lack of access control not only posed safety risks but also raised potential community concerns. As a result, local residents became accustomed to using these construction sites as a transit route. During the reporting period, when Chinese workers attempted to stop residents from driving through the tunnel, the locals refused to comply,	High	H&S	The Lot 2 Contractor is recommended to immediately install entry barriers, post appropriate signage, and enforce strict access control measures. It is also recommended to provide a reminder to the residents of the Didveli Plateau during the next community meeting regarding the restricted access to the construction areas.	11/08/2025	Closed	25/09/2025	

Date	Location	Description	Priority	Area	Required Action	Target Date	Action Status	Close-out Date	C
		citing prior precedent. This led to a confrontation between the workers and the residents. The Contractor must act proactively by implementing appropriate safety and access control measures to avoid any incidents and ensure public safety. The issue has already been escalated to UBM and Contractor Management by the RD H&S Specialist. The Contractor has been explicitly instructed to install entry barriers at both ends of the BR #2, and appropriate signage without further delay.							
28/08/2025	Tunnels	Both Contractors should prepare the SEMP – Tunnel Transition Plan required by the Project EIA, Table 171: SEMP Site Specific Plans: "Tunnel Transition Plan, at minimum will include: an operations handover process and the documentation required for handover; training requirements including commissioning and staffing requirements; occupational health and safety requirements and risk management and reporting."	Medium	Env.	The Lot 2 Contractor should begin with Tunnel #1, which is scheduled to become operational by the end of November, and subsequently develop Tunnel Transition Plans for Tunnels #2, #3, and #4.	30/09/2025	Pending		
28/08/2025	General	Both Contractors have a general reinstatement plan approved by UBM and MoEPA; however, they must also prepare site-specific reinstatement and tree planting plans and submit them to UBM for approval prior to commencing reinstatement works. This will ensure that reinstatement activities across all project areas, including temporary facilities, are carried out in accordance with the Contractors' reinstatement plan and its specific requirements for landscape restoration. As construction activities near completion at certain locations, the preparation of the aforementioned plans becomes increasingly relevant.	Medium	Env.	The Lot 2 Contractor is recommended to: 1. Provide a schedule for reinstatement works for each construction site and temporary facility, including an indicative timeline (subject to adjustment as needed); 2. Prepare a tree planting plan in accordance with the landscape restoration plan and the Project EIA, specifically referencing Table 110: Areas of Offset Required for Notable and Natural Habitats; 3. Develop a comprehensive site-specific restoration plan for each construction site and temporary facility.	30/09/2025	In progress		
25/09/2025	Village Jaghmiani	Although the Lot 2 Contractor has been repeatedly advised to ensure the safe installation of an electric cable for one of the Jaghmiani village house, the Contractor has failed to follow these recommendations. During construction works, the Lot 2 Contractor disrupted both the electricity and gas supply to the household of Paata Jaghmaidze (refer to ESMR-W34-2025). As a temporary solution, the householder himself connected the electric cable from his house to the grid. Currently, the cable is installed at a low and easily reachable height, creating a high risk of electric shock in the event of accidental damage by a person or a truck. The Lot 2 Contractor is therefore strongly recommended to properly install the electric cable without delay, as it is their responsibility to ensure resume of a safe and reliable electricity supply to the household.	High	H&S	The Lot 2 Contractor is recommended to properly install the electric cable to Paata Jaghmaidze's house in the village Jaghmiani.	27/09/2025	Closed	23/10/2025	
02/10/2025	General	Although the Lot 2 Contractor has been enhancing safety precautionary measures — including the installation of safety warning signs, fall protection barriers, improvements to scaffolding, and the delivery of both general and job-specific safety trainings by RD, UBM, and the Contractor's H&S representatives — the number	Medium	H&S	The Lot 2 Contractor is recommended to: (i) Ensure the provision of vehicles for H&S specialists to enable their regular presence and effective supervision across all worksites, which are spread over multiple locations;	10/10/2025	Closed	20/11/2025	

Date	Location	Description	Priority	Area	Required Action	Target Date	Action Status	Close-out Date	Comments
		of safety incidents resulting in personnel injuries and equipment damage has recently increased. Site observations revealed insufficient supervision of ongoing activities by site managers or foremen, as well as an inadequate presence of the Contractor's H&S personnel on site. Although the Lot 2 Contractor employs both Chinese and national H&S specialists, the lack of vehicle provision limits their ability to access all worksites and effectively monitor safety performance. The presence of H&S personnel and regular supervision of site activities are essential to promptly identify gaps in safety mitigation measures, detect unsafe practices, and immediately stop hazardous work before incidents occur.			(ii) Provide training and clear instructions to site supervisors and foremen to strengthen oversight of workers' health and safety performance; (iii) Consult with UBM and RD to assess whether the current number of H&S personnel is sufficient, and, if necessary, recruit additional specialists to ensure proper coverage of all worksites.				
09/10/2025	Campsite #2	Despite repeated recommendations, the Lot 2 Contractor has not resolved the wastewater management issue at Campsite #2. During the site visit, it was observed that untreated wastewater was leaking from the collection tank, resulting in flooding and contamination of the land adjacent to the campsite. Additionally, equipment movement over the area caused damage to the topsoil, as evident from visible track marks. Such action constitutes a breach of the wastewater discharge permit conditions, which require that all wastewater be treated in the Sewage Treatment Plant (STP), currently non-operational, prior to discharge into the Aragvi River.	High	Env.	The Lot 2 Contractor is recommended to: (i) Clean the wastewater collection tanks at the Campsite #2; (ii) Inspect the plumbing system and repair the damage, if any; (iii) Ensure the wastewater from the collection tank flows into the STP; (iv) Ensure the STP is operational for proper treatment of the wastewater; (v) Test the wastewater from the STP outlet pipe; (vi) Reinstate the area damaged due to the equipment movement. Additionally, UBM is recommended to strengthen field monitoring to ensure that the Lot 2 Contractor complies with wastewater management requirements. 15.10.2025	15/10/2025	Closed	20/11/2025	
16/10/2025	Didveli Plateau	On 15 October 2025, during a site visit, it was observed that the Lot 2 Contractor was placing spoil generated from the Gudauri Access Road Project on private land plots in Seturebi Village. According to the IEE of the Gudauri AR Project and the Contractor's Spoil Management Plan, "According to APR specification and produced quantities of spoil there is no necessity to provide any spoil disposal area, as all produced spoil is to be used for road backfilling." Therefore, the disposal of spoil on private land is in direct non-compliance with both the IEE requirements and the Contractor's approved Spoil Management Plan. Furthermore, according to the UBM Environmental Specialist, the activity was carried out without prior notification to or approval from UBM. This contravenes project procedures, which require that all site activities be reviewed and approved by UBM before commencement. In addition, under the ADB SPS 2009, the contractors are required to conduct environmental due diligence to identify, assess, and mitigate potential environmental and social impacts before implementing any project-related activity. This includes ensuring that spoil disposal practices are consistent with the approved environmental documents and that no unapproved or unassessed activities are undertaken.	High	Env.	UBM is recommended to: (i) suspend all unauthorised spoil disposal activities on Didveli Plateau; (ii) conduct joint environmental due diligence with the Lot 2 Contractor to assess the extent and potential impacts of the unauthorized spoil placement; (iii) define the corrective actions. Contractor is recommended to: (i) implement the corrective actions defined by the UBM; (ii) ensure all future spoil management activities are approved by UBM prior to implementation.	30/10/2025	In progress		

Date	Location	Description	Priority	Area	Required Action	Target Date	Action Status	Close-out Date	Comments
		Such unauthorised activity may lead to social concerns as well, if other land owners will request the Contractor to place spoil on their landplots and level the area and the Contractor refuses to do so. Non-compliance with these requirements indicates a failure in environmental due diligence and supervision, necessitating immediate corrective and preventive measures to ensure full alignment with ADB SPS and project safeguard procedures. Furthermore, such unauthorized activity may also lead to social concerns, as other landowners might request the Contractor to place spoil on their land plots and level their areas. If the Contractor refuses to do so, it could result in community dissatisfaction and complaints.							
16/10/2025	BR #6	During the site visit, it was observed that the Lot 2 Contractor had dumped spoil material into the Khadistskali riverbed from the BR #6 worksite. This non-compliant activity resulted not only in river pollution and change of the river water flow but also led to damage to CH Site #28 – the mill remains – located on the opposite bank of the river. The Lot 2 Contractor continues to breach project requirements related to pollution prevention and legal obligations concerning surface water protection. Furthermore, inadequate supervision of site activities has allowed such unauthorized practices to continue without prompt corrective action.	High	Env.	The Lot 2 Contractor is recommended to: (i) remove spoil from the Khadistskali riverbed under UBM supervision; (ii) restore the affected river section and prevent further dumping.	20/10/2025	In progress		
16/10/2025	CH Site #28	On 15.10.2025, during the site visit, it was observed that the Lot 2 Contractor had damaged CH Site #28 (ID 35105), consisting of mill remains located within the potential impact zone near Bridge #6 worksite. The section of the structure facing the Khadistskali River, including a round millstone, was partially damaged during the removal of large rocks positioned along the riverbank. According to the excavator operator involved, the rocks were removed to reshape the riverbed after spoil material deposited on the opposite bank (the environmental issue) had narrowed the riverbed. The operator confirmed awareness of the CH protection requirements but acknowledged that the incident occurred during the activity. The issue of rock dumping near the CH Site had previously been identified in November 2023 (refer to WR-23-46-CH-01 in the E&S ActionTracker). At that time, the Lot 2 Contractor was instructed to demarcate the site with a mesh fence, install warning signs, and ensure that any rock removal works were carried out under the joint supervision of UBM and the Contractor's CH Monitors. Despite repeated discussions and reminders from UBM CH Monitors, the Contractor failed to implement the recommended mitigation measures and proceeded with the works without the required supervision. According to the information provided by the UBM	High	CH	The Lot 2 Contractor is recommended: • to immediately suspend all activities near CH Site #28 until further notice, and secure the area with fencing and warning signs under UBM supervision. • to engage a qualified cultural heritage specialist to assess the damage and prepare a restoration/conservation plan for approval by UBM and NACHPG. • to ensure future works near CH Sites only proceed with prior written approval and supervision by UBM CH Monitors. UBM is recommended to conduct toolbox talks and refresher training to reinforce CH protection procedures for all site personnel.	October, 2025	Closed	30/10/2025	

Date	Location	Description	Priority	Area	Required Action	Target Date	Action Status	Close-out Date	C
		CH Monitor, the Lot 2 Contractor was instructed to suspend all construction activities at the worksite on the same day – 15.10.2025. In accordance with the Lot 2 Contractor's Cultural Heritage Management Plan, "The Contractor will be responsible for conservation or rehabilitation if physical works cause damage to cultural heritage objects or monuments. Qualified specialists shall be identified and contracted for the implementation of conservation or rehabilitation works. A permit for such works shall be obtained from the National Agency for Cultural Heritage Preservation of Georgia (NACHPG). The works will be developed in accordance with the approved project for reinforcement, rehabilitation, and/or conservation as prescribed by the Law of Georgia on Cultural Heritage. Upon completion of conservation or rehabilitation works, the site shall be formally handed over to NACHPG," – Section 3.9 Construction Contractor and Subcontractors.							
16/10/2025	General	Construction activities are currently spread across multiple locations, including Khada Valley, Didveli Plateau, and the Kvesheti-Arakhveti section. However, medical facilities and staff are stationed only at the Arakhveti campsite, resulting in insufficient medical coverage for the other active work areas. Previously, the site doctor assigned by the Lot 1 Contractor to the Tskere worksites was also able to provide medical assistance, when required, to Lot 2 Contractor personnel working in Khada Valley. Following the recent termination of this position, Khada Valley is now left without any on-site medical coverage.	Medium	H&S	The Lot 2 Contractor is recommended to ensure adequate medical coverage across all active worksites. This may include: (i) deploying additional medical personnel; (ii) establishing first-aid stations in Khada Valley (Campsite #3) and Didveli Plateau (Campsite #2 or Bridge #3 facilities), in addition to the existing facility at Arakhveti campsite and ensure presence of medical personnel there. UBM is recommended to coordinate closely with the Contractor to ensure that a plan is developed and implemented outlining how effective medical coverage will be maintained in Khada Valley and Didveli Plateau.	30/10/2025	Pending		T s th re s
16/10/2025	Village Tskere	One span of the temporary bridge constructed over the Khadistskali River in Tskere village to access the Bridge #6 worksites has been washed out on one side, raising safety concerns for truck crossings. The issue was initially identified and reported on 16.09.2025 (refer to ESMR-W40-2025), with recommendations to conduct an immediate inspection and implement corrective measures, including the installation of safety warning signs to alert drivers. However, no corrective actions have been undertaken, and during the recent site visit, it was observed that the bridge condition has further deteriorated, with part of the bridge surface now visibly lowered. The structural instability of the bridge poses a safety risk for vehicles and personnel using the crossing, with potential for accidents or collapse.	Medium	H&S	UBM is recommended to conduct a structural inspection of the bridge and ensure that the Lot 2 Contractor immediately undertakes stabilization or reconstruction of the damaged span. The Lot 2 Contractor should install safety barriers and warning signs, and the bridge must remain closed to all traffic until its structural safety is confirmed.	17/10/2025	Pending		T s th re s
27/11/2025	Tunnel #1 Exit Portal	During the site visit, it was observed that the land plot located next to the Tunnel #1 C&C section (above the tunnel) was flooded due to damage to the water pipeline supplying the worksite. Given the extent of the flooding, a lack of monitoring and oversight was evident which is against the ADB SPS and Project EMP requirements.	Medium	Env.	The Contractor is advised to investigate the issue and repair the damaged water pipeline without delay. Both the UBM and the Contractor are recommended to strengthen environmental monitoring and supervision at the site.	01/12/2025	Pending		T s th re s

Date	Location	Description	Priority	Area	Required Action	Target Date	Action Status	Close-out Date	C
		The issue was communicated to the UBM Environmental Specialist for appropriate follow-up.							
24/07/2025	General	While the Contractor is responsible for tracking the volume of spoil generated, transported, and stored, and for submitting updated mass balance calculations for UBM verification, the Lot 1 Contractor did not fulfill this obligation. Specifically, the same data set from the second half of 2024 was re-submitted and incorporated into the January-June 2025 SAEMR.	Medium	Env.	The Lot 1 Contractor is recommended to reassess the current spoil management conditions and provide accurate, updated data to UBM for verification The UBM is recommended to verify the updated spoil mass balance data and incorporate the corrected data into the January-June 2025 SAEMR.	31/07/2025	Closed	23/10/2025	C
21/08/2025	SDA #3	During the site visit, it was observed that spoil previously dumped in the SDA #3 area of Kobi village was being transported to a third-party site in Kanobi village. The UBM Environmental Specialist was not aware of this activity, indicating that it had not been coordinated or approved by UBM. All project-related activities must be agreed with the supervision company - UBM prior to commencement. The current Spoil Management Plan does not authorize spoil disposal at locations other than the approved SDAs. The Lot 1 Contractor must either adhere strictly to the approved Spoil Management Plan or revise the Plan and obtain UBM's approval.	Medium	Env.	UBM is recommended to instruct the Lot 1 Contractor to stop unauthorized activities until the basis for spoil disposal at the third-party site in Kanobi village is properly justified and approved by UBM. The Lot 1 Contractor must stop spoil disposal at the third-party site in Kanobi village and comply with the approved Spoil Management Plan. Any changes require prior revision of the Plan and formal approval from UBM.	25/08/2025	Closed	16/10/2025	C
21/08/2025	BP #1	Although the Lot 1 Contractor has been repeatedly reminded to unblock the tunnel water discharge pipe crossing the main road and leading to the River Tergi, the issue remains unresolved. Consequently, the Batching Plant area is flooded, and the accumulated water poses a risk of damage to the main road. Additionally, the water-filled pit is not fenced, creating a safety hazard due to the risk of falls. The Lot 1 Contractor must implement the tunnel water discharge design to ensure compliance with environmental requirements and to mitigate safety risks associated with the pit and potential road damage.	Medium	Env. /H&S	The Lot 1 Contractor is recommended to unblock the tunnel water discharge pipe located on the Batching Plant area in Kobi village.	25/08/2025	Closed	23.102025	C
28/08/2025	Tunnel #5 SP	During the site visit, it was observed that the tunnel water sedimentation tanks were not operational in the village Tskere. As a result, tunnel water was flowing directly from the tunnel, through the construction site and drainage channel, into the Khadistskali River. According to the tunnel water discharge permit, groundwater must be treated through sedimentation tanks prior to release. At present, the tanks are filled with mud and standing water is stagnating and beginning to deteriorate. Tunnel water is presently flowing through the construction site, creating a risk of contamination from oil residues and construction waste. Plastic bottles and paint cans were observed in the drainage channel, with the potential to be carried into the river.	Medium	Env.	The Lot 1 Contractor is recommended: 1. Pump out the standing water from the sedimentation tanks; 2. Completely remove accumulated sediment from the tanks; 3. Install oil and waste catchers within the sedimentation tanks; 4. Ensure that tunnel discharge water is properly diverted through a pipeline from the tunnel discharge channel to the sedimentation tanks, preventing uncontrolled flow across the construction site and ensuring proper treatment prior to release into the Khadistskali River.	30/09/2025	Closed	23/10/2025	C

Date	Location	Description	Priority	Area	Required Action	Target Date	Action Status	Close-out Date	C
		The Lot 1 Contractor must comply with tunnel water discharge requirements and ensure that water is released into the river only after proper treatment through clean and operational sedimentation tanks.							
28/08/2025	Tunnel #5	Both Contractors should prepare the SEMP – Tunnel Transition Plan required by the Project EIA, Table 171: SEMP Site Specific Plans: "Tunnel Transition Plan, at minimum will include: an operations handover process and the documentation required for handover; training requirements including commissioning and staffing requirements; occupational health and safety requirements and risk management and reporting."	Medium	Env.	The Lot 1 Contractor should prepare the Tunnel Transition Plan for Tunnel #5.	30/12/2025	Pending		
28/08/2025	General	Both Contractors have a general reinstatement plan approved by UBM and MoEPA; however, they must also prepare site-specific reinstatement and tree planting plans and submit them to UBM for approval prior to commencing reinstatement works. This will ensure that reinstatement activities across all project areas, including temporary facilities, are carried out in accordance with the Contractors' reinstatement plan and its specific requirements for landscape restoration. As construction activities near completion at certain locations, the preparation of the aforementioned plans becomes increasingly relevant.	Medium	Env.	The Lot 1 Contractor is recommended to: 1. Provide a schedule for reinstatement works for each construction site and temporary facility, including an indicative timeline (subject to adjustment as needed); 2. Prepare a tree planting plan in accordance with the landscape restoration plan and the Project EIA, specifically referencing Table 110: Areas of Offset Required for Notable and Natural Habitats; 3. Develop a comprehensive site-specific restoration plan for each construction site and temporary facility.	30/09/2025	Pending		
02/10/2025	Tunnel #5 SP	Although the Lot 1 Contractor has been recommended several times to ensure proper housekeeping and remove waste from the Tunnel #5 South Portal worksite and the campsite in Tskere village, the issue remains unresolved. During the site visit, construction and domestic waste were observed scattered across the worksite and campsite areas adjacent to the tunnel discharge water flow, creating a risk of waste being carried into the Khadistskali River through the discharge system. The Lot 1 Contractor is required to comply with ADB SPS requirements on pollution prevention and waste management and to implement recommended corrective actions without delay.	Medium	Env.	The Lot 1 Contractor is recommended to: (i) Remove waste from the Tunnel #5 South Portal worksite and the campsite, ensure proper segregation, and store it appropriately prior to final disposal in accordance with the Waste Management Plan; (ii) Conduct a refresher TBT for personnel in Tskere village on waste management requirements. Additionally, UBM is recommended to strengthen field monitoring to ensure that the Lot 1 Contractor complies with housekeeping and waste management requirements.	30/09/2025	In progress		
16/10/2025	General	Although construction activities are actively ongoing and the construction camp remains operational in Tskere Village, the Lot 1 Contractor has recently not renewed the contract of the site doctor previously assigned to this location. At present, medical support is available only at the construction camp in Kobi Village. In the event of a medical emergency, the site doctor would need to travel approximately 9 km through Tunnel #5 to reach Tskere. Additionally, during the site visit, it was observed that the ambulance stationed at the Kobi camp is damaged and non-operational, significantly limiting the site doctor's ability to provide timely and adequate medical assistance to personnel at both the Kobi and Tskere worksites.	Medium	H&S	The Lot 1 Contractor is recommended to: (i) repair/replace the non-operational ambulance at the Kobi camp; (ii) ensure continuous medical coverage and emergency preparedness at both Kobi and Tskere worksites. UBM is recommended to coordinate closely with the Contractor to ensure that a plan is developed and implemented outlining how effective medical coverage will be maintained at both the Kobi and Tskere worksites.	30/10/2025	In progress		

Date	Location	Description	Priority	Area	Required Action	Target Date	Action Status	Close-out Date	C
11/12/2025	Village Tskere	Although the Lot 1 Contractor has been advised several times to fence off the tunnel water sedimentation tanks in the village Tskere, the issue remains unresolved. This continued disregard for basic safety precaution measures poses a significant risk of both community and occupational safety incidents. With the onset of the snowy season, the area will be covered by snow, making the edges of the water-filled tanks difficult to see. This substantially increases the likelihood of accidental falls into the tanks by workers or community members. The Contractor is required to install hard barriers around the tanks to ensure effective restriction of access and to prevent any fall-related safety incidents. Immediate action is necessary to comply with project safety requirements and to mitigate the identified risks.	Medium	H&S	The Contractor is recommended to: (i) install durable, stable fencing around the full perimeter of the sedimentation tanks to prevent unauthorized or accidental access; (ii) install the clear, weather-resistant warning signs indicating: "Danger: Water-Filled Tanks (signs should be visible even under snow cover).	15/12/2025	Pending		

*The "Action Tracker ID" refers to the issue number listed in the E&S Action Tracker, which is attached as an annex to the Weekly E&S Monitoring Report issued by the ADB ESM.

72. Out of 24 issues highlighted for both Lots (9 issues for Lot 1 Contractor and 15 issues for Lot 2 Contractor), during the reporting period by ADB ESM, 11 issues (4 issues for Lot 1 Contractor and 7 issues for Lot 2 Contractor) were closed and 13 issues (5 issues for Lot 1 Contractor and 8 issues for Lot 2 Contractor) remain outstanding.

Table 8C: Implementation Status of Pending Corrective Actions Proposed in the Previous Monitoring Report(s)

d on	Date	Issue	Required Action	Responsi bility	Priority	Description of Resolution and Timing (Actual)	Status (If not yet resolved, indicate the reason why and specify further required action and timeframe)
by PMCSC							
&	Oct/ Nov 2023	Fugitive dust emission in Khada Valley Ref letter: 2023-11-UBM- CRCC-1181 dated: 15-11- 2023	Both the contractors have one water sprinkler truck in Khada valley to sprinkle water on access road 1. Each truck will sprinkle water to allotted portion of each contractor for access road and to suppress the dust by their ongoing construction activities.	CRCC	High	CC started watering of access roads however, need to improve by taking additional measures. The contractor for Lot 2 added one more truck for the watering of the access roads. As winter started and snow covered all the roads.	Closed December 2025
e il e	Decem ber 2024	Contractor stored the subsoil on the heap of topsoil. Potential chances of mixing subsoil with topsoil and damaging the topsoil.	Collect the waste from the waste bins and throw in the municipality containers.	CRTG	Medium	Contrctor removed the subbsoil from the topsoil and but due to snow it is was not possible to remove the soil. Issue will be closed after inspection.	In progress
d ent	Decem ber 2024	Contractor to remove all the used tyres, waste containers, scrap material from the scrap yard.	Find and call the licensed contractor to handover the waste.	CRTG	Medium	Contractor covered the used tyres and conntainers with tarpuliline for temporary storage. However, need to handover to the licensed contractor.	In progress.
	Januar y 2025	Contractor to remove all the scrap and unused material and handover to the licensed contractor	Find and call the licensed contractor to handover the waste and scrap.	CRTG	Medium	Contractor called the licensed company and handed over the hazardous waste and the remaining waste was rearranged by covering under a non permiable sheet.	In progress

Location	Date	Issue	Required Action	Responsibility	Priority	Description of Resolution and Timing (Actual)	Status (If not yet resolved, indicate the reason why and specify further required action and timeframe)
	June 2025	Handling of the used containers and tyres	The contractor removes the used tyres and containers from the site by handing over to Third party or arrange them in a proper way by covering with plastic sheets.	CRTG	Medium	The contractor stored containers and tyres and covered them with tarpuline to handover to third party.	In progress
	June 2025	Dust Emission at E-117	Move the water truck to sprinkle water at E-117 and access road.	CRTG	Low	The contractor sprinkling water on the E-117 highway; however, strict monitoring required for emission of the dust.	Closed
1 ce	December 2024	Water coming out of the tunnel 1 Entrance and flowing into the river without pretreatment	Contractor for Lot 2 added trash to capture the waste material and water coming from the tunnel is clear now	CRCC	Medium	Contractor for Lot 2 added trash to capture the waste material and water coming from the tunnel is clear now. The contractor has diverted the water in the drain along the access road.	In progress Clean water coming out of the tunnel, however, the contractor has to complete the drainage pipe installations as per design.
2	December 2024	Broken Excavator parked on private land	Contractor to remove broken excavator from private land.	CRCC	Medium	Contractor has collected the oil spill; however, excavator should be removed.	Closed The contractor removed the broken excavator from the site.
ng 3	June 2025	Leakage from septic tank caused soil erosion and ground failure resulting in nuisance to people due to bad Odor.	The contractor to repair the septic tank and stabilize the ground and monitor for the leakage in future.	CRCC	Medium	The contractor carried out necessary works to carry out the maintenance of septic tank and failed ground.	Closed
s Lot	June 2025	Fugitive dust emissions at access roads	Contractor to carry out regular water sprinkling at all the access roads.	CRCC	June 2025	The contractor carrying out the water sprinkling at the access roads.	Closed Roads are being mettalade. The

Location	Date	Issue	Required Action	Responsibility	Priority	Description of Resolution and Timing (Actual)	Status (If not yet resolved, indicate the reason why and specify further required action and timeframe)
							contractor added an additional truck for water sprinkling. There is no dust due to snow. If in summer, there will be dust the issue will be opened again.

by ADB ESM

#2)	4/13/2023	It was observed that the Contractor dumped the removed slurry (mud) close to the river Narvani bank on the proposed SDA#2 area, which has been rejected due to presence of the water boreholes owned by the "Kobi Water" Plant.	• Stop disposal of the slurry (mud) on the unapproved area (rejected SDA #2); • remove the dumped slurry (mud) to the SDA #3; • reinstate the impacted land within the rejected SDA #2 area.	CRTG	High	On 29.05.24 RD provided information that the CC was applied by the Kobi Factory owner requesting to keep the spoil on the area and add some more spoil to protect the area from flooding in the flooding seasons. RD committed to provide the request letter and the acceptance letter after completion of works.	On Hold
Task rgi, i	10/12/2023	Contractor is required to conduct fish monitoring in the rivers (under the project impact) as per the requirements of the Appendix 5 of the EIA "Critical Habitat Assessment (CHA) and Appropriate Assessment (AA) Screening" Refer to section 6.5 Potential Impacts on CH/ PBF.	CC to coordinate with PMCSC on the conduct of water quality testing and fish monitoring.	CRTG	Medium	On 29.09.24 the ichthyological monitoring was conducted in the river Khadistskali.	Closed CC conducted fish monitoring.
	11/15/2024	It was observed that the Lot 1 Contractor had dumped spoil onto a topsoil stockpile located near the Batching Plant area in the village Tskere. Despite the stockpile being fenced off and clearly signposted, spoil was still deposited on it. This action risks damaging the topsoil, which is needed for the reinstatement of areas temporarily used by the project. The Lot 1 Contractor disregarding both legal and project requirements for topsoil management.	The Lot 1 Contractor is recommended to remove the spoil from the topsoil stockpile under the supervision of UBM Environmental Field Officer.	CRTG	Medium	CC will sort out the issue during the reinstatement works.	On hold

d on	Date	Issue	Required Action	Responsi bility	Priority	Description of Resolution and Timing (Actual)	Status (If not yet resolved, indicate the reason why and specify further required action and timeframe)
ite	4/3/2025	During the site visit, domestic waste was observed scattered around the campsite area in the village Kobi. This waste had not been visible earlier as it was covered by snow during the winter. Housekeeping activities must be carried out in and around the campsite area to prevent pollution beyond the project footprint and to avoid potential contamination of the Narvani River, as the waste could be carried by wind into the waterway.	The Lot 1 Contractor is recommended to collect all waste from in and around the campsite and dispose of it in accordance with the requirements outlined in the Waste Management Plan.	CRTG	Medium	CC cleaned the area	Closed
e	6/19/2025	During the site visit, it was observed that the concrete test cubes were dumped on the bank of the river Narvani and in front of the Campsite in the village Kobi. The Lot 1 Contractor should improve waste management at the Kobi worksites to prevent environmental pollution and ensure compliance with environmental standards.		CRTG	Medium	The Lot 1 Contractor is recommended to remove the concrete test cubes and any other waste materials from the bank of the Narvani River, as well as from the outer perimeter of the Kobi campsite, to ensure proper site cleanliness and prevent environmental contamination.	Pending
	15-12-2022	The Lot 2 Contractor dumped spoil at several locations along the Khada Valley Road in the RoW.	The Lot 2 Contractor is recommended to: • draft the plan of the berm installation along the Khada Valley road, considering the environmental, H&S and social requirements; • agree the plan with PMCSC; • remove the dumped excessive spoil, if required. PMCSC is recommended to ensure the Lot 2 Contractor follows the berm installation plan and removes the dumped excessive spoil, if required.	CRCC/ PMCSC		Removal of excessive spoil will be completed by 17.01.2023. 04.03.2023 - CC plans to use some of dumped spoil for upgrading of the Khada Valley road. 04.05.2023 - CC will use the spoil for road upgrading. Hence, the status of the issue was changed from "in progress" to "on hold." 29.06.2023 - the road upgrade works will be started from 30.06.2023. 10.08.23 - CC prepared the berm design and submitted to UBM for approval. The issue will be discussed again during the reinstatement works.	On hold

ID on	Date	Issue	Required Action	Responsi bility	Priority	Description of Resolution and Timing (Actual)	Status (If not yet resolved, indicate the reason why and specify further required action and timeframe)
23	AR #4	The Lot 2 Contractor was observed dumping spoil, generated at the Tunnel #3 Exit Portal, from the AR #4 down the slope.	• to stop unauthorized dumping of spoil from the Tunnel #3 Exit Portal; • to store the tunnel cuttings within the RoW until getting approval from the landowners on using their land plots for spoil disposal at the SDA #3 in the village Kvesheti.	CRCC	Medium	CC stopped spoil dumping on the slope. According to the PMSC's information, the slope reinstatement will be a part of the entire reinstatement works at the end of the project.	On hold
-	9/7/2023	The Lot 2 Contractor still had not resolved the construction traffic related dust issue in Khada Valley. The residents of the village Benian-Begoni were concerned due to long-standing issue and threatened to block the road in case the Lot 2 Contractor did not assign the water truck for watering the village road. The Lot 2 Contractor ignores the Project pollution prevention requirements and makes impact on environment and people health by lack of dust suppression.	The Lot 2 Contractor is recommended: • to assign a proper water truck for dust suppression in the village Benian-Begoni.	CRCC	High	CC started watering of the road; however, frequency is not sufficient. Improvement is required. UBM will closely monitor the issue. The issue is not relevant in the winter season and was assigned the status "on hold." On 16.04.24 dust was an issue again. The locals started complaining. CC is required to water the roads. 27.11.24 - status was changed to On Hold due to snow.	Closed The contractor mobilized 5 trucks for watering and sprinkling.
8	11/23/2023	Although the Lot 2 Contractor was recommended to remove the large rocks placed at the edge of the CH Site #28 (Old Mill) from the side of the river Khadistskali, the corrective actions have not been implemented. The Lot 2 Contractor's Cultural Heritage Management Requirements such as "ensure implementation and effectiveness of monuments protection measures," etc. should be followed to avoid any impact on the cultural heritage monuments by the Project.	PMSC and the Lot 2 Contractor CH Monitors are recommended: • to supervise the rock removal from the edge of the CH Site #28; • to demarcate the site with mesh fence; • to install the warning signs at the CH Site.	CRCC	Low	Rocks will be removed during final reinstatement	Closed The contractor fenced site, cleaned the area and posted signs.
3	9/5/2024	Despite several reminders, the Lot 2 Contractor continues to dump spoil on vegetation without properly clearing the site or removing the topsoil at	The Lot 2 Contractor is recommended to stop spoil dumping on the SDA #3 until proper site clearing and topsoil	Env.	High	CC completed dumping spoil on the area without removal of vegetation.	Closed

ID	Date	Issue	Required Action	Responsibility	Priority	Description of Resolution and Timing (Actual)	Status (If not yet resolved, indicate the reason why and specify further required action and timeframe)
		SDA #3 in the village Kvesheti. This area consists of private land plots that, according to land lease agreements, are to be restored with topsoil and returned to the landowners after project completion.	removal have been completed.				
	9/5/2024	The vegetation and soil on the slope were completely destroyed due to the dumping of excavated spoil from the BR #3 piling area onto the left bank of the Khadistskali River. The affected sections are now exposed bare rock, lacking soil or vegetation cover, which increases the risk of erosion to nearby areas if immediate erosion control measures are not taken.	The Lot 2 Contractor is recommended to: 1. provide the erosion control measures on the impacted slope, e.g. provide the drainage water diversion channel on the upper part and on both sides of the impacted slope, to avoid erosion of the adjacent parts of the slope; 2. reinstate the impacted area during the final reinstatement works.	Env.	Medium	The CC started taking corrective actions.	On hold
	10/3/2024	Despite several recommendations, the Lot 2 Contractor has failed to remove waste, such as cut plants, concrete and metal construction debris, and other project-related waste from areas outside the RoW, access roads, and temporary facilities (KKRP and Gudauri AR).	The Lot 2 Contractor is recommended to: (i) remove waste, such as cut plants, concrete and metal construction debris, and other project-related waste from areas outside the RoW, access roads, and temporary facilities (KKRP and Gudauri AR);	Env.	Medium	CC started removal of waste.	In progress
ani	10/3/2024	During the site visit, it was observed that spoil from the excavation for the water collection tank installation in the village Jaghmiani had been dumped on land covered with topsoil. This land is privately owned, and according to the Lot 2 Contractor, it was assigned by the landowner for the tank installation.	The Lot 2 Contractor is recommended to: (i) remove the spoil to the designated disposal area, and (ii) restore the affected land after the tank installation is complete.	Env.	Low	CC started removal of spoil and levelling the area.	In progress
ri	10/24/2024	The Lot 2 Contractor started removing soil from a private land parcel located on a slope approximately 30 meters from the lake on the Didveli Plateau.	It is recommended that UBM ensure the Lot 2 Contractor's activities on the land parcel with cadastral code 71.62.60.856 comply with	Env.	High	CC developed environmental and biodiversity pre-construction survey report. Other required documentations are under preparation.	In progress

Action	Date	Issue	Required Action	Responsibility	Priority	Description of Resolution and Timing (Actual)	Status (If not yet resolved, indicate the reason why and specify further required action and timeframe)
		According to the UBM Environmental Specialist, the Contractor requires the soil for the construction of the Gudauri Access Road. An agreement was made with the landowners (there are three co-owners of the land with cadastral code 71.62.60.856) to remove the soil and return the land in a leveled condition, covered with topsoil. The contractor started the activity without informing engineer and RD.	legal and project environmental requirements and that the activity is feasible; Otherwise, the activities should be stopped. The Lot 2 Contractor is recommended to submit the necessary documentation, including the due diligence report, a comprehensive land use agreement with the landowners, and a method statement, to UBM for approval.				
#1 ce	10/31/2024	Ongoing discharge of untreated tunnel water directly onto forest land, ultimately flowing into the Aragvi River, is causing slope erosion and pollution of both the land and the Aragvi River.	The Lot 2 Contractor is recommended: (i) to reinstall the tunnel water sedimentation pond to ensure treatment of tunnel water, and (ii) reinstall the water discharge pipes to avoid erosion and degradation of forest land.	Env.	Medium		Pending
ari	11/14/2024	During the site visit, residents of the village Zakatkari expressed concerns about rocks falling from the Gudauri AR RoW (about KM 1.200) onto the village road, creating a risk of damage to passing pedestrians and vehicles.	The Lot 2 Contractor is recommended: (i) conduct TBT with heavy equipment operators to ensure careful operation and reduce the risk of rockfalls from the RoW; (ii) remove large rocks deposited at the base of the road embankment; (iii) assign a watchman to manage traffic until rock removal from the project area is complete; (iv) remove any rocks that have already fallen onto the village road.	H&S	Medium	CC removed the fallen stones and assigned a watchman. TBT was conducted. Removal of large rocks deposited at the base of the road embankment is required.	In progress
	11/21/2024	The Lot 2 Contractor continues spoil extraction from the private land plot without implementing necessary environmental mitigation measures, specifically: • topsoil was mixed with spoil, and it is unclear whether the	• Separate topsoil from spoil where feasible and transport the topsoil to the designated storage area at BP #2. • ensure the presence of personnel on-site to oversee the proper	Env.	Medium	Stored topsoil and installed the fence near the lake.	Closed

d on	Date	Issue	Required Action	Responsi bility	Priority	Description of Resolution and Timing (Actual)	Status (If not yet resolved, indicate the reason why and specify further required action and timeframe)
		topsoil was properly removed beforehand; - the spoil extraction site has not been demarcated from the lake side. - a silt fence was not installed along the lake bank, creating a risk of sediment runoff from the site and potential pollution of the lake as spoil may be washed into it during rainfall; - the area at the lakeside was littered with waste including plastic bottles, bags, and packaging.	removal of topsoil. - clearly demarcate the work area on the lake side, taking into account the lake's protection zone. - restore any areas within the lake protection zone that may have been encroached upon. - install a silt fence along the lake's protection zone to prevent soil runoff from the site and protect the lake from pollution. - remove waste from the area adjacent to the lake.				
ite -	5/29/2025	During the site visit, it was observed that wastewater from the toilets and bathroom at Campsite #3 was being discharged into an open drainage channel within the camp area, ultimately flowing onto the surrounding ground. Additionally, water was leaking from the rear wall of the bathroom, indicating damage to the plumbing system. It is evident that the slope erosion adjacent to the bathroom area has been caused by continuous wastewater leakage (refer to issue WR-25-19-EV-01 in the E&S Action Tracker). The absence of proper wastewater management is resulting in land contamination beyond the campsite boundary and contributing to local air pollution. Moreover, it creates unsanitary conditions that pose health risks to camp residents. This situation is in violation of the project's pollution prevention and wastewater management requirements, as well as the conditions	The Lot 2 Contractor is required: (i) to repair the plumbing system in the toilets and bathroom of the Campsite #3; (ii) to ensure the wastewater is diverted to the STP for proper treatment prior to final discharge; (iii) to clean the drainage channel from the sewage.	CRCC	High	CC cleaned the system. Repaired the discharge pipe. STP is operational.	Closed

ID	Date	Issue	Required Action	Responsibility	Priority	Description of Resolution and Timing (Actual)	Status (If not yet resolved, indicate the reason why and specify further required action and timeframe)
		stipulated in the wastewater discharge permit.					
	5/29/2025	Although the Lot 2 Contractor was advised three weeks ago to remove the damaged dump trucks, currently stalled on the Khada Road, to either the designated Truck Parking and Maintenance Area or the nearest worksite, no corrective action has yet been taken. Considering the narrow width of the Khada Valley road, the presence of the stationary truck presents a significant road safety hazard.	The Lot 2 Contractor is recommended to remove the damaged dump truck from the Khada Road to either the designated Truck Parking and Maintenance Area or the nearest worksite, and ensure all operational trucks are in good working condition.	CRCC	Medium	CC started repairing of the trucks to enable their removal from the road.	Closed
4 in	6/19/2025	Despite several reminders over the past three weeks, the Lot 2 Contractor has not taken the necessary corrective actions to carry out spoil dumping activities in the Bedoni village area in accordance with the approved Spoil Management Plan. During the site visit, the following issues were observed: 1. The designated spoil dumping area has not been demarcated. 2. Spoil material has been stockpiled in heaps exceeding 2 meters in height. 3. Adequate distance has not been maintained from existing trees, and spoil has been dumped directly against tree trunks. 4. A groundwater stream used by cattle for drinking is present in the area, yet it is not identified in the Village Bedoni Territory Compacting/Filling Management Plan. Consequently, it remains unclear how the stream will be protected during and after spoil dumping.	The Lot 2 Contractor is advised to take the following corrective actions: 1. Demarcate the spoil dumping area to ensure all activities are carried out within the approved footprint as per the Spoil Management Plan. 2. Avoid excessive spoil stockpiling by spreading the material evenly across the designated area. This will help maintain clear visibility, particularly in front of nearby residential houses. 3. Remove spoil deposited against tree trunks and install protective fencing around the trees to prevent further damage to their root systems and ensure their preservation. 4. Revise the Management Plan to include specific mitigation measures for the protection of the groundwater stream identified on-site. The revised plan should be submitted to UBM for approval, and all	CRCC	Medium	CC started spreading the spoil on the SDA	Closed

d on	Date	Issue	Required Action	Responsi bility	Priority	Description of Resolution and Timing (Actual)	Status (If not yet resolved, indicate the reason why and specify further required action and timeframe)
			approved mitigation measures must be fully implemented. Additionally, UBM Environmental Specialists are recommended to strengthen oversight of spoil management activities and ensure that all environmental mitigation measures are properly enforced in accordance with the approved Management Plan.				

73. Out of 30 issues pending from the previous reporting period identified by PMCSC and ADB ESM, 14 issues were closed, and 16 issues remain outstanding during the reporting period; however, resolution works for the outstanding issues are in progress. Of these 16 issues 5 are on hold which will be closed during the reinstatement stage after completion of the construction of that part of the project.

74. The corresponding details between PMCSC, RD and Contractors during the reporting period regarding resolving the non-compliances and taking corrective actions for environmental issues is given in Table 8D.

Table 8D: Important Correspondence between PMCSC, RD and Contractors to Resolve Environmental Issue during the Reporting Period

Date	Letter #	Subject	Issue/ Concern	Required Action
14-11-2025	2025-11-UBM-CRCC-1740	Improper Management of Hazardous Asphalt waste	Asphalt waste management	To clean out the site from asphalt waste
19-11-2025	KKRP-2025(376)	Submission of the Seasonal (Autumn) Fish Monitoring Report	Seasonal Fish Monitoring	To carry out fish monitoring for autumn 2025
27-11-2025	1. The Engineers Letter: 2025- 11-UBM-CRCC-1755 Date: 27.11.2025	Spoil Disposal Area for Lot 2	Identification of the location for spoil to be disposed of	The contractor to find SDA

Date	Letter #	Subject	Issue/ Concern	Required Action
	2. The Contractors letter KGRP-2025(394) Date: 10.12.2025 3. 4.		from khada valley	
27.06.2025	2025-06-UBM-CRTG-1085	Comments Shop Drawings for Earthworks Spoil Disposal	Rehabilitation of SDA 3	Contractor to rehabilitate SDA 3 according to SDA 3 Management Plan

3.3 Issue Tracking (Based on Non-Compliances Observed)

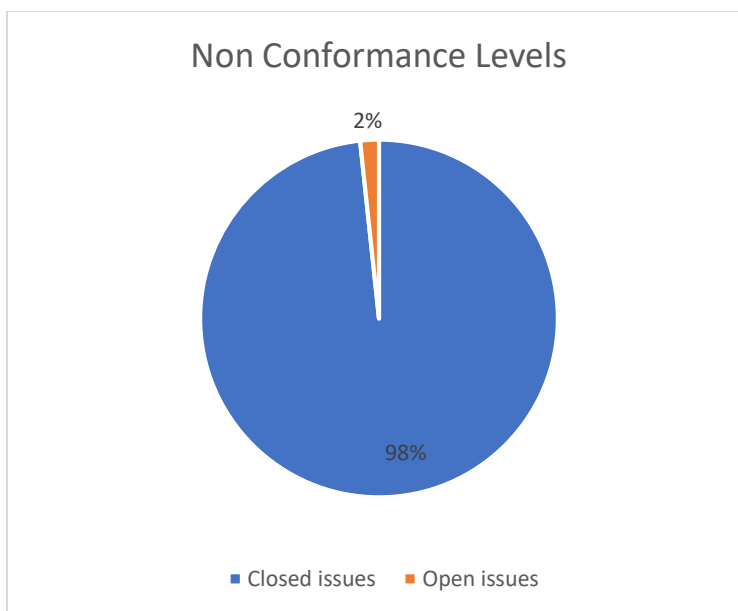
75. Description of issues tracked by PMCSC during the reporting period is given in Table 9.

Table 9: Summary of issue tracking during the project life up to December 2026

Total number of issues raised during the Project life (from start of the project)	592+ 96= 688
Number of open issues (for next Q)	05+ 9 =14
Number of closed issues (during project life)	87+ 582 +5 = 674
Percentage closed	98 %
Issues opened in this reporting period	96
Issues pending from the previous reports	05
Issues closed in this reporting period including from previous report	87+5= 92

76. Data on the number of closed and open issues is presented in Figure 5. This data is based on the issues that were observed and have been closed or remained open during the Project.

Figure 5: Non-Conformance levels during the Project



77. Out of six hundred eighty-eight (688) issues during the project life, six hundred seventy-four (674) issues were closed and some of them were partially mitigated or corrective action in progress requiring further improvement. Table 9 shows the number of emerged and closed issues during the reporting period.
78. There are 5 issues pending from the previous reports identified by the PMCSC as mentioned in Table 8C for which resolution is in progress.
79. Pending issues from previous reports include: (i) Lot 2 Contractor to divert the tunnel #1 water to the river by extending the pipe. (ii) Lot 1 Contractor is required to remove the subsoil from the heap of topsoil (iii) Lot 1 Contractor needs to remove the scrap and hazardous material from the scrap yard (iv) handling of the used containers and used tyres by the Lot 1 contractor (v) Lot-1 contractor must remove the used tyres and waste material from behind the segment plant.
80. The last three issues concerning the removal of used materials from the scrap yard were raised at different times. The contractor has taken corrective actions to clean the area, cover the used tires and containers, and organize the scrap. However, as Lot 1 is nearing completion, the contractor must deliver any remaining unused material to a licensed contractor.
81. In the reporting period from July-December 2025, out of 96 issues (43 issues for Lot 1 and 53 issues for Lot 2) highlighted during the reporting period by PMCSC. Contractors for Lot 1 and Lot 2 closed 88 issues (41 issues for Lot 1 and 47 issues for Lot 2) and 08 issues (02 issues for Lot 1 and 06 issues for Lot 2) remain outstanding.
82. For Lot 1, two issues are pending: (i) tunnel water management at south portal as in December 2025, water coming into sedimentation ponds is turbid due to temporary diversion of the tunnel water from tunnel portal to sedimentation and it takes the slush along to the sedimentation ponds. (ii) negligence of the contractor to delivery of the waste material stored behind the segment plant including used tyres, plastic containers, scrap material, and other used parts of machinery.

83. For Lot 2, seven pending issues are: (i) waste management near bridge 2 (ii) drinking water pipe line repair at the Bedoni filling area (iii) boulders in the Khada river near bridge 6 to be removed for smooth flow of the river water and (iv) restoring the access to CH 28 which is blocked by the boulders. (v) oil spill collection and provision of drip tray under the generator at BP 1 (vi) restoration of the concrete washout pit filled with sand at BP 3, removal of the diesel containers at the floor posing the fire risk and collection of used drums and waste from camp 3 and (vii) collection of wooden waste from the site and storing it at a designated site.
84. These issues have been reported to Contractors through letters and weekly inspection reports with the required Corrective Actions. Furthermore, there are regular discussions made about best practices to be adopted during progress review meetings, and minutes of meetings of such meetings are officially recorded for tracking the progress. PMCSC safeguard team is highlighting the issues at the spot by sharing the pictures in WhatsApp group for immediate response from the Contractors.
85. Out of 24 issues highlighted for both Lots (9 issues for Lot 1 Contractor and 15 issues for Lot 2 Contractor), during the reporting period by ADB ESM, 11 issues (4 issues for Lot 1 Contractor and 7 issues for Lot 2 Contractor) were closed and 13 issues (5 issues for Lot 1 Contractor and 8 issues for Lot 2 Contractor) remain outstanding. These issues belong to housekeeping at both lots, preparation of tunnel transition plans for both lots, reinstatement plans for project facilities for both lots, dumping of spoil in Khada river and spoil management for Lot-2, medical coverage of the workers, structural inspection of the bridges, damage to pipelines at tunnel 1 lot-2, repair of the ambulance at Lot-1, and fencing of the sedimentation ponds at Lot-1 Tskere.

3.4 Trends

Lot 1

86. During the reporting period, Lot 1 completed the lining of the emergency gallery, completed the drains to divert the tunnel water from north portal to river Baidara as per design. The existing permit for Maximum Permissible Discharge will be updated and re-submitted to the MoEPA within the next reporting period.
87. At the south portal tunnel water was clean after the completion of the lining of the tunnel; however, due to temporary diversion of the water during the construction of cut and cover water carrying the rock sediments and turned grey. The contractor is required to clean the water channel and sediments pond regularly for effective treatment of turbidity.
88. The contractor has constructed the asphalt road on SDA 1 for the diversion of the traffic to build the Junction in Kobi for the old road and new alignment and installed the road safety signs.
89. Additionally, the Contractor maintained regular cleaning of the camp, with municipal trucks transporting waste in a timely manner. Additionally, the contractor is removing the snow from the access corridors.
90. The contractor has cleaned out the batching plants and sediments pit in Kobi. Batching plant in Kobi is not in operation due to reduced volume of works. Additionally, the crushing plant in Kobi is also not in operation in December 2025, however, during the reporting period, the contractor kept cleaning the sedimentation ponds to treat the water mixed with clay from crushing plant operations. However, wastewater discharge from the crushing

plant remained an issue during the reporting period, despite being rectified at some stages, and reoccurred again during the operation of the crushing plant.

91. Regarding topsoil, the contractor is required to prevent topsoil damaging in Tskere and Kobi.
92. The contractor did not show any progress for rehabilitation/ recultivation works for the SDA 3. At this stage the contractor is required agreed with the engineer about the design change and to start rehabilitation works for SDA 3 including the levelling, provision of drainage works, retaining walls and grass seedings. The detailed plan, along with the timelines and all related issues, for the north portal (Kobi site) will be included in the Restoration and Rehabilitation Plan within the next reporting period. For SDA 1, the contractor builds the temporary diversion and stores the TBM parts on the SDA 1 by levelling the ground. No progress seen to carry out the drainage works and retaining walls.
93. During winter, the Contractor removed snow from the access to the camp and cleared and maintained the access road to Mughure, damaged by flooding.
94. The Contractor fenced off the Kobi old bridge to restrict any movement on bridge and posted signs indicating no entry.
95. Lot 1 needs to adopt a proactive approach to planning activities. The CC must address ongoing issues related to turbidity in the tunnel water coming out from the south portal, dumping spoil on topsoil, delivering construction waste—including used tires and containers—to a licensed contractor. Overall, during the reporting period, the Lot 1 Contractor responses to resolve non-compliance issues was slow.

Lot 2

96. At bridge # 6, the contractor fenced the CH site 28; however, they need to remove the boulders to restore access to the site. In addition to that due to negligence of the contractor the boulders have been fallen into Khada river that needs to be removed, and the temporary bridge must have guard rail.
97. The contractor took a proactive measure to resolve the sewage and drainage issues, specifically, at camp 2 and camp 3 by calling the maintenance company for the STPs and installing the drainage pipes and providing a new settling tank at Batching Plant 2.
98. The contractor provided the missing safety signs and lighting on E-117 and appointed flagmen at the site to control traffic. The contractor has completed the guard rail on the bridge and maintained the gates at Bridge 2 entrance from E-117 and Tunnel 1 exit to protect the unauthorized entry to bridge 2.
99. CC is carrying out regular seasonal fish monitoring by hiring ichthyologist. During the reporting period, fish monitoring was conducted in November 2025. CC installed the trap cameras at the site, and the movement of the faunal species is being monitored.
100. To manage fugitive dust emissions, the contractor regularly sprays water on access roads, particularly near residential areas. An additional water sprinkler truck has been added to enhance the watering efforts on these roads. The plateau section of the alignment has already been asphalted, a significant portion of the E-117 has been metalled, and part of the Gudauri access road has also been metalled. At present, snow cover has minimized dust related concerns. However, during the upcoming summer, the contractor will need to place particular focus on the Khada Valley area to ensure effective control of dust emissions.

101. CC ensured collection and transportation of municipal waste from Camps 3 to the municipality containers located in the parking area, which are easily accessible by municipality trucks. However, housekeeping and waste management remained a challenge at Camp 3 and close monitoring of the site is required. Additionally, municipality trucks regularly transport waste from Camps 1 and 2. The contractor called the cesspole truck to collect the sewage from septic tank at camp 2, collected the concrete and asphalt waste from the private land.
102. CC cleaning the washout pits at batching plants and installed the new grass filter for effective treatment of the washout from the transmixer trucks at batching plant 2. CC filled the washout pit at Batching plant 3 by giving the reason that the batching plant will not be operational in winter and this will save the animals to fall down. Instead of that CC should provide the strong guard rail along the pit.
103. The contractor is required the cleaning of the drainage channels along the road at plateau, resolve the issues related to the boulders in the Khadistikali river blocking the water course and provision of guard rail on temporary access road bridge at bridge 6, repair the damage drinking water pipe near Bedoni filling area, collect the oil spills and used drums from the site, complete the drainage network for the tunnel 1, and monitor the slope near bridge 2 and tunnel 1 entrance.
104. The WhatsApp group established by RD, overseen by the Deputy Chairperson of RD and including the safeguard team and management staff from PMCSC for Lot 2, is actively used for ongoing communication and the swift resolution of non-compliance issues identified by PMCSC's safeguard team. If any issues remain unresolved for an extended period, RD conducts site visits periodically. Additionally, the Deputy Chairperson of RD organizes meetings involving RD safeguard team, PMCSC, and the contractors for Lots 1 and 2, with minutes of these meetings being recorded.

3.5 Unanticipated Environment Impacts or Risk

105. No unanticipated environmental impact observed during the reporting period.

4. RESULTS OF ENVIRONMENTAL MONITORING

4.1 Overview of the Monitoring Conducted During the Reporting Period

106. The certified laboratory Gergili LLC, contracted by Contractor for Lot 1, continued carrying out monthly instrumental monitoring for noise, vibration, air quality and testing surface water and ground water quality for the reporting period. Based on the test results, Gergili LLC issued the monthly Environmental Instrumental Monitoring Reports, which were forwarded to PMCSC for review.
107. Monitoring location for air quality, noise and vibration, water quality and ground water levels were selected considering the ongoing construction activities and as per Appendix B of the EIA as shown in Figures 6, 7A & 7B (Lot 1). The objective was to evaluate the potential impacts on the environment resulting from the construction activities. The results of the instrumental monitoring are given in tabular form while details are presented in Annex 2. The contractor did not carry out the instrumental monitoring in November 2025 due to contractual issue with the laboratory and the matter was resolved in December 2025.

Figure 6: Location of Sampling Points for instrumental monitoring on the Northern Site of the Project Lot 1 (July-December 2025)

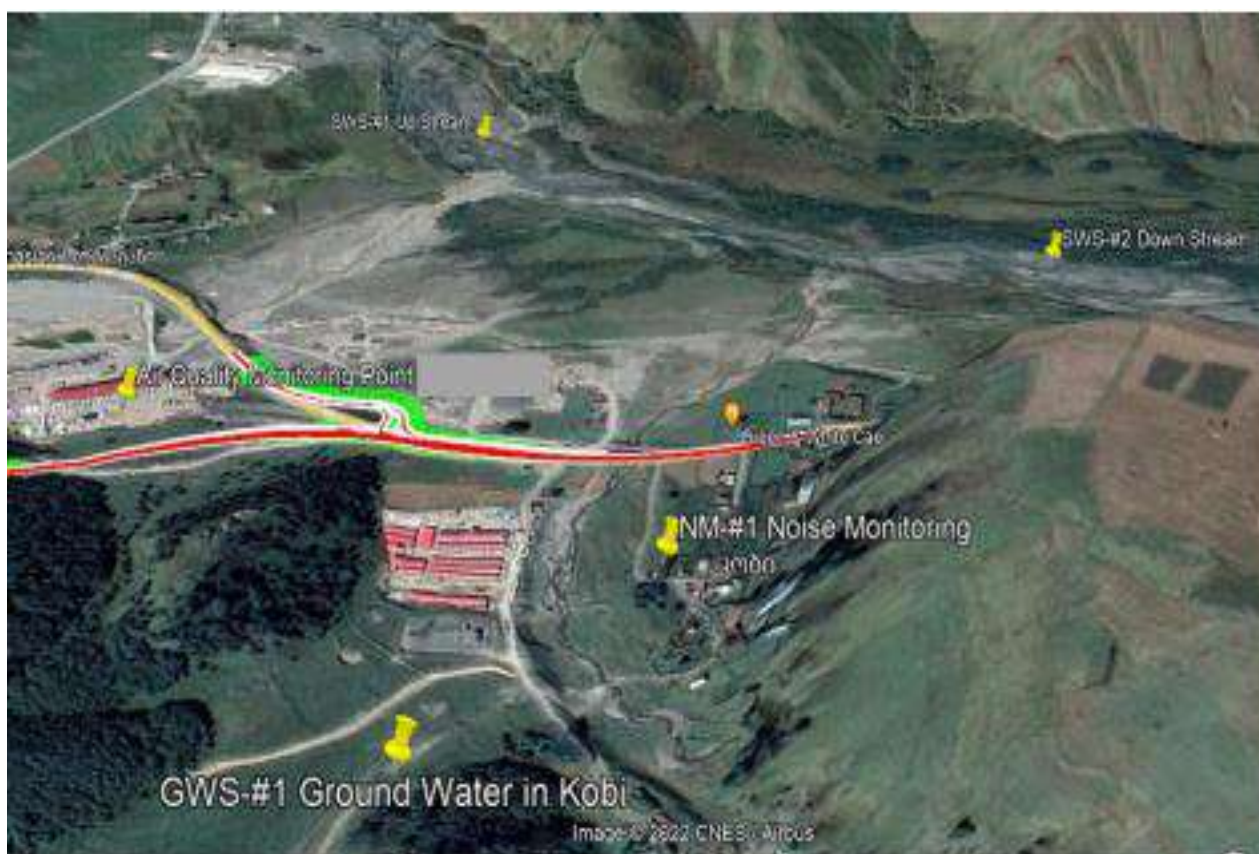


Figure 7A: Location of Sampling Points for air, noise and vibration monitoring in on the Southern Site of the Project Lot 1 (July – December 2025)



Figure 7B: Location of Sampling Points for surface water monitoring from Khadistskali river in Tskere Lot 1 (July – December 2025)



108. For Lot 2, the certified laboratory Gergili LLC, engaged by the Contractor, continued to conduct monthly instrumental monitoring of vibration, noise, air quality, and surface water quality testing during the reporting period. Sampling locations for instrumental monitoring for the reporting period are shown in Figure 8.

Figure 8: Location of Sampling Points for Lot 2 (July – December 2025)



Ground Water Quality and Level Monitoring

109. Groundwater quality testing for Lot 1 was conducted from July- September 2025. Samples were collected from a well located at the upper part of the accommodation camp (coordinates 459946.172E 4711509.980N) in Kobi Village. The results of the groundwater tests, as shown in Table 10, were compared with the Georgian Acceptable Limits outlined in Resolution #58 of the Georgian government, which approves the technical regulations for potable water. All tested chemical parameters met the National Acceptable Limits, indicating that the groundwater was not contaminated in terms of chemical contamination. However, Total Coliforms were detected in the water sample collected in August and September 2025. The contractor could not carry out the ground water monitoring in the last quarter of 2025 due to contractual issue and snow restricted to take sample from the Kobi Spring
110. PMCSK has instructed the Contractor to start chlorine dosing to eliminate the coliform bacteria; however, the contractor did not install the chlorine dosing system yet. It is quite probable that the presence of coliforms is due to degradation of leaf/ grass and due to animal dung (grazing in that area) entering in spring with rainwater.
111. The Contractor for Lot 1 did not measure the ground water levels during the reporting period due to the negligence; however, ground water levels were monitored during the last monitoring period. The engineer instructed the contractor to measure the ground water levels both in Kobi and Tskere, However, due to heavy snow it was not possible to identify the ground water wells in December 2025. The contractor will start measuring ground water levels after the snow melt during March 2026. However, no significant impact on ground levels was determined during the construction stage , based on the baseline provided in the EIA, where groundwater levels were measured at ten different points, depth varying between 14 meters and 28 meters.

Figure 9: Ground Water Sampling from Kobi Spring (July 2025)**Table10: Groundwater Quality Monitoring Results Lot 1 (spring in Kobi Village)**

Parameter	Measurement unit	Method used	July 2025	Aug 2025	Sept 2025	Maximum permissible limit
Color	Degrees	GOST 23268.1-91	0	0	0	<15
pH	-	ISO10523:2008	7.58	7.35	6.75	6--9
Turbidity	NTU	ISO 7024:1:2016	0.78	0.69	0.27	N/A
TPH	mg/L	ISO 11504:2017	<0.05	<0.05	<0.05	0.3
TDS	Mg/L		134.2	156	149	<1000
Total Coliforms	cfu/300 mL	ISO9308-1:2014	ND	80	310	Not permissible

Surface Water Quality

112. For Lot 1, during the reporting period, the surface water samples were collected from the river Tergi to see the effect of tunnel water on the water quality of the river Tergi. Surface water samples were collected from the 150-meter upstream and 150 meters downstream from the disposal of tunnel water. The objective for the sampling was to evaluate potential impact on river water quality due to construction activities. The results are presented in Table 11A.
113. The results presented in Table 11A indicate that there is no significant difference between the measurements taken upstream and downstream of the tunnel 5 water discharge point. However, the turbidity levels of the Tunnel water have been significantly decreased due to completion of excavation (100 %) and lining (100 %) of the EG. Overall, the volume of water decreased on the Kobi side, as most of the water flowed toward Tskere due to gravity.

Figure 10: Downstream Surface Water Sampling in Tergi River, July 2025



114. pH values around 7-8 throughout the season reveal that River Tergi water is healthy for the Aquatic microorganisms as normally aquatic organism are severely stressed below 5.5 (acidic in nature). Moreover, at this pH (7-8) certain toxic minerals such as aluminum, lead, mercury, are insoluble and relatively harmless. Turbidity levels increased during July 2025 both upstream and downstream of the tunnel water discharge showing the seasonal turbidity due to snow melt in the mountain and discharge of sediment loaded water from the crushing plant..
115. Increase in COD level is concern at the downstream in August and September which may be due to discharge of the crusher wash water; however, the COD levels decreased afterwards and returned to normal in December 2025 when crusher was closed.
116. Additionally, the contractor has diverted tunnel water in Baidara River by constructing the drainage channel as per design.

Table 11A: Surface Water Results River Tergi, (July – December 2025) Lot 1

Measurement in July 2025							
Location: Upstream, Downstream Riv. Tergi							
#	Parameters	River Tergi		Baseline Result from EIA River Tergi	Unit	National Maximum allowable Concentration (MAC)	IFC indicative values for treated sanitary sewage discharge
		Upstream 150 m	Downstream 150 m				
Physical & Chemical Tests							
1	pH	7.52	7.51	7.6	pH	6.5-8.5	6-9
2	Turbidity	598	610	50	NTU	N/A	-
3	TPH	<0.005	<0.005	<0.04	mg/l	0.3	-
4	COD	178	9.0	<15	mg/l	30	125

5	Conductivity	0.397	0.380	0.0343 S/m	m S/cm	N/A	-
Microbiological							
6	Total Coliform bacteria	13000	16900	560 (MPN in 1000 ml)	MPN in 100 ml	10000 (MPN in 1000 ml)	400 MPN/100 ml N/A for-tunnel water
Measurement in August 2025							
Location: Upstream, Downstream Riv. Tergi							
#	Parameters	River Tergi		Baseline Result from EIA	Unit	National MAC	IFC indicative values for treated sanitary sewage discharge
		Upstream 150 m	Downstream 150 m				
Physical & Chemical Tests							
1	pH	7.32	7.39	7.6	pH	6.5-8.5	6-9
2	Turbidity	3.89	4.13	50	NTU	N/A	-
3	TPH	0	0	<0.04	mg/l	0.3	-
4	COD	0	194	<15	mg/l	30	125
5	Conductivity	0.474	0.478	0.0343 S/m	Micro S/cm	N/A	-
Microbiological							
6	Total Coliform bacteria	440	490	560 (MPN in 1000 ml)	MPN in 100 ml	10000 (MPN in 1000 ml)	400 MPN/100 ml N/A for tunnel water
Measurement in September 2025							
Location: Upstream, Downstream Riv. Tergi							
#	Parameters	River Tergi		Baseline Result from EIA	Unit	National MAC	IFC indicative values for treated sanitary sewage discharge
		Upstream 150 m	Downstream 150 m				
Physical & Chemical Tests							
1	pH	6.91	6.83	7.6	pH	6.5-8.5	6-9
2	Turbidity	65.90	78.40	50	NTU	N/A	-
3	Conductivity	0.510	0.515	0.0343 S/m	Micro S/m	N/A	-
4	COD	0	121	<15	mg/l	30	125
5	TPH	<0.005	<0.005	<0.04	mg/l	0.3	-
Microbiological							
6	Total Coliform bacteria	580	1400	560 (MPN in 1000 ml)	MPN in 100 ml	10000 (MPN in 1000 ml)-	400 MPN/100 ml N/A for tunnel water
Measurement in October 2025							
Location: Upstream, Downstream Riv. Tergi							

#	Parameters	River Tergi		Baseline Result from EIA	Unit	National MAC	IFC indicative values for treated sanitary sewage discharge
		Upstream 150 m	Downstream 150 m				
Physical & Chemical Tests							
1	pH	7.68	7.8	7.6	pH	6.5-8.5	6-9
2	Turbidity	7.2	11.34	50	NTU	N/A	-
3	TPH	<0.005	<0.005	<0.04	mg/l	0.3	-
4	COD	0	0	<15	mg/l	30	125
5	Conductivity	0.505	0.510	0.0343 S/m	Micro S/cm	N/A	-
Microbiological							
6	Total Coliform bacteria	120	170	560 (MPN in 1000 ml)	MPN in 100 ml	10000 (MPN in 1000 ml) -	400 MPN/100 ml N/A for tunnel water
Measurement in December 2025							
Location: Upstream, Downstream Riv. Tergi							
#	Parameters	River Tergi		Baseline Result from EIA	Unit	National MAC	IFC indicative values for treated sanitary sewage discharge
		Upstream 150 m	Downstream 150 m				
Physical & Chemical Tests							
1	pH	7.75	8.11	7.6	pH	6.5-8.5	6-9
2	Turbidity	2.88	2.99	50	NTU	N/A	-
3	TPH	<0.005	<0.005	<0.04	mg/l	0.3	-
4	COD	1.29	5.25	<15	mg/l	30	125
5	Conductivity	0.495	0.498	0.0343 S/m	Micro S/cm	N/A	-
Microbiological							
6	Total Coliform bacteria	70	20	560 (MPN in 1000 ml)	MPN in 100 ml	10000 (MPN in 1000 ml) -	400 MPN/100 ml N/A for tunnel water

117. During the reporting period from July to December 2025, the contractor conducted water quality tests in the Khadistskali River. The turbidity levels in the river have significantly decreased due to the completion of excavation (100%) and lining (100%) of the tunnel in the Emergency Gallery.
118. Turbidity levels were reduced for most of the reporting period. However, the levels increased during September 2025, both upstream and downstream (624 NTU Upstream and 892 NTU upstream). The tunnel water is clean; however, sometime due to cleaning activities in the tunnel the turbidity is increased on temporary basis.

119. During the 3rd week of December 2025, the tunnel water became turbid; however, after few days at the start of January 2026, the water became clear as shown in Figure 10 below. It was not possible to access the underground section at the south portal during this period; however, it is likely that the Contractor temporarily diverted the water flow from the old drainage passage containing accumulated sediments in order to carry out maintenance or construction activities. The flow was subsequently restored to the original drainage pipe, which may explain the temporary increase in turbidity observed during this period.

Figure 10: A view of tunnel water in Tskere



120. The presence of Total Coliforms observed in the Khadistskali River is due to discharge of Tskere community sewage water. However, Total Coliforms are below the maximum allowable concentration (MAC) in the surface water according to ordinance # 425 of Georgia.

Table 11B: Surface water results River Khadistskali (July – December 2025) Lot 1

Measurement in July 2025							
Location: Upstream, Downstream River Khadistskali							
#	Parameters	River Khadistskali		Baseline Result from EIA	Unit	National MAC Ordinance # 425	IFC indicative values for treated sanitary sewage discharge
		Upstream 150 m	Downstream 150 m				
Physical & Chemical Tests							
1	pH	7.65	7.85	7.72	pH	6.5-8.5	6-9
2	Turbidity	23.30	13	5.0	NTU	N/A	-
3	TPH	<0.005	<0.005	<0.04	mg/l	0.3	-
4	COD	0	0.63	<15	mg/l	30	125
5	Conductivity	0.213	0.216	0.0235 S/m	Micro S/cm	N/A	-

Microbiological							
6	Total Coliform bacteria	80	400	2000 (MPN in 1000 ml)	MPN in 100 ml	10000 (MPN in 1000 ml)	400 MPN/100 ml N/A for tunnel water
Measurement in August 2025							
Location: Upstream, Downstream River Khadistskali							
#	Parameters	River Khadistskali		Baseline Result from EIA	Unit	National MAC	IFC indicative values for treated sanitary sewage discharge
		Upstream 150 m	Downstream 150 m				
Physical & Chemical Tests							
1	pH	7.13	7.43	7.72	pH	6.5-8.5	6-9
2	Turbidity	0.87	1.10	5.0	NTU	N/A	-
3	TPH	<0.005	<0.005	<0.04	mg/l	0.3	-
4	COD	0	15.20	<15	mg/l	30	125
5	Conductivity	0.232	0.248	0.0235 S/m	Micro S/cm	N/A	-
Microbiological							
6	Total Coliform bacteria	340	640	2000 (MPN in 1000 ml)	MPN in 100 ml	10000 (MPN in 1000 ml)-	400 MPN/100 ml N/A for tunnel water
Measurement in September 2025							
Location: Upstream, Downstream River Khadistskali							
#	Parameters	River Khadistskali		Baseline Result from EIA	Unit	National MAC	IFC indicative values for treated sanitary sewage discharge
		Upstream 150 m	Downstream 150 m				
Physical & Chemical Tests							
1	pH	7.13	7.11	7.72	pH	6.5-8.5	6-9
2	Turbidity	624	892	5.0	NTU	N/A	-
3	TPH	<0.005	<0.005	<0.04	mg/l	0.3	-
4	COD	0	15.20	<15	mg/l	30	125
5	Conductivity	0.194	0.217	0.0235 S/m	Micro S/cm	N/A	-
Microbiological							
6	Total Coliform bacteria	3000	1920	2000 (MPN in 1000 ml)	MPN in 100 ml	10000 (MPN in 1000 ml) -	400 MPN/100 ml N/A for tunnel water
Measurement in October 2025							
Location: Upstream, Downstream River Khadistskali							
#	Parameters	River Khadistskali			Unit		

		Upstream 150 m	Downstream 150 m	Baseline Result from EIA		National MAC	IFC indicative values for treated sanitary sewage discharge
Physical & Chemical Tests							
1	pH	7.43	7.64	7.72	pH	6.5-8.5	6-9
2	Turbidity	0.1	3.44	5.0	NTU	N/A	-
3	TPH	<0.05	<0.05	<0.04	mg/l	0.3	-
4	COD	0	0.00	<15	mg/l	30	125
5	Conductivity	0.510	0.210	0.0235 S/m	Micro S/cm	N/A	-
Microbiological							
6	Total Coliform bacteria	40	2500	2000 (MPN in 1000 ml)	MPN in 100 ml	10000 (MPN in 1000 ml) -	400 MPN/100 ml N/A for tunnel water
Measurement in December 2025							
Location: Upstream, Downstream River Khadistskali							
#	Parameters	River Khadistskali		Baseline Result from EIA	Unit	National MAC	IFC indicative values for treated sanitary sewage discharge
		Upstream 150 m	Downstream 150 m				
Physical & Chemical Tests							
1	pH	7.58	9.09	7.72	pH	6.5-8.5	6-9
2	Turbidity	<0.01	32	5.0	NTU	N/A	-
3	TPH	<0.005	<0.005	<0.04	mg/l	0.3	-
4	COD	1.1	5.64	<15	mg/l	30	125
5	Conductivity	0.500	0.502	0.0235 S/m	Micro S/cm	N/A	-
Microbiological							
6	Total Coliform bacteria	0	250	2000 (MPN in 1000 ml)	MPN in 100 ml	10000 (MPN in 1000 ml) -	400 MPN/100 ml N/A for tunnel water

Tunnel 5 Water testing

121. Tunnel water testing was conducted in October 2025 in Tskere. In Tskere, the Tunnel water is being treated through the sedimentation pond.
122. Test results for Tunnel water discharge before treatment through sedimentation ponds in Tskere are given in table 11C. Results showing the tunnel water is not turbid (1.94 NTU).

Table 11C: Tunnel Water Discharge Testing in Tskere (October 2025)

Parameter	Measuring Unit	Test Result tunnel water discharge point.	Maximum permissible limits for tunnel water discharge ordinance # 17
pH	-	7.14	6.5-8.5
TPH	Mg/l	<1.40	≤0.3
BOD	Mg/l	7.28	25
COD	Mg/l	0	125
Turbidity	NTU	1.94	-

123. For Lot 2, details and results of surface water measurements from river Aragvi are provided in Table 11D. The sampling point was selected considering the construction activities at Bridge 2 and Tunnel 1. There are no significant changes in the upstream and downstream results, except for the turbidity levels in September 2025 anticipated to be high due to seasonal variation and snow melt. The concentrations of all other measured parameters are within the acceptable range of the Applicable Standard Maximum Allowable Concentration (MAC).

Table 11D: Surface water results (July – December 2025) Lot 2

Measurement in July 2025							
Location: Upstream and downstream Riv. Aragvi							
#	Parameters	River Aragvi			Baseline Result from EIA River Aragvi	Unit	Applicable Standard MAC
		Upstream 150 m	Downstream 150 m	Near Bridge crossing on Aragvi River in Arakhveti			
		Physical & Chemical Tests					
1	pH	7.45	7.48	7.66	8.1	-	6-9
2	Turbidity	4.40	2.42	3.10	348.0	NTU	N/A
3	TPH	<0.05	<0.05	<0.05	0	mg/L	0.1
4	COD	0	0	0	<15	mg/L	30
5	Conductivity	0.251	0.255	0.266	0.0255 (mS/m)	mS/cm	200-1000
Measurement in August 2025							
Location: Upstream, Downstream Riv. Aragvi							
#	Parameters	River Aragvi			Baseline Result from EIA	Unit	Applicable Standard MAC
		Upstream 150 m	Downstream 150 m	Near Bridge crossing on Aragvi River in Arakhveti			

		Physical & Chemical Tests					
1	pH	7.22	7.36	7.48	8.1	-	6-9
2	Turbidity	1.17	1.35	1.48	348.0	NTU	N/A
3	TPH	<0.05	<0.05	<0.05	0	mg/L	0.1
4	COD	0	0	0	<15	mg/L	30
5	Conductivity	0.263	0.259	0.274	0.0255 (mS/m)	mS/cm	200-1000
Measurement in September 2025							
Location: Upstream, Downstream Riv. Aragvi							
#	Parameters	River Aragvi			Baseline Result from EIA	Unit	Applicable Standard MAC
		Upstream 150 m	Downstream 150 m	Near Bridge crossing on Aragvi River in Arakhveti			
		Physical & Chemical Tests					
1	pH	7.13	6.74	7.2	8.1	-	6-9
2	Turbidity	910	556	235	348.0	NTU	N/A
3	TPH	<0.005	<0.05	<0.05	0	mg/L	0.1
4	COD	5.9	0	0	<15	mg/L	30
5	Conductivity	0.234	0.244	0.253	0.0255 (mS/m)	mS/cm	200-1000
Measurement in October 2025							
Location: Upstream, Downstream Riv. Aragvi							
#	Parameters	River Aragvi			Baseline Result from EIA	Unit	Applicable Standard MAC
		Upstream 150 m	Downstream 150 m	Near Bridge crossing on Aragvi River in Arakhveti			
		Physical & Chemical Tests					
1	pH	7.55	7.42	7.17	8.1	-	6-9
2	Turbidity	0.48	1.15	1.05	348.0	NTU	N/A
3	TPH	<0.05	<0.05	<0.005	0	mg/L	0.1
4	COD	0	0	2.02	<15	mg/L	30
5	Conductivity	0.214	0.230	0.244	0.0255 (mS/m)	mS/cm	200-1000
Measurement in November 2025							
Location: Upstream, Downstream Riv. Aragvi							
#	Parameters	River Aragvi			Baseline Result from EIA	Unit	Applicable Standard MAC
		Upstream 150 m	Downstream 150 m	Near Bridge crossing on Aragvi River in Arakhveti			
		Physical & Chemical Tests					

1	pH	8.08	6.73	6.95	8.1	-	6-9
2	Turbidity	0.72	0.81	0.41	348.0	NTU	N/A
3	TPH	<0.05	<0.05	<0.05	0	mg/L	0.1
4	COD	0.7	0.7	0.3	<15	mg/L	30
5	Conductivity	0.200	0.204	0.269	0.0255 (mS/m)	mS/cm	200-1000
Measurement in December 2025							
Location: Upstream, Downstream Riv. Aragvi							
#	Parameters	River Aragvi			Baseline Result from EIA	Unit	Applicable Standard MAC
		Upstream 150 m	Downstrea m 150 m	Near Bridge crossing on Aragvi River in Arkhveti			
		Physical & Chemical Tests					
1	pH	6.86	7.29	7.41	8.1	-	6-9
2	Turbidity	0.27	0.36	4.46	348.0	NTU	N/A
3	TPH	<0.005	<0.005	<0.005	0	mg/L	0.1
4	COD	11	3.08	2.36	<15	mg/L	30
5	Conductivity	0.198	0.200	0.202	0.0255 (mS/m)	mS/cm	200-1000

Wastewater Test Results for Lot 1

124. The wastewater samples were collected from the wastewater effluent discharge from the treatment system installed at Lot 1 campsites in Kobi in August 2025 and September 2025 during the reporting period as per requirement of MoEPA. As indicated in Table 11E, Total Nitrogen levels are exceeding the IFC and MAC.
125. As bacteria break down sewage, nitrogen that is bound to complex organic molecules is released as ammonium nitrogen. When this ammonium nitrogen is discharged into water bodies, it can lead to oxygen depletion due to the oxidation process. Additionally, nitrogen serves as a crucial nutrient that can promote algal growth, ultimately resulting in eutrophication. Typically, conventional treatment plants are able to remove around 30 percent of the nitrogen present. The contractor for Lot 1 has been instructed to remove the old sludge from septic tanks by utilizing a cesspool truck from the waste management company, Sanitary LLC (results attached as Annex-2). Another treatment option is the addition of biodegradable organics, usually in the form of methanol (CH₃OH). However, the Narvani River, which serves as the receiving water body, flows with high turbulence and speed, allowing for sufficient oxygen dissolution.

Table 11E: Test Results of Wastewater Effluent from the Sewage Treatment Plants (STP) in Kobi & Tskere, August 2025

Parameter	Units	Results in Kobi August 2025	Results in Kobi September 2025	Indicative Guideline Value for treated sanitary	Max Permissible limits according to Georgian

				water discharge.	ordinance # 17
pH	pH	7.55	7.31	6-9	6.5-8.5
BOD5	mg/l	25	0.49	30	25
COD	mg/l	95	0.324	125	125
Total Nitrogen	mg/l	26	16.80	10	15
Total phosphorus	mg/l	0.13	0.056	2	2
Total suspended solids	mg/l	59	19	50	60
Grease and oil	mg/l	<5	<5	10	≤5
Phenol	mg/l	<0.10	<0.10	-	≤0.1
Detergents	mg/l	<0.1	<0.1	-	≤0.2

Noise Monitoring

126. During the reporting period for Lot 1, sampling locations for noise levels were selected to evaluate the impact on the residential area of Kobi village due to construction activities at TUN 5 North portal, and at Tskere side South portal of TUN 5 to evaluate the impact of noise on the residential area of Tskere village. The average equivalent noise levels (LAeq) recorded are indicated in Table 12A with location detail and compared with the day time and nighttime IFC limits 55 dB(A) and 45 dB(A) respectively for the residential areas.
127. For Lot 1 overall, the LAeq results vary between 51 dBA to 63 dBA. The increased levels were observed in August 2025 from the range of IFC standard 55 d(BA) for residential areas during the daytime. In Kobi the increased noise levels are due to cumulative effect of traffic on E-117 and construction activities in Kobi. Graphical presentation of the daytime levels at Lot 1 is shown in Figure 11. There was no significant increase in noise level was observed in Tskere. The difference of 3dB(A) is hardly detected by the human ear.
128. The nighttime noise levels in village Kobi and Almasiani were within the limits of the standard which is (45 dBA). In Kobi, crushing plant if operating is the source of noise levels at nighttime. It has been surrounded by SDA 1 and stockpile height has increased enough and that is acting as a noise barrier especially for the village Almasiani. Nighttime noise levels were not conducted in Tskere as there was no construction activity in Tskere in nighttime. Currently, the crushing plant is not in operation. Graphical presentation of the nighttime levels at Lot 1 is shown in Figure 12.

Table 12A: Average Equivalent Noise Levels Result during the Reporting Period Lot 1

Location	Average Equivalent Noise level (LAeq) Measurement dB(A) (1 Hour Averaging Period)							IFC Standard dB(A) for Residential Area
	Baseline Results	July 2025	Aug 2025	Sept 2025	Oct 2025	Nov 2025	Dec 2025	
Day Time								

Residential Area of Kobi Village	51	60.9	63	55	62	-	55	55
Tskere settlement	47	60.25	61	51	60	-	60	
Night Time (Averaging period 30 minutes)								
Residential Area of Kobi Village	-	40	39	34	35	39	-	45
Village Almasiani (church)	-	39	40	39	39	40	-	
Village Almasiani (residential area)	-	34	38	38	37	37		

Figure 11: Average Equivalent Day Time Noise levels (LAeq) Lot-1

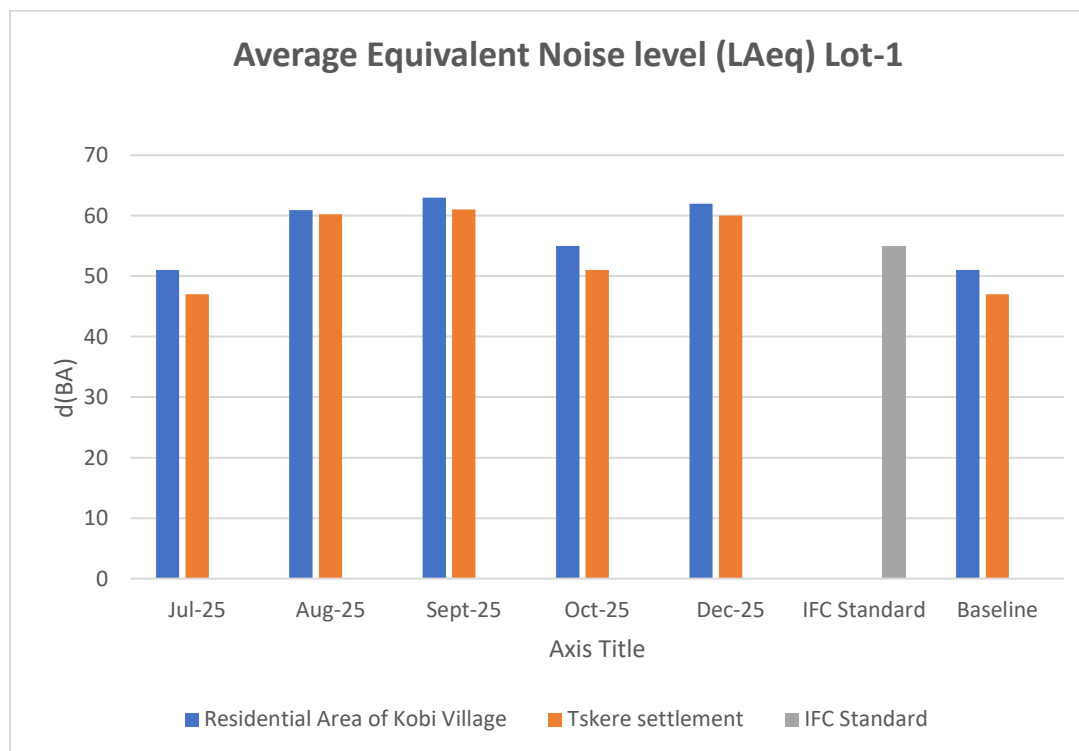
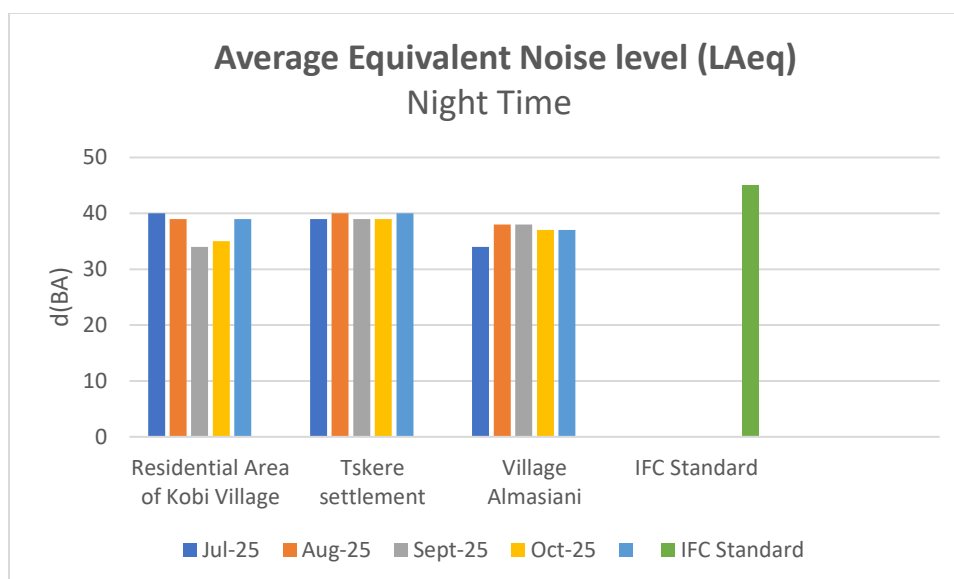


Figure 12: Average Equivalent Nighttime Noise levels (LAeq) Lot-1



129. Noise monitoring results detail for Lot 2 is given in Table 12B. As indicated in Table 12B and shown in Figure 13, along the E-117 noise levels exceed the daytime IFC limits for residential areas due to heavy traffic movements on the highway and construction activities; however, these are below the IFC limits of commercial noise levels 70 dB(A). Lot 2
130. Slight increase in noise levels observed in village Zakatkari and Camp 3 from IFC guidelines is due to construction activities. Contractor does not conduct any construction activities at night time and there is no need for nighttime noise monitoring for Lot 2. The contractor should prioritize low noise equipment and machinery for the construction activities and PPEs such as ear plugs should be provided for the workforce.

Table 12B: Average Equivalent Noise Levels (LAeq) Result during the Reporting Period for Lot 2

Parameter	Unit	IFC Standard dB(A) Residential Area (Day time noise levels)	Sampling Locations				
			Parking Area	Bridge 2	Zakatkari	Camp 3	BP 1 along the road
Day time Noise Levels	dB(A)	55					
Results July 2025							
Daytime Noise levels	dB(A)	55 Res/Commercial 70	-	64	56	66	66
Results August 2025							
Daytime Noise levels	dB(A)	55		62	59	63	62
Results September 2025							
Daytime Noise levels	dB(A)	55		55	58	60	63
Results October 2025							
Daytime Noise levels	dB(A)	55		65	59	62	64
Results November 2025							
Daytime Noise levels	dB(A)	55		62	65	55	70
Results December 2025							
Daytime Noise levels	dB(A)	55		57	57	62	65

Figure 13: Average Equivalent Day Time Noise levels (LAeq) Lot 2

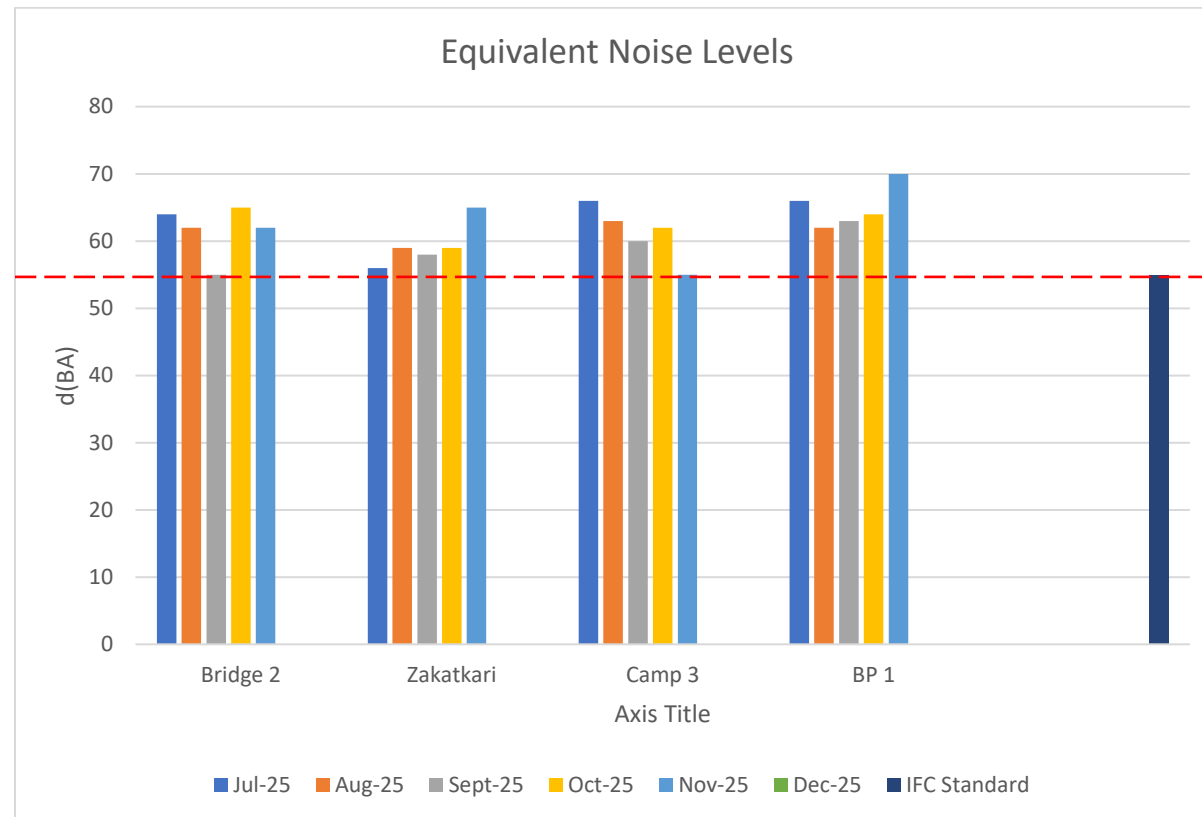


Figure 15: Vibrational Monitoring at CH Site 28, Mughure, Lot 2**Table 13: Continuous Vibrational Monitoring Results (July – December 2025), Lot 2**

Location	Peak Particle Velocity (PPV) mm/sec			Guideline value for vibration with DIN 4150-3 Standard
	Longitudinal (X)	Transitional (Y)	Vertical (Z)	
Measurement in July 2025				3 mm/s
Sviannant Tower in Svianaant old village	0.06 mm/s	0.05 mm/s	0.05 mm/s	
CH 28, The mill	0.07 mm/s	0.06 mm/s	0.5 mm/s	
CH 29- Mughure village; St. Mary church	0.09 mm/s	0.16 mm/s	0.06 mm/s	
Measurement in August 2025				
Sviannant Tower in Svianaant old village	0.07 mm/s	0.07 mm/s	0.06 mm/s	
CH 28, The mill	0.07 mm/s	0.06 mm/s	0.06 mm/s	
Ch 29- Mughure village. St. Mary church	0.09 mm/s	0.12 mm/s	0.07 mm/s	
Measurement in September 2025				
CH 28, The Mill	0.06 mm/s	0.06 mm/s	0.05 mm/s	
Ch 29- Mughure village. St. Mary church	0.11 mm/s	0.15 mm/s	0.06 mm/s	
Measurement in October 2025				
Ch 29- Mughure village. St. Mary church	0.10 mm/s	0.08 mm/s	0.05 mm/s	
Measurement in November 2025				
CH 29-St. Mary church in Mughure village	0.05 mm/s	0.05 mm/s	0.05 mm/s	
Measurement in December 2025				

Ch-29-St. Mary church in Mughure village	-	-	-	
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134. No significant exceedance was observed due to construction activities at the locations mentioned in Table 13.

Ambient Air Quality Monitoring

135. For Lot 1, dust levels were measured during the reporting period to determine the impact on air quality due to ongoing construction activities at TUN 5 North Portal (Kobi) and Tskere village. The air quality monitoring location and results are summarized in Table 14A.
136. For Lot 1 during the reporting period, the main emission source was the construction activities being carried out at the Tunnel 5 North and South Portals and movement of heavy machinery. The construction activities were ongoing for earthwork on Tskere side.
137. PM10 levels including the concentration levels of NO₂, SO₂, CO and dust levels as indicated in Table 14A are within the national limits for air quality in Georgia and IFC guidelines. Trend analysis of PM 10 Levels during reporting period are shown in figure 16. CC for Lot 1 was carrying out regular water sprinkling at Kobi; however, CC for Lot 1 does not use the access road 1 as they have access for Tskere through Tunnel 5.

Table 14A: Ambient Air Quality Monitoring Results Lot 1 (July- December 2025)

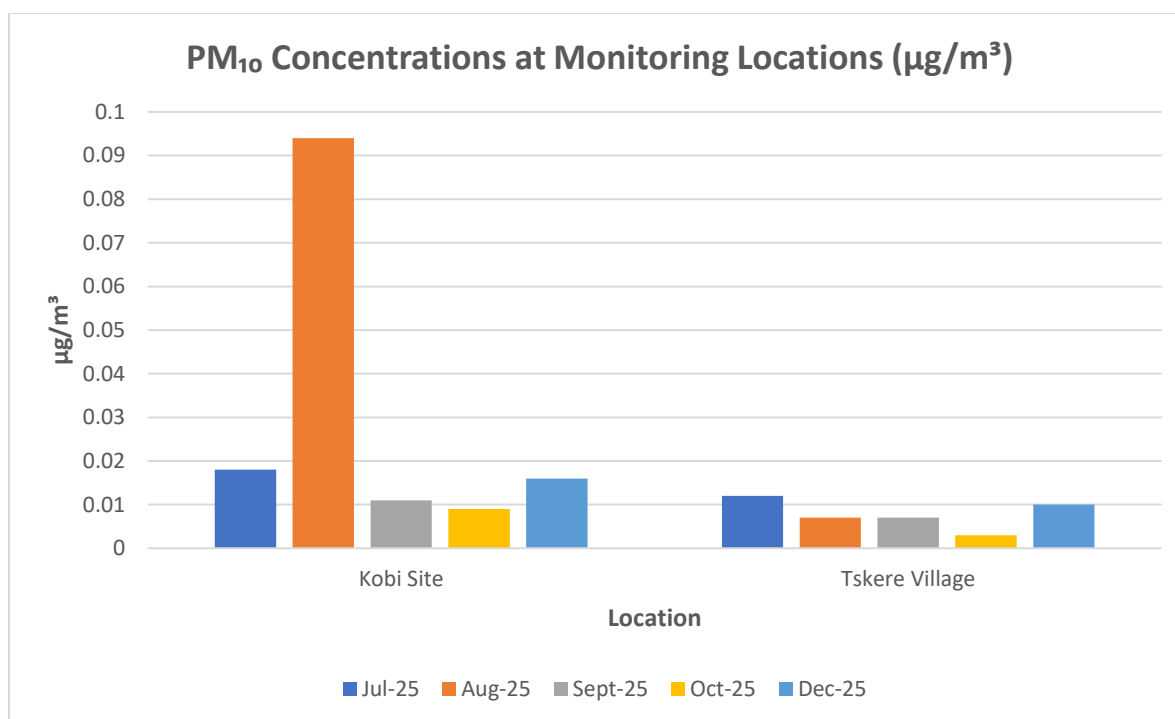
Measurement in July 2025					
Indicator	IFC Guidelines (Averaging Period)	Georgian Standards (Averaging Period)	Unit	Kobi Site	Tskere Village
Particulate Matter (PM ₁₀)	50 (24 hrs.)	50 (1 hr.)	µg/m ³	0.018	0.012
Particulate Matter (PM _{2.5})	25 (24 hrs.)	25 (1 year)	µg/m ³	0.014	0.003
Carbon Monoxide (CO)	-	10000 (Max daily or hourly) ^c	µg/m ³	1.1	0
Nitrogen Dioxide (NO ₂)	200 (1 hr.)	200 (1 hr.)	µg/m ³	0.014	0
Sulphur Dioxide (SO ₂)	20 (24 hrs.) 500 (10 min)	50 (1 hr.)	µg/m ³	0.03	0
Measurement in August 2025					
Indicator	IFC Guidelines (Averaging Period)	Georgian Standards (Averaging Period)	Unit	Kobi Site	Tskere Village
Particulate Matter (PM ₁₀)	50 (24 hrs.)	50 (1 hr.)	µg/m ³	0.094	0.007
Particulate Matter (PM _{2.5})	25 (24 hrs.)	25 (1 year)	µg/m ³	0.021	0.003
Carbon Monoxide (CO)	-	10000 (Max daily or hourly mean) ^c	µg/m ³	0.3	3.5
Nitrogen Dioxide (NO ₂)	200 (1 hr.)	200 (1 hr.)	µg/m ³	0	0
Sulphur Dioxide (SO ₂)	20 (24 hrs.) 500 (10 min)	50 (1 hr.)	µg/m ³	0	0
Measurement in September 2025					

Indicator	IFC Guidelines (Averaging Period)	Georgian Standards (Averaging Period)	Unit	Kobi Site	Tskere Village
Particulate Matter (PM ₁₀)	50 (24 hrs.)	50 (1 hr.)	µg/m ³	0.011	0.007
Particulate Matter (PM _{2.5})	25 (24 hrs.)	25 (1 year)	µg/m ³	0.001	0.003
Carbon Monoxide (CO)	-	10000 (Max daily or hourly mean) ^c	µg/m ³	9.6	3.5
Nitrogen Dioxide (NO ₂)	200 (1 hr.)	200 (1 hr.)	µg/m ³	0	0
Sulphur Dioxide (SO ₂)	20 (24 hrs.) 500 (10 min)	50 (1 hr.)	µg/m ³	0	0
Measurement in October 2025					
Indicator	IFC Guidelines (Averaging Period)	Georgian Standards (Averaging Period)	Unit	Kobi Site	Tskere
Particulate Matter (PM ₁₀)	50 (24 hrs.)	50 (1 hr.)	µg/m ³	0.009	0.003
Particulate Matter (PM _{2.5})	25 (24 hrs.)	25 (1 year)	µg/m ³	0.009	0.001
Carbon Monoxide (CO)	-	10000 (Max daily or hourly mean) ^c	µg/m ³	0.1	1.0
Nitrogen Dioxide (NO ₂)	200 (1 hr.)	200 (1 hr.)	µg/m ³	0	0
Sulphur Dioxide (SO ₂)	20 (24 hrs.) 500 (10 min)	50 (1 hr.)	µg/m ³	0	0
Measurement in December 2025					
Indicator	IFC Guidelines (Averaging Period)	Georgian Standards (Averaging Period)	Unit	Kobi Site	Tskere
Particulate Matter (PM ₁₀)	50 (24 hrs.)	50 (1 hr.)	µg/m ³	0.016	0.01
Particulate Matter (PM _{2.5})	25 (24 hrs.)	25 (1 year)	µg/m ³	0.004	0.001
Carbon Monoxide (CO)	-	10000 (Max daily or hourly mean) ^c	µg/m ³	0	0
Nitrogen Dioxide (NO ₂)	200 (1 hr.)	200 (1 hr.)	µg/m ³	0	0
Sulphur Dioxide (SO ₂)	20 (24 hrs.) 500 (10 min)	50 (1 hr.)	µg/m ³	0	0

^B: IFC guidelines for 24 hours are being used except NO₂ as standard is available for one-hour averaging period

^C For CO Georgian National standard is 10mg/ m³ µg/m³ maximum hourly or daily basis. For EU, the standard is 10 mg/m³ for 8 hours. For USEPA the standard is 10 mg/m³ (9 ppm) for 8 hrs. And 44 mg/ m³ (35 ppm) for one hour. There is no IFC standard for CO

Figure 16: Dust Levels (PM₁₀) at Lot 1 (July-December 2025)



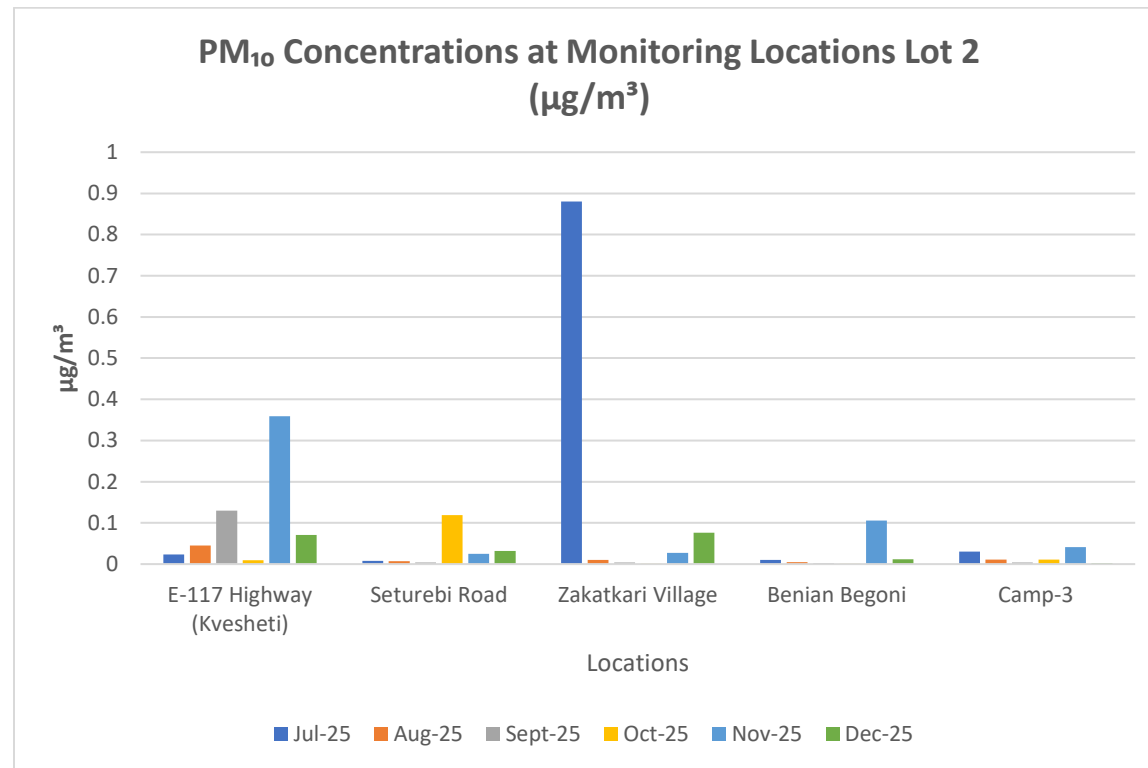
138. CC for Lot 2 monitored air quality from July to December 2025. The details of locations and results are provided in Table 14B. All the parameters measured are within the permissible limits of IFC guidelines. Graphical presentation is shown in Figure 17 to see the trends during the reporting period and ambient air is clean.
139. The contractor for Lot 2 has added an additional water truck to suppress the fugitive dust. They have successfully asphalted the roads in Kvesheti and the plateau. By using Bridge 2 and the tunnel for access to plateau and Gudauri access road, the emission of fugitive dust has decreased significantly. Currently, there is no dust because of the snow. However, in the second quarter of 2026, the contractor must implement the dust management plan specifically for Khada Valley to further reduce dust on Access Road 1.

Table 14 B: Ambient Air Quality Monitoring Results Lot 2 (July- December 2025)

Parameter	Units	Limits (IFC) (Averaging Period)	Georgian Standards (Averaging Period)	Locations				
				E-117 highway (Kvesheti)	Seturebi road	Zakatkari village	Benian Begoni	Camp 3
Measurement results in July 2025 (averaging Period 1 hr.)								-
Particulate Matter (PM10)	µg/m3	50 (24 hrs.)	50	0.023	0.008	0.88	0.01	0.03
Particulate Matter (PM 2.5)	µg/m3	25 (24 hrs.)	25 (1 hr.)	0.004	0.003	0.036	0.003	0.01
Carbon Monoxide (CO)	ug/m3	-	10000 (Max daily or hourly mean) c	0	0.1	0	0.1	0.1
Sulphur Dioxide (SO2)	µg/m3	20 (24 hrs.) 500 (10 min)	50 (1 hr.)	0	0	0	0.005	0
Nitrogen Dioxide (NO2)	µg/m3	200 (1 hr.)	40 (1 hr.)	0	0	0	0	0
Measurement results in August 2025 (averaging Period 1 hr.)								
Particulate Matter (PM10)	µg/m3	50 (24 hrs.)	50	0.045	0.007	0.01	0.005	0.011
Particulate Matter (PM 2.5)	µg/m3	25 (24 hrs.)	25 (1 hr.)	0.02	0.004	0.004	0.004	0.003
Carbon Monoxide (CO)	ug/m3	-	10000 (Max daily or hourly mean) c	0	2.4	0	0	0
Sulphur Dioxide (SO2)	µg/m3	20 (24 hrs.) 500 (10 min)	50 (1 hr.)	0	0	0	0	0
Nitrogen Dioxide (NO2)	µg/m3	200 (1 hr.)	40 (1 hr.)	0	0	0	0	0
Measurement results in September 2025 (averaging Period 1 hr.)								
Particulate Matter (PM10)	µg/m3	50 (24 hrs.)	50	0.130	0.004	0.004	0.002	0.004
Particulate Matter (PM 2.5)	µg/m3	25 (24 hrs.)	25 (1 hr.)	0.075	0.002	0.002	0.001	0.002
Carbon Monoxide (CO)	ug/m3	-	10000 (Max daily or hourly mean) c	0.4	1.8	2.3	0	0
Sulphur Dioxide (SO2)	µg/m3	20 (24 hrs.) 500 (10 min)	50 (1 hr.)	0.09	0.03	0	0	0

Nitrogen Dioxide (NO ₂)	µg/m ³	200 (1 hr.)	40 (1 hr.)	0	0	0	0	0
Measurement results in October 2025 (averaging Period 1 hr.)								
Particulate Matter (PM ₁₀)	µg/m ³	50 (24 hrs.)	50	0.009	0.119	0.001	0.001	0.011
Particulate Matter (PM 2.5)	µg/m ³	25 (24 hrs.)	25 (1 hr.)	0.001	0.007	0.001	0.002	0.010
Carbon Monoxide (CO)	ug/m ³	-	10000 (Max daily or hourly mean) c	0	0.9	0	0	0.1
Sulphur Dioxide (SO ₂)	µg/m ³	20 (24 hrs.) 500 (10 min)	50 (1 hr.)	0	0	0	0	0
Nitrogen Dioxide (NO ₂)	µg/m ³	200 (1 hr.)	40 (1 hr.)	0	0	0	0	0
Measurement results in November 2025 (averaging Period 1 hr.)								
Particulate Matter (PM ₁₀)	µg/m ³	50 (24 hrs.)	50	0.359	0.025	0.027	0.106	0.041
Particulate Matter (PM 2.5)	µg/m ³	25 (24 hrs.)	25 (1 hr.)	0.046	0.014	0.013	0.024	0.016
Carbon Monoxide (CO)	ug/m ³	-	10000 (Max daily or hourly mean) c	0	0.1	0	0	0
Sulphur Dioxide (SO ₂)	µg/m ³	20 (24 hrs.) 500 (10 min)	50 (1 hr.)	0	0	0	0	0
Nitrogen Dioxide (NO ₂)	µg/m ³	200 (1 hr.)	40 (1 hr.)	0	0	0	0	0
Measurement results in December 2025 (averaging Period 1 hr.)								
Particulate Matter (PM ₁₀)	µg/m ³	50 (24 hrs.)	50	0.071	0.032	0.076	0.012	0.002
Particulate Matter (PM 2.5)	µg/m ³	25 (24 hrs.)	25 (1 hr.)	0.006	0.006	0.050	0.005	0.001
Carbon Monoxide (CO)	ug/m ³	-	10000 (Max daily or hourly mean) c	0.1	0.1	0	0	0.1
Sulphur Dioxide (SO ₂)	µg/m ³	20 (24 hrs.) 500 (10 min)	50 (1 hr.)	0	0	0	0	0
Nitrogen Dioxide (NO ₂)	µg/m ³	200 (1 hr.)	40 (1 hr.)	0	0	0	0	0

Figure 17: Dust Levels (PM₁₀) for Lot 2 (July – December 2025)



4.1.1 Biodiversity Monitoring

140. For Lot 1, seasonal biodiversity monitoring at the Kobi and Tskere Sites has been conducted. No accidental damage of fauna was identified during the reporting period. Animal mortality due to the project activities was not revealed.
141. At Lot 1, in Kobi worksites surrounding area, two cameras are operating: - one camera is located at the SDA 3 for potential otter habitat and, potential habitat of corncrake species; - second camera is located upper hill of Narvani River. Two trap-cameras have been installed on Tskere Site at Khadistskali River and upper hill of the campsite. In December, due to snow, it is not possible to access the cameras. In Q2 of 2026, the contractor is advised to mange these cameras and collect the data to present in the next SAEMR.
142. Foxes and partridges have been observed during the summer at the upper hill of the Kobi campsite and at SDA 3. Additionally, various bird species, including ravens, pigeons, blackbirds, wagtails, and swallows, have been observed in Kobi.

Figure 18 : Birds species along the E-117 Highway in Kobi



143. The contractor for Lot 1 has transplanted the plant of Sea Buckthorn during the clearing of the area for SDA 3. These species are growing successfully near the SDA 3 as shown in figure 19.

Figure 19. Transplanted Seabuckthorn Species Near SDA 3



144. In December, the ground was covered by snow, and no shrubs were observed during December 2025.

Figure 20: Plants Species observed at the project site during reporting period

Deciduous forest Birch Trees behind Kobi November 2025	Pine forest Kobi December 2025

	
Aspin Tree changes color in Autumn (Tskere, October 2025)	Snow covered the grass land (Tskere, December 2025)

145. The contractor for Lot-1 carried out fish monitoring in June 2025 and the report was submitted in July 2025. Report concluded that the trout lives in KKR project area throughout the year and spawning here. Baidara and Narvani are poor interems of fish species diversity; however, trout has stable population in Tergi River.
- A total of 8 trout individuals were recorded across three rivers: Narvani, Baidara, and Tergi. Sampling points were spaced 100–200 meters apart, and all fish were either released or observed without harm, indicating no mortality or disturbance.
 - River Baidara: One adult trout was captured during the first attempt and released after morphological measurements.
 - River Tergi: Three trout were observed near the tunnel water entrance during the second attempt.
 - River Narvani: Two juvenile trout were observed during the third attempt, and one adult trout was caught in a subsequent fourth attempt.
 - Near Construction Camp (Narvani area): One juvenile trout was observed during the fifth monitoring attempt.

LOT 2

Fish Monitoring:

146. For Lot 2 Contractor carried out fish monitoring in August 2025 and November 2025 in River Khadistskali and Aragvi. Fish monitoring was carried out at six locations by an Independent Ichthyologist as shown in the Map below.

Figure 21: Fish Monitoring locations in River Khadistskali and Aragvi- November 2025



147. The findings of the August fish monitoring report indicate that eight individuals of the targeted fish species were recorded within the monitoring area, based on data collected from six monitoring points. The estimated distance between each monitoring point was 100 meters. As shown in the map, no fish were observed at the first three fishing points. However, at the fourth and fifth points near Bedoni, four adult trouts and two juvenile trouts were found, respectively. These locations are crucial for the river ecosystem, as other animals also use this area for drinking water; bear tracks were observed nearby as well. Additionally, two adult trouts were noted at the confluence of the Kahadistikali and Argivi river. The ECoW should install one camera trap near Begoni village to detect the movements of the animals.
148. The findings of the November fish monitoring report indicate that fifteen individuals of the fish species were recorded within the monitoring area. Estimated distance between each monitoring was 100 meters. The first fishing attempt was carried out in Khadistskali river near Tskere, no trout was found at this location. Water temperature varies between 13-15 Centigrade which is favorable for the presence of the trout. The second fishing attempt was carried out near bridge 6 where there is a natural waterfall which acts as a barrier for the fish and no fish was found at this location. The third fish monitoring point was located near bridge 3 and no fish was recorded at this point.
149. However, one juvenile and seven adult trout were found at fourth monitoring point near village Bedoni in Khadistskali river. As evaluated from the previous reports and this study this area in Khadistskali river near village Bedoni in an important habitat for trout fish. Here the river is divided in two parts by a large island, the left branch is relatively slow while the right branch is fast. The report evaluates that Caspian trout spawn during this reporting period (October-November) and

trout spawning was observed here. Taking into account the high ecological value of this area, protecting and monitoring of this area is very important for maintaining the trout population.

150. Fifth monitoring point was located near village Bedoni where two Juvenile and two adult trouts were seen. The sixth monitoring location was selected near the confluence of the Khadistskali River and Aragvi River and three adult trouts individuals were observed in this area.
151. In total, fifteen trout individuals were recorded in the project area, which were returned to the river after morphological research.
152. Conclusively, Caspian trout (*Salmo caspius*) were observed during the survey and are widely distributed in the upper basin of the Tetri Aragvi River and its tributaries. In recent years, several field studies have been conducted in this river basin, where trout has been recorded. It is likely that trout inhabit the project area year-round and spawn there. During the summer monitoring 2024, Kura spiralin (*Alburnoides eichwaldii*) was also observed in the project area, but it was not seen this time. It seems that these species periodically enter Khadistskali river. Overall, the Khadistskali River has low species diversity and population density of fish. The river is mainly populated by trout, and its population is small. The detailed report for fish monitoring report (November 2025) is given in Annex-10.

Figure 22: Fish Monitoring in River Khadistskali and Aragvi – November 2025

	
Fourth Fish Monitoring Point , Juvenile Caspian trout-salmo Caspian	Adult Caspian trout (<i>Salmo caspius</i>)

153. For Lot 2, 2 cameras have been installed at different places in the project area and the locations for the cameras are being changed from time to time. In case of mammals, CC also checked for any evidence for the footprints or faeces in or around the project area. Monitoring of focused species was held according to biodiversity monitoring plan, revealed results are shown in Tables 15A and 15B below.

Table 15 A: Faunal Species Movement around the Project Corridor Lot 2

Monitoring objects during July-December 2025				
Mammals				
Species	Status by Georgian red list	Action	Location	Results
1. Brown Bear <i>Ursus arctos</i> 2. Eurasian lynx <i>Lynx lynx</i> 3. Eurasian otter <i>Lutra lutra</i> 4. Dahestanian tur <i>Capra cylindricornis</i>	1. VU 2. CR 3. VU 4. VU	1. Visual observation and collaborate with local people by asking if they saw this specie 2. Visual observation and collaborate with local people by asking if they saw this specie 3. Visual observation 4. Visual observation	1. Near T3 exit portal surrounding, Khada valley 2. Plateau, B3, Camp3. 3. Near village Bedoni, riv. Khadistskali territory 4. Near Camp3	1. Photo was taken by photo trap 2. No footprint, excrement and fur were found or taken any photo 3. No signs of vital activity were found 4. No signs of vital activity were found
Rodents				
Species	Status by Georgian red list	Action	location	Results
1. Caucasian Squirrel – <i>Sciurus anomalus</i>	1. -	1. Visual observation, especially on the trees	1. Tunnel N2, Plateau, B3	1. No squirrels were seen
Birds				
Species	Status by Georgian red list	Action	Location	Results
1. Egyptian vulture - <i>Neophron percnopterus</i> 2. Cinereous or black vulture - <i>Aegypius monachus</i> 3. Great rosefinch - <i>Carpodacus rubicilla</i>	1. VU 2. VU 3. VU 4. VU 5. – 6. -	1. Visual observation near possible nest 2. Visual observation 3. Visual observation 4. Visual observation 5. Visual observation	1. Near tunnel N1 2. Whole territory of Lot N2 3. Whole territory of Lot N2 4. Whole territory of Lot N2	1. No vulture were found (possible nest of vulture seems left) 2. No Cinereous black vulture were seen 3. No great rosefinch were seen near camp N3 4. This species was not found 5. This specie was found everywhere 6. This specie was found everywhere

4. White winged redstart - <i>Phoenicurus erythrogastrus</i> 5. Common blackbird – <i>Turdus merula</i> 6. White wagtail - <i>Motacilla alba</i>		6. Visual observation	5. Whole territory of Lot N2 6. Whole territory of Lot N2	
Bats				
Species	Status by Georgian red list	Action	location	Results
1. Lesser mouse-eared myotis - <i>Myotis blythii</i> 2. Greater horseshoe bat - <i>Rhinolophus ferrumequinum</i> 3. Lesser horseshoe bat - <i>Rhinolophus hipposideros</i>	1. – 2. – 3. -	1. Visual observation 2. Visual observation 3. Visual observation	1. near tunnel N 1, access road N1, B2 2. near tunnel N, access road N1, B2 3. near tunnel N1, access road N1, B2	1. This specie wasn't found 2. This specie wasn't found 3. This specie wasn't found
Plants				
Species	Status by Georgian red list	Action	location	Results
1. Mountain oak 2. Common elm 3. Smooth-leaved elm 4. Common alder 5. European ash 6. Georgian oak 7. Common hornbeam 8. Litwinow birch 9. Field maple 10. Oriental beech	1. VU 2. VU 3. VU 4. – 5. – 6. – 7. – 8. – 9. – 10. -	1. Visual observation 2. Visual observation 3. Visual observation 4. Visual observation 5. Visual observation 6. Visual observation 7. Visual observation 8. Visual observation 9. Visual observation 10. Visual observation	1. Tunnel N1, Access road N2,4, B3 2 Tunnel N1, Access road N2,4, B3 3. Tunnel N1, Access road N2,4, B3 4. Tunnel N1, Access road N2,4, B3 5. Tunnel N1, Access road N2,4, B3 6. Tunnel N1, Access road N2,4, B3 7. Tunnel N1, Access road N2,4, B3 8. Tunnel N1, Access road N2,4, B3	1. This species wasn't found 2. This species wasn't found 3. This species wasn't found 4. During the reporting period mentioned specie was not necessary to cut 5. During the reporting period mentioned specie was not necessary to cut 6. During the reporting period mentioned specie was not necessary to cut 7. During the reporting period mentioned specie was not necessary to cut 8. During the reporting period mentioned specie was not necessary to cut 9. During the reporting period mentioned specie was not necessary to cut 10. Some individuals of this species were cut in case of B3 working activities from Khada valley side (access road N5) - In 2023 January and environmental specialist was attending the process

			9. Tunnel N1, Access road N2,4, B3 10. Tunnel N1, Access road N2,4, B3	
Fish				
Species	Status by Georgian red list	Action	location	Results
1. Salmo 2. Bullhead 3. Caucasian chub 4. Barbell 5. Mursa	VU - - -	1. - 5. Observation and control fishing	1. Aragvi, Khadistskali 2. Aragvi 3. Aragvi 4. Aragvi, Khadistskali 5. Khadistskali	Caspian Trout- <i>Salmo Caspius</i> widely distributed in upper part of the Aragvi River. Also, it was found in river Khadistskhali during Summer and Autumn fish monitoring. Kura spirline was found during the summer survey.

154. Based on the monitoring results for July–December 2025, wildlife presence in the project area was limited, and no mortality or damage to any species was observed. Among mammals, only the Brown Bear (*Ursus arctos*) was recorded through a camera trap, while other listed mammals were not observed. Common bird species such as the Common Blackbird (*Turdus merula*) and White Wagtail (*Motacilla alba*) were widely recorded, whereas other monitored birds were not observed, except for a possible abandoned vulture nest near Tunnel N1. No bat species were recorded during the monitoring period. Plant monitoring confirmed that no protected species were cut or damaged. Fish monitoring indicated the presence of Caspian trout (*Salmo caspius*) in the Aragvi and Khadistskali rivers, with Kura spirlin also recorded during the summer survey. Overall, the monitoring confirms that project activities did not cause any harm or mortality to wildlife within the monitored areas.

Table 15 B: Photographs of Species Movement Noted by Camera Traps, Lot 2 (July-December 2025)



Photo trap model: Browning



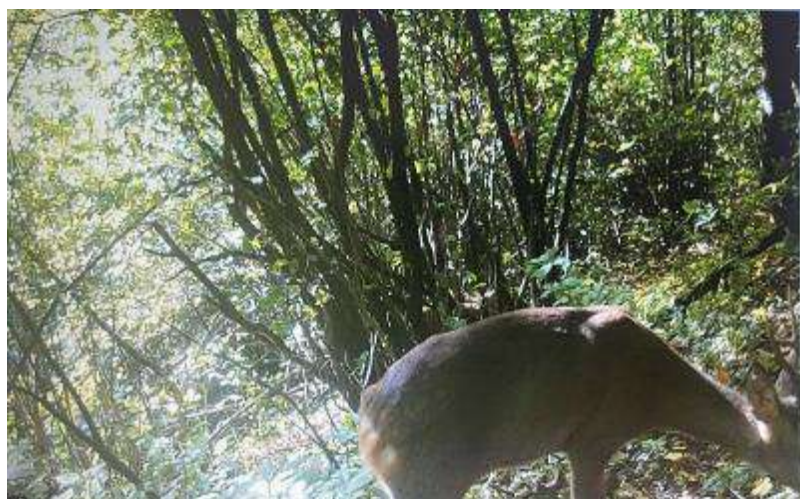
Some pictures taken by photo traps during reporting period at different locations



	
	<i>Ursus arctos</i> – Brown bear - LC status by IUCN – EN status by Georgian red list Location: Khada valley, surroundings of B3
	<i>Garrulus glandarius</i> – Eurasian jay - LC status by IUCN red list - not included in Georgian red list Location: Plateu, surroundings of top soil storage area near Zakhatkhari village



Capreolus capreolus – Roe deer
- LC status by IUCN red list - not
included in Georgian red list



Dendrocopos major – Great
spotted woodpecker - LC status
by IUCN red list - not included in
Georgian red list

	High possibility to be wolf, not exact determination
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4.1.2 Cultural Heritage Monitoring

155. The Contractor for Lot 2, CRCC, continued working on Bridge 6 during the reporting period. On October 15th, the Cultural Heritage Specialist discovered that the millstone was missing from location CH-28. An investigation was promptly initiated, which revealed that a heavy equipment operator had removed the stone. The operator's identity was confirmed, and he was contacted for further clarification. The operator explained that he had moved the millstone to the parking/laydown area for safekeeping. The Cultural Heritage Specialists visited this location, retrieved the millstone, and transferred it to the Engineer's office in Arakvethi for secure storage until construction at Bridge 6 is completed. Once the construction is finished, the millstone will be returned to its original location. To prevent similar incidents in the future, CH-28 has been enclosed with both a wire mesh fence and a high-visibility barrier. A Cultural Heritage identification sign has also been posted at the site. The targeted refresher training session on Cultural Heritage (CH) protection requirements was successfully conducted for all Lot 2 personnel to ensure full alignment with project safeguard protocols.

Figure 23: Fencing of the CH 28 Near Bridge 6



156. During the reporting period, it has been observed that Cultural Heritage Site #28 (Remains of a Water Mill), located near Bridge 6, was being negatively impacted by construction activities. Specifically, the diversion of the Khadistskhali River during these works has led to erosion and the partial washing away of the cultural heritage site. Additionally, the operation of heavy construction equipment in close proximity poses a further threat to the site's physical preservation. In accordance with cultural heritage protection regulations and project requirements, we request that the Contractor immediately implement necessary measures to prevent further damage.

Figure 24: CH 28 being affected by the river diversion



157. The contractor has been working on the relocation of gas pipes along the Gudauri road. This relocation has become necessary in several sections due to the project, including the area near CH 10 – Didveli Backed Tower. The process has not yet been fully completed. CH specialists were monitoring the process. No issues of concern were identified.

Figure 25: Gas Pipeline Relocation Works near Didveli Backed Tower (CH Site #10)



158. During this reporting period, the PMCSC CH Specialists consistently monitored the identified CH sites. Construction activities did not impact any of the identified sites. Additionally, the contractor for Lot 2 upgraded and reinforced the damaged fences surrounding the necessary CH sites as shown in the figures below.

Figure 26: Naraidze's Tower, Tskere village



Figure 27: Kvelatsminda church and Zakaidze tower, Tskere village



Figure 28: CH 10, conservation work completed.



Figure 29: CH 26, After Relocation



Figure 29 A: CH 23, wire mesh fence



Figure 29 B : CH 27, wire mesh fence



4.1.3 Health and Safety

159. The Engineer continues supervision of KKR construction activities, with the team of three Health and Safety specialists as one H&S specialist working in night shift at Lot 2 left the project in September because night shift was over. The Engineer's safety team is composed of one international H&S specialist, a senior national H&S specialist overseeing both Lots, and one national H&S specialist dedicated to Lot 1.

160. During the reporting period, the Engineer and the Contractors carried out regular worksite visits and safety inspections. These inspections are extremely necessary to ensure a safe working environment for the workers.
161. The Contractor and the Engineer, with the support of RD's safety specialist, conducted training sessions for the personnel of both Lots. Regular toolbox talks were also delivered to workforce.
162. In addition, RD's HS specialist continues the monitoring of project activities and consults the Engineer and the Contractors of both lots on health and safety matters.

4.1.3.1 Community Health & Safety

163. The Engineer continued to monitor the compliance with community health and safety requirements daily as a part of daily worksite inspections.
164. The Contractor installed new and maintained existing fences with necessary signage at worksites under the Engineer's close supervision. The Contractor was not always proactive in identification of community safety issues and sometimes controls were implemented only after the Engineer's intervention.
165. During the reporting period:
 - Lot 2 Contractor continued the road works at Kvesheti - Arakhveti section up to Bridge 2, close to the active road. These road works still required a frequent diversion of traffic flow and narrowing of a road section which was very challenging for the whole process. Effective controls were extremely necessary for the safety of working personnel as well as for the safety of road users and locals. Proceeding from it, H&S specialists were actively involved in this process. This included installation and maintenance of informational and safety signs with traffic cones, effective control of narrowed or diverted sections by having flagmen in place and supervision of the whole process in general, etc. The whole management process of traffic was done in accordance with the Road Safety specialist's recommendations and approved traffic management schemes (Pic 1, Pic 2)
 - On a few occasions, Lot 2 Contractor demonstrated a reactive approach and poor planning for the road works at Kvesheti – Arakhveti road section. During this time, the traffic jams and chaotic movement were observed as a result, especially one which occurred on 26 of August when traffic jam lasted for a few hours. This was the result of improper planning when no effective rerouting plan was in place. Working activities on that day were not agreed with the Engineer, which also contributed to this situation.
 - At the beginning of the reporting period, locals were observed using Tunnel No. 1 and Bridge No.2 as a shortcut between Plateau to Arakhveti. Through the active involvement of the Engineer, this issue was addressed and the Contractor installed metal gates at both ends of this section: Bridge 2 entrance – Tunnel 1 exit (Pic 3). These metal gates were kept open during the working hours as project equipment used this road section, but entrance was controlled by a flagman. After working hours gates were kept closed preventing locals from driving through. The Contractor was reminded to enhance the entry control over this section during the winter period when active highways might be temporarily closed due to snow and the need to use this section as a bypass might increase among the locals.
 - Road upgrade works at access road to Tunnel No. 5 in Kobi blocked this access and alternative access to Tunnel No. 5 had to be arranged. For this purpose, The Lot 1 Contractor opened an access straight from the highway towards TUN 5 bypassing that

blocked section. As a result, security personnel became unable to effectively control the access from the new entry point where no boom gate was installed. To improve the situation, the Contractor relocated the electrical boom gate to a new entry point improving the control and preventing unauthorized entry.

- Foundation of the temporary bridge over Khadistskali river which was constructed by both Contractors in the village Tskere, was partially washed out. This bridge was built as an alternative route for heavy equipment to avoid the use of a main bridge to Tskere used by locals. Temporary bridge was inspected by UBM Bridge engineers, and no critical condition was identified. Despite the fact that one section of the foundation was washed out, the bridge still stable but it was recommended to restore the foundation before spring when waterflow in river increase and it can cause this bridge to tilt. At the same time, the movement of heavy equipment over this bridge in spring should increase and hence, these both factors might badly affect on the stability of the structure.
- The fence around Tunnel No. 5 south portal in Tskere was damaged at a few places from the village side, creating a risk of unauthorized entry. Lot 1 Contractor was instructed to carry out repair works and gaps were immediately closed but later on, similar fence damages were identified again.
- Lot 2 Contractor improved safety control measures along the access roads in Khada valley. In particular, trenches and excavations were protected by the installation of hard fences at Benian-Begoni village. Traffic mirrors were also installed along the road in Khada valley at the turns with blind spots to improve the traffic safety for locals and all road users (Pic 4, Pic 5, and Pic 6).
- Unsafe condition of electrical cable was observed at Jaghmiani village which was damaged during the road works. The Lot 2 Contractor addressed this issue, placed the cable in an additional cable protection and lowered it underground.
- The Lot 2 Contractor upgraded the Khadistskali river bridge through the concreting of the bridge surface. This concreting work levelled the surface and decreased the vibration from movement of mobile equipment. No structural damage was identified, and the bridge was safe for use. UBM engineers regularly inspect the condition of this bridge.
- Gas pipeline relocation works at the turn to Khada Valley from the main road required a deep excavation, which blocked the access road to Khada valley. These works were carried out by the Sub-contractor company. Consequently, locals started to use alternative route through Under Pass 1.0. The Contractor did not proactively mark and protect this excavation which located close to the highway. After the instructions, warning signs were installed alerting drivers and pedestrians regarding construction works and blocked road.
- Lot 1 Contractor did not restore fencing around sedimentation pits in the village Tskere timely. Leaving pits without proper hard fencing creates a risk of falling inside. The Contractor was instructed to restore the hard fence around the pits together with the proper marking. This issue remained unresolved during the reporting period.
- Both Contractor continued to install warning and informational signs at worksites, restricting the access for locals to worksites/tunnels and informing them regarding the hazards associated with the construction process.
- The Lot 2 Contractor started the installation of the temporary gallery in Khada valley right under Bridge 3 section. The purpose of this gallery was to protect vehicles and pedestrians when passing under Bridge 3 section from potential risk of falling object or concrete spills. The construction process is not finished yet and will need to be inspected by the Engineer to verify that the gallery is in a safe condition with no risk of collapse.

- The issue regarding rockfall from the Gudauri Access Road embankment to local road in Zakatkari was not resolved during the reporting period. Corrective actions (engineering controls) were not developed yet while the Engineer instructed the Contractor to develop and submit the necessary corrective measures.

Figure 30: Community Health and Safety

Pic 1 Traffic control measures	Pic 2 Traffic controls / shoulder protection
	
Pic 3 Access control at Bridge 2	Pic 4 Community safety / guardrails
	
Pic 5 Safety mirror in Khada valley	Pic 6 Community safety / guardrails



4.1.3.2 Occupational Health & Safety

166. During the reporting period, the Engineer and the Contractor continued to inspect worksites regularly. Both Contractors' H&S specialists were assigned to different worksites covering working process. In addition, the Engineer monitored construction works across the Project worksites.
167. The Engineer and the Contractor continued to prepare and deliver safety training to the working personnel together. Training materials were prepared and translated into all relevant languages for the better understanding by different employees' groups (Chinese, English, Georgian) (Pic 1, Pic 2/Figure 31).
168. During the reporting period, Lot 1 Contractor continued pavement works and final lining in Emergency Gallery and passages between EG and main tunnel. As for the main tunnel, the casting of driveway shoulders was completed which eliminated the risk of falling into openings. Currently, tunnel pavement works, and installation of ventilation slabs are in progress. These works are carried out mostly at height, by the use of mobile scaffolding platforms and MEWP (mobile elevating working platform) (Pic 3). The Engineer's H&S specialist assigned to Lot 1 permanently inspects this equipment to ensure proactive identification of safety issues. The Contractor did not always address violations timely and necessary corrections were implemented later, after the Engineer's involvement. The pavement works in main tunnel created different surface levels. Also, during the working process, exposed rebars were not properly marked creating a risk for the project vehicle. After instructions were provided, the Contractor placed safety signs at all necessary locations.
169. Worksites at the north portal in Kobi were not always observed in safe conditions. In particular, different excavations located close to the walking routes were not properly protected and marked. After the Engineer's involvement, all excavations were fenced with red mesh fence and properly marked. Later on, hard fence was installed at a section where it was critically necessary (Pic 4).
170. During the reporting period, Lot 1 Contractor completed the construction of C&C sections at South portal in Tskere for both tunnels: main and Emergency Gallery. Mostly, this activity included work at height. Multiple working platforms and stairs for access to height made this work difficult and complex as many workers were involved simultaneously and it was necessary to inspect the condition of all platforms daily. Personnel involved in this activity received mandatory training targeting work at height as well as regular toolbox talk. The requirements of national legislation

(Regulation No. 477) and project standards were discussed during this training session regarding guardrails, ladders, fall arrest systems and safe behavior (Pic 5).

171. Violations of work at height were identified during the construction of C&C by the Engineer but they were not critical. In particular, workers were observed not to report timely the damages of the working platforms, and the Contractor was not always able to timely correct the shortcomings such as unsafe access, damaged guard rails, etc. Proceeding from it, the involvement of the Engineer's H&S specialist was extremely important to ensure that workers are not exposed to uncontrolled hazards, and all working platforms are in safe condition
172. During the construction of EG C&C section, small section of slope adjacent to this worksite collapsed partially deforming the formwork platform. Nobody suffered any injuries due to this event. As a follow up, spoil was deposited against the collapsed section for the immediate slope stabilization and to allow the Contractor to clean the worksite and proceed with the next controls. Later on, the Contractor applied micro piles to stabilize the slope and ensure safe working environment. Additionally, horizontal metal support beams were used to support the retaining wall. The whole process was under the monitor of the Engineer's specialists.
173. Lot 1 workers were observed following PPE requirements during the reporting period and the Contractor ensured timely provision of PPE and proactive replacement. At the same time, the Contractor's safety specialists continue to deliver toolbox talks and safety training to the personnel. During the reporting period, the Engineer's safety specialist together with RD's safety specialist delivered Work at height and Electrical safety training to the personnel at a Kobi campsite. Graphical materials were prepared in both, English and Chinese language for the better understanding (Pic 6).
174. A fatal incident occurred on 23rd of November at Lot 1 Tskere worksite during the construction of the last section of retaining wall. One section of slope collapsed trapping workers under the collapsed mass. As a result, four workers were killed while one rescued. External emergency services were involved in the rescue operation, and one rescued worker was immediately transported to Tbilisi hospital for professional medical assistance. Few days later he was released from the hospital and was under the monitor of the Contractor's doctor.
175. The Labor Inspection office of Georgia and Police are involved and conducting their own investigations. At the same time internal investigation is in the process by the Contractor and is under the supervision of the Engineer.
176. The Interim Incident Investigation Report was prepared by the Contractor and submitted to ADB. Due to the early stage of the investigation information included in interim report might change as additional findings will emerge through the official investigation processes which are not completed yet and can then be shared and included in final investigation report.
177. During the reporting period, Lot 2 Contractor completed final lining works in Emergency Gallery of Tunnel No. 1. As for the main Tunnel No. 1, installation of tunnel illuminations and ventilators was completed together with the inverting works. Mentioned works were carried out at height using mobile scaffolding platforms and MEWP. The Contractor continued to deliver work at height training to all employees involved in these activities. Regular inspections were carried out by the Contractor and the Engineer. PPE and behavior-based violations could be identified during these inspections. The violations were not critical and could be fixed without the suspensions of working processes.

178. Lot 2 Contractor successfully completed the construction of pedestrian sidewalks at Bridge No. 2 which was high-risk activity. This task included the preparation of reinforcements and installation of formworks right at the edge of the bridge deck working too close to the edge of the bridge. It was mandatory for all workers to use fall arrest equipment during the preparation of rebar cages and installation of formworks for bridge sidewalks as it was within the 2 meters distance from the edge. At the same time, temporary guardrail systems were installed along the edge of Bridge No. 2 as an additional control measure. On a few occasions it was observed that temporary guardrail systems were damaged and workers were protected only by the use of PPE (fall arrest equipment). These issues were identified by the Engineer and timely communicated with the Contractor. No major violations of PPE requirements were identified during this activity and only a few times workers were found not wearing PPE while working at the edge. Permanent supervision and toolbox talks were used to address this issue. Construction of pedestrian sidewalks at Bridge 2 was under permanent monitor of the Engineer (Pic 7).
179. The Contractor periodically inspected fall arrest equipment at the Bridge 2 and Bridge 3 worksites. Few pieces of equipment were found to be damaged and were immediately removed from the use (Pic 8).
180. During the reporting period, the Contractor completed the installation of permanent guardrail system at Bridge 2. As a result, the risk of falling from bridge was eliminated. The installation of permanent guardrail system was mainly controlled by the use of fall arrest systems and permanent supervision. Currently, all edges of Bridge 2 are protected by the permanent guardrail system creating a safe working condition at Bridge 2 deck (Pic 9).
181. Lot 2 Contractor mobilized a Sub-Contractor to carry out an installation of drainage system and electrical cables under the Bridge 2 deck. The competency of sub-contractor was taken into consideration during the contracting process. The company had an experience of working with the same tasks at similar road projects. The company used a specialized man-lift crane with the capability to reach the level below, under the bridge deck. Workers permanently used fall arrest equipment during the work from the man basket. Man-lift equipment itself was inspected by a third-party company invited to the Project for the new certification. The equipment successfully passed inspection and was certified for the planned works (Pic 10, Pic 11).
182. The construction activities at Bridge 2 were under the permanent supervision of the Engineer to ensure that all risks are properly assessed and the appropriate mitigation measures are implemented. The Contractor together with the Engineer regularly delivered work at height trainings to the personnel of Bridge 2. Regular toolbox talks were also conducted at worksites to the personnel. Joint worksite inspections were carried out throughout the period to ensure safe working environment.
183. During the reporting period, Lot 2 Contractor was focused on the construction of Piers No. 3 and 19 at Bridge 3. At the same time construction of bridge abutments and arch sections entered the active phase. The construction of Bridge No. 3 is the biggest challenge for Lot 2 section, requiring the implementation of effective control measures to mitigate risks and ensure a safe working environment.
184. The Contractor worked a lot to improve the condition of working platforms and accesses at Pier (P) 3 worksite. New guardrails were installed at all necessary locations from A1 to P3. Necessary signs were provided at the approach to this worksite (Pic 12, Pic 13). Safety measures were enhanced from the other end of Bridge 3 as well. Concrete barriers were installed at the access road to P 19 worksite which is steep and risky for mobile equipment using this access (Pic 14).

Safety mirrors were installed at the turns to improve visibility for the operators and drivers during transportation. Access road to P19 needs close attention to ensure safe access. Working process at Bridge 3 worksites is suspended in the wintertime and consequently, no vehicles or equipment use these access roads.

185. Stair towers, scaffoldings and working platforms at a different section of P3, P19 and arch structure of Bridge 3 were a subject of regular inspections carried out by safety specialists of the Contractor, the Engineer and RD. These inspections identified different types of issue e.g. damaged guardrail section, loosen handrail, openings, etc. These shortcomings were immediately addressed and fixed to ensure safe condition at Bridge 3 worksites. Collective protection was always prioritized over the PPE at KKR project at a possible extent (Pic 15).
186. The joint inspection of Abutment (A) 1 of Bridge 3 conducted by the Contractor and the Engineer identified safety issues such as damaged guardrail section and openings at the scaffolding platform. At the same time, additional cross bracings were necessary to ensure stability of a stair-tower. The working process was stopped and all shortcomings corrected immediately. The working process was resumed only after the safe condition of scaffolding system was confirmed by the Engineer (Pic 16).
187. The Lot 2 Contractor installed a "Catwalk" foot bridge at Bridge 3 worksite over Khada valley to connect two ends of the Bridge 3 and make it accessible from both sides (P3 and P19). "Catwalk" bridge will facilitate the inspection process of Bridge 3 overall. The construction of this bridge was in accordance with a design submitted to the Engineer (Pic 17).
188. UBM bridge engineers, together with the RD's and the UBM's H&S Specialists conducted inspection of the "Catwalk" bridge to verify the compliance with bridge design. In addition, safety critical elements were checked during inspection, such as connection points of steel ropes, etc. As a result, the compliance with the design was verified except for a minor issue which could not undermine safety.
189. The use of this bridge is strictly forbidden in adverse weather conditions such as snow, rain or windy times. Implementation of these requirements is supervised by the Engineer. Special device was installed at the bridge to monitor the weather conditions and a wind speed in order to facilitate the implementation of mentioned requirements and proactively identify specific weather conditions
190. Task-specific safety instructions have been delivered to all personnel assigned to bridge construction activities at Lot 2. Weather conditions will be closely monitored, and activities immediately suspended during the heavy rain or whenever wind speeds exceed the permissible threshold.
191. At the end of reporting period in the month of December, violations of work at height were identified at Bridge 3 and Bridge 6 on a few occasions. In particular, workers were observed working from the incomplete platforms arranged at a height. Some platforms were missing guardrails while others were found having openings. It was obvious that no effective supervision was in place as workers were allowed to proceed at those unsafe platforms. These violations were classified as critical and works were immediately suspended until the platforms were fixed and confirmed to be safe. This event increased the need to improve the supervision process across the project which is scheduled for the next reporting period through the increased involvement of middle management and other planned control measures.

192. During the reporting period, Lot 2 Contractor continued the inspection of stationary cranes through the invitation of third-party certified company. Stationary cranes located at Bridge 3 P19 and Bridge 6 were inspected and successfully passed the inspection (Pic 18).
193. Both Contractors continued to maintain and manage their medical facilities at Project. Meanwhile, Lot 1 Contractor did not extend the employment contract with the doctor permanently located at Tskere village because the camp was closed. Medical coverage of construction activities at Tskere was ensured by the presence of first aiders and project doctor stationed at the North portal in Kobi.
194. Lot 2 Contractor was instructed to improve the medical coverage in Khada valley as construction activities increased at that section and at the same time Lot1 doctor stationed at Tskere who was partially covering Lot 2 activities in Khada, was demobilized. No work is ongoing in valley during the winter period, and this issue would need attention upon the resumption of work in spring.
195. Unsafe scaffolding system was erected by Lot 2 Contractor at Arakhveti for the facade work on the retaining wall at KM 1+900. This violation was timely identified by the Engineer and necessary instructions were provided to the Contractor. At the same time the work was stopped. As a result, the Contractor disassembled unsafe scaffolding and assembled a new one under the supervision of the Engineer.
196. The Engineer conducted inspection of all earthworks and slope works at Lot 2 section to verify the compliance with safety. The inspection team was composed of HS specialist, geologist, geotechnical specialist and engineers. The frequency and intervals of this systematic inspection is established by the Engineer. The importance of this inspection is very high, especially prior to the weather changes as it can negatively affect the slope and excavation stabilities (rainy seasons, increased water levels, snow melting etc.)
197. The increased number of incidents at Lot 2 section indicated the need to enhance the involvement of middle management in the management of safety. The safety coverage of all worksites needs improvement, which should be achieved not only through the presence of safety specialists but also through the involvement of supervisors as an additional and very important control. Action plan for this is set for the next reporting period e.g. additional training with the middle management and improved commitment to safety culture.
198. Operation of dump trucks at LOT 1 section during the reporting period went without major complications. No incidents involving mobile equipment were reported and no trucks in critically unsafe conditions were observed being in operation. As for LOT 2 section, on few occasions dumptrucks were spotted being left at the access road due to the different issues (mostly damaged tires). During the reporting period, the Contractor was reminded by the Engineer regarding the importance of preventive maintenance and regular checks. This requirement was also discussed during the meeting with the Contractor's maintenance team, as a part of corrective actions for incident No.18 where concrete mixer truck was involved. In general, preventive maintenance and dump trucks inspection require improvement and the Engineer will check the compliance of both Contractors with these requirements prior to the resumption of activities after the winter period.
199. Construction activities at Gudauri access road were a subject of regular inspections during the reporting period. In addition to safety specialists, UBM road engineers were permanently present in that section and supported safety specialists by reporting unsafe conditions observed at worksite. Mostly working activities at Gudauri Access Road comprise earth works where major hazard was movement of heavy equipment. No critical issues were identified at this section

regarding occupational health and safety while one incident occurred which resulted in lost time and property damage. Details for this incident are provided in Table 16.

200. Training conducted during the reporting period at both Lots, but not limited to:

- Safety induction training
- Safety requirements during the tunnel construction.
- Defensive driving
- Work at height
- Lifting and rigging
- Electrical safety
- Mobile equipment safety
- General safety requirements for the middle management

Figure 31: OHS related Photos



Pic 5 Construction of C&C section for main tunnel at Tskere / South portal, LOT 1



Pic 6 Work at height / electrical safety training at Kobi, LOT 1.



Pic 7 Toolbox talk with Bridge 2 working personnel, LOT 2



Pic 8 Inspection of fall arrest equipment at Bridge 2, LOT 2.



Pic 9 Completed permanent guardrail system at Bridge 2, LOT 2.



Pic 10 Installation of drainage systems and cables at Bridge 2, LOT 2.





Pic 11 Inspection of man-lift equipment by third party at Bridge 2.



Pic 12 Improved guardrail systems at Bridge 3, A1-P3 section.



Pic 13 Improved guardrail systems at Bridge 3, A1-P3 section.



Pic 14 Edge protection at access road to Bridge 3 P19 worksite.



Pic 15 Joint inspection of working platforms at Bridge 3 P3 worksite.



Pic 16 Joint inspection of scaffolding at Bridge 3 A1 worksite.



Pic 17 "Catwalk" bridge



Pic 18 Inspection of stationary cranes by third party at LOT 2 .



201. During the reporting period, 5 accidents occurred at Lot 2 section and one fatal accident occurred at Lot 1 section. Accident details are provided in the table below.

Table 16: Works Related Accidents Reported during the Reporting Period (July – December, 2025)

#	Date	Description	Investigation results	Corrective measures
1	August 04, 2025 Lot 2	On August 4, 2025, roller compactor operator, was doing compaction work of access road leading to one of the private lands along the Gudauri access road. During this working process, he approached the edge of access road too close,	Immediate Cause Analysis: Roller compactor was operated too close to the unprotected edge, breaching the safe distance. At the same time the edge was not protected or marked (reflective tapes or	Mobile equipment safe operation refresher training was delivered to the Contractor's operators including operator involved in this incident. This training targeted general safety requirements together with the specific such as per-operation

		did not maintain safe zone from the edge and roller compactor slid down the slope. As a result of this fall, the operator suffered the dislocation of right elbow and fracture of right ribs. He was transported to Tbilisi Open Heart No. 5 University hospital where he received all necessary medical assistance and currently is fully recovered. Key findings: No physical edge protection (berm, barrier, or wheel stop) or demarcation (reflective tapes, cones) was in place to prevent plant from moving beyond the safe zone. The need for these control measures could be identified in case of effective supervision and proactive inspections of this worksite, which was not done. Operator maneuvered too close to the unprotected slope edge, reducing the safety margin, demonstrating inattention and lack of safety awareness. No flagman was presented at worksite.	cones) so edge line could not be clearly visible for the operator. Inattention and absence of flagman could be a contributor factors. Root Cause Analysis Root cause of this incident was identified as ineffective supervision, lack of awareness and insufficient knowledge transfer (not enough training provided). Effective supervision should have proactively identified this access road as a difficult terrain to work on. Hence, additional controls could have been developed (e.g. demarcation of edge, mobilization of flagman etc.). At the same time, the operator did not have enough safety awareness to identify the risk himself. Otherwise, he would not proceed with this task until proper controls were developed and implemented at the place. In addition, not enough training was delivered to the operator. Despite the fact that different safety training was delivered to the operator prior to incident, no training targeting safe operation of mobile equipment was delivered. This fact also could contribute to the poor safety awareness of the operator.	inspection, blind spots, safe refueling, operator's competency, this incident as a lesson learned etc. Improvement of middle management involvement was planned through the trainings and better demonstration of Company's top management commitment.
2	August 07, 2025. Lot 2	On August 7, 2025, at the temporary storage area in Kvesheti, the preparation of 12 mm rebar bundles for lifting was in process. After connected to the lifting hook, these rebar bundles had to be loaded on the flatbed truck and transport to the construction sites.	Immediate cause of the incident was the fact that special rack for the safe storage of rebars was not used at the temporary storage area and instead rebars were placed straight on the ground without any guards which could prevent the rebar	Training in rigging lifting operation safety requirements was conducted with the riggers and crane operators. Incident was discussed at the training as a lesson learned together with other safety requirements such as exclusion zone, damaged lifting equipment, use of tag lines, PPE etc.

		CRCC employee (rigger) was standing on the pile of rebar bundles and connecting them to the hook when suddenly bundle of rebars rolled down and trapped his right foot. Immediately, with the use of lifting crane, this rebar bundle was removed, releasing the foot. CRCC medical personnel provided first aid to affected person at the scene, and after he was transferred to the Vakhtang Bochorishvili Clinic in Tbilisi where he received surgery at the broken ankle. Key findings: The bundles of rebars were stacked in violation of safety requirements. Specifically, the rebars were placed one on top of another in multiple layers, reaching a hazardous height without any measures to stabilize the pile or prevent the bundles from rolling down. Instead, the rebars should have been stored in specially designed racks equipped with side bars to secure the bundles in a stable position and prevent them from rolling or collapsing.	pile from collapse. Hence, bundle rolled down on the foot. At the same time, safety procedures were not followed by the affected person. Specifically, during the preparation of load for lifting, he should not be standing on that rebar bundles pile, especially when that pile was not stabilized and safe. Root Cause Analysis. Affected person did not receive special training prior to the admission to work regarding safety requirements for lifting operation. He started to work at the project just one week before the incident and the Contractor did not manage to deliver all necessary trainings within this period of time. Training could increase his awareness, and he could identify risks and did not proceed with that unsafe working practice. In addition, insufficient management of worksite contributed to the accident. The absence of special racks for the safe storage of rebars should have been identified with the effective supervision of the worksites. In that case, the incident could have been prevented and rack for rebar storage could be arranged. Work process should have been suspended until the safe storage of rebars is arranged.	Metal racks for the safe storage of rebar bundles were arranged at temporary storage area in Kvesheti. Toolbox talk targeting this incident was delivered to the lifting personnel at the worksite. Improvement of middle management involvement was planned through the trainings and better demonstration of Company's top management commitment.
3	August 28, 2025. LOT 2	On August 28, 2025, concrete mixer truck driver transported concrete to Bridge No. 3 P19 through Tunnel No. 3 bypass	Immediate Cause: Identification of the immediate cause was challenging due to	The Contractor conducted training with the drivers of dump and mixer trucks on defensive driving. Incident

		road. While driving on that bypass road, he entered downhill section and suddenly lost control of the truck. Driving downhill required deceleration, which was not possible to do. As a result, truck continued to accelerate while driving downhill and hence became difficult to control. At one point it became obvious to the driver that truck will eventually leave the road. Right at that moment he managed to jump out of cabin and received the injuries mentioned. The concrete mixer drove downhill, rolled over and crushed.	the absence of technical expertise of the concrete mixer truck. Without such an examination it was not possible to verify the condition of the vehicle including functionality of braking system at the time of the incident. The absence of witness further limited the ability to assess the driver's behavior, which could have contributed to the incident. Witnesses could notice if the truck was moving too fast, breaching the established speed limit. Given these limitations, corrective measures were developed to address both possible immediate causes: a) Unsafe operation of the concrete mixer truck. b) Unsafe mechanical condition of the concrete mixer truck. Root Cause Analysis. Ineffective management and supervision were identified as root cause of the incident. Participation in safety effort and consideration of safety risks was not undertaken adequately by the Management. Prior to the incident, relevant persons had been instructed to stop using Tunnel 3 bypass section and to begin using Tunnel 3 instead as the primary route to worksites. Although no collapse or slope failure was detected at TN 3 bypass, several sections of bypass were assessed as too steep and therefore unsafe for the continued use.	as a lesson learned was communicated with drivers as well. Additional instructions were provided to the mechanical team responsible for the maintenance of the mobile equipment, to improve the scheduled maintenance. The Contractor stopped use of Tunnel 3 bypass section by blocking it. The safe route was arranged through Tunnel 3 to the worksites in that area. The Contractor arranged safety training with the middle management of company (supervisors and foremen) to improve their involvement in the management of safety and increase their awareness.
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			However, ongoing construction activities at the entrance of Tunnel 3 made it difficult for the Company to implement this change. As a result, the diversion of traffic to Tunnel 3 was repeatedly postponed. The management did not adequately assess the associated risks and did not demonstrate sufficient engagement in resolving the access issue. More effective management and planning of construction activities at TN 3 could have provided a safe passage through the tunnel preventing the need to continue using the unsafe bypass section.	
4	September 25, 2025. Lot 2	On September 25, 2025, CRCC welder, was carrying out structural steel cutting work in the Emergency Gallery of Tunnel No. 1 During the cutting process, section of steel beam which was meant to be cut off, was not adequately secured to prevent it from falling after it is cut off. The worker's foot was positioned within the potential drop zone of the beam section. Consequently, steel beam section fell off and hit the worker at the foot delivering mentioned injuries. Key finding: Affected person was not wearing safety boots during the working process and that is the reason for receiving the mentioned injury.	Immediate Cause. The section of beam was not adequately secured prior to the cutting work and also the worker positioned his foot within the potential drop zone. This could be the result of inattention and the fact that safety requirements for cutting work were not followed. At the same time, no safety boots were worn, which was the reason for receiving injury. Root Cause Analysis. The root cause was identified as insufficient supervision to ensure that safety requirements and safe methods of work are followed. Lack of safety awareness of the worker also contributed to the incident. With better safety awareness, he would not continue to work without a	The Contractor conducted safety training with the crew targeting requirements for welding / cutting works and proper use of PPE.

			proper PPE worn and would leave the worksite. Also, no evidence of proper planning for this task was observed and the schedule for cutting work was chaotic. Hence, not all relevant personnel were aware of the planned work and time, and this contributed to the insufficient supervision.	
5	September 25, 2025. Lot 2	On September 25, 2025, CRCC mechanic, was carrying out a breakdown maintenance work for the excavator at the worksite. He attempted to remove a damaged component/part of an excavator using a rebar rod and a hammer. During this process, the rebar rod unexpectedly rebounded back and struck the mechanic in the face, resulting in an injury to his right jaw. Key Findings Use of subject as a tool (rebar rod) instead of proper, purpose-designed tools. Use of proper tools would not require applying that pressure attempting to remove that damaged part and hence, would not result in this unwanted event.	Immediate Causes The rebar rod was used instead of purpose-designed tool to remove the damaged part. The use of rebar required the application of force which caused it to bind back and struck the mechanic's face. Also, not following existing procedure was an immediate cause as the mechanic should have followed the procedures and use proper tools to deal with the mechanical failure. Root Causes Ineffective management was the root cause for this incident as maintenance work should not be done at a works site and broken plants should be taken to maintenance area where proper tool would be available, and safer maintenance could be delivered. Poor safety culture together with the lack of planning of maintenance work is also root cause. Proper planning could ensure transportation of broken vehicles to maintenance area.	The Contractor conducted training with the mechanics regarding safety requirements and maintenance works, and proper use of tools. The Contractor was requested to ensure proper maintenance process through the smooth transportation of broken equipment to the maintenance workshop area. This process requires top management involvement and the Engineer's supervision for the verification.
6		On 23 November 2025, at 08:00 AM a team of 7 employees arrived at the construction site in Tskere,	The incident investigation remained ongoing as of the end of the reporting period. An internal investigation has	Corrective measures were developed based on the findings available as of the end of the

	Section 3 of the retaining wall. This team was engaged in installation of formwork for the retaining wall. After lunch break at 1 PM, this group continued to work at Section 1 (accident place) of the retaining wall. The activity was still installation of formwork. At around 2 PM the slope collapsed, trapping five employees who were positioned close to the slope installing the formwork. The rescue operations were initiated immediately by the Contractor, involving 25 employees and 1 excavator. Project management team was immediately informed regarding accident, and they arrived with project doctor at the accident place from Kobi camp. At the same time, external emergency services 112 were also informed. Medical External Emergency team with ambulance arrived at the place later followed by Emergency Rescue Team. Emergency Rescue Team immediately engaged in the rescue operation with a team of approximately 20 people. One trapped employee was rescued by the CRTG. First aid was provided immediately and affected person was transported to the hospital for further medical assistance. The four remaining persons were located and found later deceased.	been initiated by the project-involved parties; however, its final results are still pending. In parallel, the Labor Inspection Office of Georgia and Police are conducting investigations and additional information is expected upon completion of these processes. In addition, National Forensic Bureau is continuing assessment and expert report has not been yet issued. At this early stage, the following preliminary findings became available through internal investigation: Established procedures were violated by proceeding with work at section 1 without the required approval and internal agreement. Proceeding from it, the slope was not inspected and was not confirmed to be safe for the work. The commencement of works at each individual section required separate approval. No mechanism/document was used requiring sign-off before the work starts. This was identified as a contributing factor. The overall stability of the slope was undermined by a combination of factors, including slope geometry, soil stratification, water presence, regional groundwater conditions, and temperature variations. Accordingly, slope failure should be considered the result of the combined interaction of natural conditions and technical factors. Based on	reporting period, and additional corrective actions might be required later, upon the completion of investigation process. a) Improvement of the engineer-led and HSE control and inspection over all construction activities including excavation and slope works. b) H&S audit of all construction worksites and activities by independent, third-party accredited company. c) Refresher safety trainings with all workers of the company regarding general safety requirements including earthwork, slope reinforcement works and incident as a lesson learned. d) Mobilization of an additional H&S specialist to the Project. e) Improvement of safety awareness for middle management (engineers and safety specialists) through specific training targeting the importance of effective inspections and relevant requirements. f) Revision of the engineer-led and HSE inspection existing procedures, including schedule/frequency of
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			the above analysis, another cause of this accident was a sudden change in geological conditions. Root cause: Ineffective internal communication (verbal communication) within the company with no verification, leading to misunderstanding and lack of clarity regarding the approved scope of works. The analysis mentioned above is interim and might change as more information becomes available from the investigation processes which are carried out by official government bodies.	inspections and the quality (e.g. check lists, reporting procedures). g) Revision and re-approval of risk assessment documents for similar slope/excavation works across the Project. This process includes inspection of these works at the place and revision of safety controls and risk assessment according to the observations made. h) Revision of emergency response procedures and conduct emergency response drills with different scenarios.
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Table 16 A. HSE Statistics

LOT 1	LOT 1	LOT2
Total number of accidents	8	20
During this reporting period	1	5
LTIFR for 2024	0	4.4
LTIFR for 2025	1	4.6
LTIFR for SAEMR# 12 period	0	0
LTIFR for SAEMR# 13 period	2.1	9.25
Total hours worked 2024	1 200 000	912 000
Total hours worked 2025	960 000	1 080 000

4.2 Summary of Environmental Instrumental Monitoring Outcomes

202. Groundwater quality testing for Lot 1 was conducted from July- September 2025. Samples were collected from a well located at the upper part of the accommodation camp (coordinates 459946.172E 4711509.980N) in Kobi Village. The results of the groundwater tests, as shown in Table 10, were compared with the Georgian Acceptable Limits outlined in Resolution #58 of the Georgian government, which approves the technical regulations for potable water. All tested chemical parameters met the National Acceptable Limits, indicating that the groundwater was not contaminated in terms of chemical contamination. However, Total Coliforms were detected in the water sample collected in August and September 2025.
203. The Contractor for Lot 1 did not measure the ground water levels during the reporting period. . The engineer instructed the contractor to measure the ground water levels both in Kobi and Tsskere, however, due to heavy snow it was not possible to identify the ground water wells in December 2025. The contractor will start measuring ground water levels after the snow melt during March 2026. However, no significant impact on ground levels was determined during the previous measurements conducted at construction stage, based on the baseline provided in the EIA, where groundwater levels were measured at ten different points, depth varying between 14 meters and 28 meters.
204. The results presented in Table 11A indicate that there is no significant difference between the measurements taken upstream and downstream of the tunnel 5 water discharge point. However, the turbidity levels of the Tunnel water have been significantly decreased due to completion of excavation (100 %) and lining (100 %) of the EG. Overall, the volume of water decreased on the Kobi side, as most of the water flowed toward Tskere due to gravity.
205. The Contractor has diverted tunnel water in Baidara river by constructing the drainage channel as per design at the north portal of Tunnel 5, Kobi.
206. In Khadistskali river, turbidity levels were reduced for most of the reporting period. However, the levels increased during September 2025, both upstream and downstream (624 NTU Upstream and 892 NTU upstream). The tunnel water is clean; however, sometime due to cleaning activities in the tunnel the turbidity is increased on temporary basis. During the 3rd week of December 2025, the tunnel water became turbid; however, after few days at the start of January 2026, the water became clear as shown in Figure 10 below. Test results measured in October showing the tunnel water is not turbid (1.94 NTU).
207. For Lot 2, there are no significant changes in the upstream and downstream results, except for the turbidity levels in September 2025 anticipated to be high due to seasonal variation and snow melt. The concentrations of all other measured parameters are within the acceptable range of the Applicable Standard Maximum Allowable Concentration (MAC).
208. For Lot 1 overall, the LAeq results vary between 51 dBA to 63 dBA. The increased levels were observed in August 2025 from the range of IFC standard 55 d(BA) for residential areas during the daytime. For Lot 2, Slight increase in noise levels observed in village Zakatkari and Camp 3 from IFC guidelines is due to construction activities. No complaint regarding noise was received by the community.
209. For Lot 2, continuous vibration monitoring was conducted during the reporting period at the locations shown in the Figure 14 and listed in Table 13. The Contractor has 3 devices for all CH sites. Vibration monitoring devices were not installed at all locations recommended by NACHP during the reporting period, as there was no need for monitoring at sites where no construction

activities were taking place nearby. For the monitoring of cultural heritage sites, those places that are close to construction areas were selected. No significant exceedance was observed due to construction activities

- 210. For Lot 1 PM10 levels including the concentration levels of NO₂, SO₂, CO and dust levels as indicated in Table 14A are within the national limits for air quality in Georgia and IFC guidelines.
- 211. CC for Lot 2 monitored air quality from July to December 2025. The details of locations and results are provided in Table 14B. All the parameters measured are within the permissible limits of IFC guidelines.
- 212. The contractor for Lot 2 has added an additional water truck to suppress the fugitive dust. They have successfully asphalted the roads in Kvesheti and the plateau. By using Bridge 2 and the tunnel for access to plateau and Gudauri access road, the emission of fugitive dust has decreased significantly. In December, there was no dust because of the snow. However, in the second quarter of 2026, the contractor must implement the dust management plan specifically for Khada Valley to further reduce dust on Access Road 1.

4.3 Loan Agreement Compliance Status

- 213. Status of compliance with environmental safeguards related covenants in the Project's Loan Agreement signed between Government of Georgia and ADB on 20 June 2019¹ is summarized in Table 17.

Table 17. Loan Agreement Compliance Status

Schedule	Paragraph	Covenant	Compliance Status
7	38	<u>Environment</u> No physical works will be allowed prior to approval of the SEMP by the construction supervision consultant and RD.	Being Complied with SEMPs for both Lot 1 and Lot 2 have been approved and being implemented. IEE of the Gudauri Access Road published in March 2023 and SEMPs has been updated and approved considering Gudauri access road for Lot 2 as per requirement of table 81 & 82 of the IEE. Detail given in table 22C. CC for Lot 2 submitted the updated spoil mass balance and action plan on 21-03-2025 by reference letter # KKRП 2025 (035)

¹ ADB. Loan Agreement (Ordinary Operations [Concessional]) for Loan L3803: Georgia: North–South Corridor (Kvesheti–Kobi) Road Project (20 June 2019). <https://www.adb.org/sites/default/files/project-documents/51257/51257-001-pam-en.pdf>

			CC for Lot 1 updated waste management plan on May 30, 2024. Both Lots updated their Re-cultivation Plans including the landscape reinstatement requirements prepared based on Visual Landscape Assessment Report.
7	39	The EMP, which also defines the institutional arrangements and responsibilities for its implementation, will be included in the bidding documents, and in the ensuing contracts. The SEMP will be implemented under close monitoring provided by the construction supervision consultant and the service of environment and social issues of the RD. The RD will submit semiannual environmental monitoring reports to ADB for disclosure on the ADB website. The capacity building of the RD environment specialist, the contractors and supervision consultants will also be conducted through Central and West Asia Department's ongoing regional TA.	Being complied with. EMP as a part of bidding documents and Technical Specification. RD submitting Semiannual monitoring report and all the set forth measures in EIA, Conditions set by MoEPA, and National Legislations are addressed in the SAEMR This is the 13th Semiannual Monitoring Report
9	53	Safeguards Monitoring and Reporting Project performance monitoring. RD will require the Engineer to (i) collect additional data from relevant agencies, including local governments and statistics bureaus, (ii) to measure the performance indicators at inception, at completion, and 3 years after project completion; and (iii) report key findings quarterly to ADB through the project's quarterly project reports.	Ongoing
9	54	Compliance monitoring. RD will provide an annual report on the project's compliance with legal, financial, economic, environmental, social and other covenants.	Ongoing Audited Project Financial Statements (January – December 2023) is published on ADB website in June 2024.
4	55	Safeguards monitoring. RD will monitor the implementation of the environment and resettlement action plans. The semi-annual report will include the status of these plans. The EMP will be monitored and reported to ADB semi-annually with the assistance of supervision consultant team, the performance and results of which (through EMP reports) will be uploaded in ADB website. Construction	Complied with RD submitting Semi-Annual Social Monitoring Report describing the Implementation status of LARP and Semi-Annual Environmental Monitoring Report describing the status of implementation of the EMP and its site specific and Topic specific Plans and

		environmental monitoring is a day-to-day process, which ensures that departures from the EMP are avoided or quickly rectified, or that any unforeseen impacts are quickly discovered and remedied. Specific actions in the EMP that are to be monitored are included in the EIA. In addition to the above, BAP implementation will also need to be monitored and this will be reported within the bi-annual environmental monitoring reports. If there are any unforeseen safeguards impacts or incidents these will be reported to ADB immediately for necessary action. RD will engage individual consultants for periodic inspection and reporting on safeguard matters.	are being submitted to ADB and published on ADB website after approval. Weblink for the document's disclosure by RD for KKR project is http://www.georoad.ge/?lang=eng&act=pages&func=menu&pid=1536737215
9	57	Evaluation 57. Within six months of physical completion of the project, RD will submit a project completion report to ADB.	Not applicable at this stage
9	58	Reporting 58. The RD will provide ADB with (i) quarterly progress reports in a format consistent with ADB's project performance reporting system; (ii) consolidated annual reports including (a) progress achieved by output as measured through the indicator's performance targets, (b) key implementation issues and solutions, (c) updated procurement plan, and (d) updated implementation plan for the next 12 months; and (iii) a project completion report within six months of physical completion of the project. To ensure that projects will continue to be both viable and sustainable, project accounts and the executing agency audited financial statement together with the associated auditor's report, should be adequately reviewed. The RD will also be responsible for submitting to ADB Semi annual safeguards monitoring reports for approval and disclosure on the RD and ADB websites.	Ongoing RD providing Semiannual reports for social Monitoring and Environmental Monitoring on the format prescribed by ADB applicable at this stage. Currently the project is at construction stage and commencement was October 2020. Procurement Plan for KKR project published in June 2019. Procurement Plan for KKR project updated in February 2025.

4.4 Material Resource Utilization

214. During the reporting period, following materials were mobilized on site by the Contractor for Lot 1:

Table 18: Material Mobilization by Lot 1 during the Reporting Period

No.	Material	Unit	Quantity
1	Concrete	37872	m ³
2	Rebar	1810	t
3	Section steel	794.9	t
4	Steel plate	4.2	t
5	Cement	14620	t
6	Concrete brick 20*20*40cm	13883	pcs
7	Concrete brick 10*20*40cm	0	pcs
8	Sand	22723	m ³
9	Gravel	34085	m ³
10	Diesel	544	t
11	Electricity	4081050	KWh
12	Water used	186000	m ³

Note: Gravel comes from the quarry in the village Kobi, Kazbegi Municipality, License #10002555 & another quarry license #10002992. CC extracted the licensed amount of gravel from the quarry under license #10002555 and closed that quarry.

215. During the reporting period, following materials were mobilized on site by the Contractor for Lot 2 based on data provided by CC for Lot 2:

Table 19: Material Mobilization by Lot 2 during the Reporting Period

No.	Material	Quantity	Unit
1.	Concrete	1154	m ³
2.	Rebar	3875.95	t
3.	Section steel	0	t
4.	Steel plate	57.45	t
5.	Cement	19717.1	t
6.	Sand	25934.46	m ³
7.	Gravel	21793.24	m ³
8.	Diesel	1326031	liter
9.	Steel Pipe	69.58	t
10.	Steel fiber	0	kg
11.	Accelerator	32500	kg
12.	Water reducer	161720	kg
13.	Geotextile	16000	m ²

14.	Electricity	1254700	KWh
15.	Water Used	12000	m ³
16.	Reinforced mesh	59.48	t
17.	Waterproofing menbrane	1400	m2

Note: Gravel comes from Mleta quarry (license N10001711) and quarry near parking area (license N10001723) in Kvesheti.

4.5 Waste Management

216. CC for Lot 1 has an approved Waste Management Plan. The Contractor has an agreement with the Kazbegi Municipality and Dusheti Municipality regarding provision of the waste containers, collection and transportation of household waste. In addition to that the contractor has an agreement with the licensed company – Medical Technology LLC for collection, transportation and treatment of the hazardous waste. Temporary hazardous waste storage areas have been arranged since October 2019 at the segment plant/crusher in village Kobi and in Tskere near batching plant. Different types of hazardous waste are kept in the restricted area (fenced on impervious base with roof) before transporting by the licensed waste transportation/treatment company. Improper handling and storage practice of hazardous and non hazardous waste at the site have been identified as an issue at the site and require improvement. The contractor is required to find the recycling industries to deliver used tyres, scrap and containers stored behind batching plant in Kobi. The contractor has reused many plastic containers to fence the spoil stored in Tskere. The Contractor for Lot 1 renewed the agreement with medical technology on March 13, 2025, for the collection of hazardous waste and the copy of the agreement is attached as an Annex-8. The PMSCS environment team is helping the contractor to find out the licensed contractor to collect the used tyres, plastic containers and scrap material.

217. Information regarding the generation of waste during reporting period is given in Table 20A.

Table 20A: Waste Management for Lot 1 during Reporting Period

#	Domestic/Hazardous Waste & Sewage	Estimated Volume of Waste	Storage Area	Licensed Company Collecting the waste
1	Household waste	950 m ³	Camp sites, Workshops, Construction sites	Kazbegi Municipality and Dusheti Municipality
2	Sewage water	350 m ³ 15 m ³ / day Waste water is treated by STP.	Wastewater treatment plant	Incase of Cesspole truck the contractor calling Ltd. Sanitary
3	Used tires	60KG	Temporary waste storage area at the Workshop	Ltd.Sanitary
4	Absorbents, hydraulic oil and contaminated soil, filters, rugs,	25 kg	Temporary waste storage area at the Workshop	Medical Technology LLC

5	Waste paints and varnishes	0 kg	Temporary waste storage area at the Workshop	Medical Technology LLC
6	Chemical additive tanks	20 pcs	Temporary waste storage area at the Workshop	Medical Technology LLC
7	Oil drums	5 pcs	Temporary waste storage area at the Workshop	Medical Technology LLC
8	Used food oil	55 litters	Camp separate wastebaskets	Medical Technology LLC
9	Printer tonner	3 kg.	Temporary waste storage area at the Workshop	Medical Technology LLC
10	Medical Waste	15 kg	Temporary waste storage area at the Workshop	Medical Technology LLC

218. As the Lot 1 project part approaches completion, ongoing dismantling works are taking place, including the removal of conveyor belts, ventilation tubes, used tires, and used containers. The contractor has stored this material behind the segment plant in Kobi. Any material that is no longer useful to the contractor needs to be delivered to a licensed company authorized to collect such waste. To address this, several meetings have been held between the engineer and the contractor. Together, they have identified potential companies for waste disposal, and the contractor has committed to start delivering the waste and scrap material in the fourth week of October 2025. However, the activity is still pending and needs completion. Useful materials will be stored in the warehouses that were previously used as the segment factory.
219. CC for Lot 2 has a Waste Management Plan. The Contractor has an agreement with the Dusheti Municipality regarding provision of the waste containers, collection and transportation of household waste from the construction campsites. However, effective waste management continues to be a challenge at Lot 2 worksite and temporary facilities.
220. In addition to that, the contractor has an agreement with the licensed company – “Sanitary” Ltd for collection, transportation and treatment of the waste from biological treatment plants, and hazardous waste. Additionally, for hazardous waste the contractor has agreement with “Medical technology” Company. The contractor maintains agreements with both companies and arranges the collection of hazardous waste based on the most economical invoice offered. The contractor handed over the hazardous waste to Sanitary Ltd in July and October 2025. The delivery note is attached as an Annex-6.
221. Temporary hazardous waste storage area has been arranged in Batching Plant 1, in Camp 2 & Camp 3 and in parking area. Different types of hazardous waste are kept in the restricted area (fenced on impervious base with roof) before transporting by the licensed waste

transportation/treatment company. Non-Hazardous waste including scrap is stored at the exit of Tunnel1. Information regarding the generation of waste during reporting period is given in Table 20B.

Table 20B: Waste Management for Lot 2 during Reporting Period

#	Domestic/Hazardous Waste & Sewage	Estimated Volume	Storage Area	Licensed Company collecting the waste
1	Household waste	4500 kg	Camp sites, Workshops, Construction sites	Dusheti Municipality
2	Sewage water	150 m ³	Septic Tanks Camp1 , 2& 3	Ltd. Sanitary
3	Used tires	160 kg	Temporary waste storage area at the Workshop	Ltd. Sanitary
4	Hydraulic and used oil	60 l	Temporary waste storage area at the Workshop	Ltd. Sanitary
5	Waste paints and varnishes	5 kg	Temporary waste storage area at the Workshop	Ltd. Sanitary
6	Chemical additive tanks	120 kg	Temporary waste storage area at the Workshop	Ltd. Sanitary
7	Oil drums	100 kg	Temporary waste storage area at the Workshop	Ltd. Sanitary
8	Used food oil	45 l	Camp separate waste baskets	Ltd. Sanitary
9	Printer tonner	0	Temporary waste storage area at the Workshop	
10	Absorbents (e.g. oil filters, polluted clothes and materials)	80 kg	Temporary waste storage area at the Workshop	Ltd. Sanitary
11	Medical Waste	2 kg	Temporary waste storage area at the Workshop	Ltd. Sanitary

4.5.1 Current Period

222. For Lot 1, the main sources that generated the big amount of waste is tunnel construction, specifically: excavation of the soil and rock material from the Tunnel 5. Estimated calculations for spoil generation and excavated material up to December 2025 are given below:

Lot 1: Current estimated mass balance for spoil material:

Spoil Mass Balance Lot 1				
Estimated Total Spoil Generated up to December 2025 – 2,912,678 m3				
Kobi				
SDA	Capacity of SDA m3	Spoil Material Stored m3	Spoil reused for road Embankments m3	Space available for additional spoil material m3
SDA 1	370,970	314,695	22,000	56,275
SDA 3	2,611,700	2,577,983	302,070	33,717
Tskere				
Storage Area	Estimated Stored Material m3	To be used for backfilling cut and cover tunnel m3	Balance m3	
Tskere Temporary Storage Area	77,020	100,000	0	

223. For Lot 2 the main source of generation of spoil is the material generated from Tunnel 1, Tunnel 2, and Tunnel 3 and Tunnel 4 excavation. Estimated calculations for spoil generation and excavated material up December 2025 is given below:

Total spoil to be generated including GARP = 1.811 M m3

Total excavated = 1.019 M m3

Total reused = 747, 000m3

Description	Estimated Spoil material stored	Estimated Capacity	Balance
SDA 1	20,000 m3	20,000 m3	-
SDA 3	112000 m3	112000 m3	-
Bedoni Filling Area	140,000 m3	140,000 m3	-
Total	272,000	272,000	-

Spoil Stored in SDA 1, SDA 3 and Bedoni filling area = 272,000 M m³

To be excavated = 791000 M m³

Need to be disposed of = 0.72 M m³

(Lot 2 contractor needs to find an area for disposal of 0.72 M m³ spoil)

(Note. These are the estimated figures provided by the contractor)

224. The contractor submitted the options for the additional SDAs in the Khada valley which were not accepted by the Engineer.

4.6 Trainings

225. The following trainings were carried out by Lot 1 and Lot 2 Contractors during the reporting period, with the support of the PMCSC Safeguard team and RD's H&S specialists. No emergency drill was conducted during the reporting period at KKR project. These topic-specific trainings were repeated on a monthly or weekly basis during the reporting period.

Lot 1

- Environment and safety training for Ventilation corridor workers
- EHS Training for grouting workers
- Safety training for emergency tunnel workers
- Safety training for mechanical service team
- Safety training for EG backfilling workers
- Safety training for ventilation slab workers
- Environment and safety training for factory workers
- EHS Training for welding workers
- Induction and safety trainings for new workers
- Safety training for the main tunnel workers
- PPEs wearing training for welding workers
- Safety training for tunnel workers in TBM and EG
- Safety training for subcontractors
- Safety training for EG lining workers
- Safety trainings for drivers
- Safety training for facility workers

Figure 32: Training of the workers for EHS compliance at the site Lot-1



56. Safety training for emergency tunnel road workers



57. Safety training for mechanical service team



32. Daily toolbox training



58. Safety training for water ditch workers

Lot 2

- Wearing of PPEs
- Working at Height
- Welding safety/Driving Safety
- Site Safety Induction and Environment
- TBTs at Bridge 2 and Bridge 3
- Wearing of PPEs while working close to bridge 3
- Site induction and Safety Induction
- Safety trainings for drivers
- Daily Working at Height TBT
- Electrical safety

Figure 33: Training Sessions at Lot 2



226. Additional photos of H&S training are presented in Annex 4, while the sample attendance sheets are annexed as Annex 5.

4.7 Grievance Redress Mechanism and Complaints

227. Grievance Redress Committees (GRCEs) at Municipality levels were established during the EIA study with the office order from RD. For Lot 2 GRCE for Dusheti municipality is based in Kvesheti; while, for Lot 1 GRCE for Kazbegi Municipality is based in Kobi village.
228. In response to RD letter# N2-12/3725 dated: 25-03-2020, The contractor for Lot #1 submitted through letter # 200330-0021-CRG-RDMRDI the name of the candidates for grievance resolution committee: Social Specialist Lado Shonia (+995 59 913777, lado_shon@yahoo.com <mailto:dbughadze@rsm.ge>) and Liang Hong Jun (+995 557466348, liang.hongjun@crtg.cn).
229. For the PMSCS, for social concerns Tamar Javakhi, (Contact: +995 599613196, javakhitako@gmail.com) and for environment, Nikoloz Sopadze, (Contact: +995 597728871, nikasofadze@gmail.com) were nominated as focal persons.
230. As for Lot 2, up to the end of reporting period CLO Gocha Mghebrishvili (+995 579907199, gmghebrishvili71@gmail.com) was responsible for receiving and resolution of complaints.

Grievances Received & Redressed up to Reporting Period at Level 1 (GRCE)

231. As of 31 December 2025, 193 grievances (12 categories) have been received by GRCE. 35 grievances are from Lot 1 section and 158 from - Lot 2. People mostly (113) apply concerning damage to infrastructure/assets due to the Contractor's activities. Out of 107 closed complaints related to damage to Infrastructure and Assets, only 23 were unsubstantiated and therefore, rejected which indicates to the fact that the Contractors proactively assessed the risks before commencement of the civil works.
- Totally, 24 grievances are open. The solution cases which are related to the damage to the houses due to vibration progresses with the progress of construction activities. Particularly in Kvesheti and Arakhveti area where the construction works were completed, Samkharauli Forensics Bureau was invited to assess the condition of the houses. Experts from Samkharauli visited site in September and since then conclusion from Samkharauli is awaited.
 - During the reporting period, 17 grievances, including 8 grievances registered within the reporting period,(all from Lot 2 section) were closed. For the statistics, please refer to the tables below.

Table 21A: Summary of the grievances by category with the status of Resolution received by GRCE since commencement of the Project including reporting period

Number of Complaints by Category:	Closed	Tech.hold	Open	Total	%
Damage to Infrastructure / Assets	107	1	5	113	58,55%
Crop Compensation	0	0	0	0	0,00%
Other	14	1	6	21	10,88%
Inclusion in LARP	7	0	2	9	4,66%

Disturbance: Noise / Vibration / Dust	7	0	2	9	4,66%
Restriction or loss of access	21	0	6	27	13,99%
Recruitment / Employment	5	0	0	5	2,59%
Loss of business	1	0	0	1	0,52%
Compensation Rate	0	0	0	0	0,00%
Registration / Ownership Status	0	0	0	0	0,00%
HSE Concerns	5	0	0	5	2,59%
Road Upgrading	2	0	1	3	1,55%
Total	169	2	22	193	100%

Table 21B: Summary of the grievances by category with status of Resolution received during the Reporting Period by GRCE (01.06.2025 – 31.12.2025)

Number of Complaints by Category:	Closed	Tech.hold	Open	Total	%
Damage to Infrastructure / Assets	8	0	0	6	53,84%
Crop Compensation	0	0	0	0	0,00%
Other	1	0	4	5	0,00 %
Inclusion in LARP	0	0	0	0	15,38%
Disturbance: Noise / Vibration / Dust	0	0	0	0	0,00%
Restriction or loss of access	0	0	2	2	30,76%
Recruitment / Employment	0	0	0	0	0,00%
Loss of business	0	0	0	0	0,00%
Compensation Rate	0	0	0	0	0,00%
Registration / Ownership Status	0	0	0	0	0,00%
HSE Concerns	0	0	0	0	0,00%
Road Upgrading	1	0	1	2	0,00%
Total	8	0	7	15	100%

Grievances Received & Redressed up to the Reporting Period at Level 2 (GRCN)

232. A total of 71 persons has submitted 6 categories of grievances to the GRCN out of which 64 grievances have been resolved as of 31 December 2025. 2 grievances are from Lot 1 section and the remaining ones from Lot 2. People now mostly (29 Nos.) are complaining about inclusion in the acquisition list out of which all cases are closed out. Compensation rates were disputed by 11 APs, out of which all the cases have been resolved.
233. No grievances were received during the reporting period.

Table 21C: Summary of the grievances by category with status of Resolution since the commencement of the Project including the Reporting Period

Number of Complaints by Project:	Closed	Tech.hold	Open	Total	%
Kvesheti-Kobi	64	2	5	71	

Table 21D: Summary of the grievances by category with status of Resolution received during the Reporting Period by GRCN

Number of Complaints by Project:	Closed	Tech.hold	Open	Total	%
Kvesheti-Kobi	0	0	0	0	

5. FUNCTIONING OF SEMP

5.1 SEMP Review

234. PMCSC approved SEMP for both Lots: Lot 1 on 12-06-2020 and Lot 2 on 25-05-2020 respectively, and no objection has been given by ADB/EBRD in November 2020 with the condition that SEMP is a 'live document' and will need to be updated throughout the construction period, whenever required, due to arise of unforeseen potential impacts. However, no updates to the SEMP were made during the reporting period.
235. SEMP status is being reviewed regularly in joint E&S weekly meetings between the lenders, RD and PMCSC. An Environmental & Social Management System Action Tracker has been developed by ADB and has been provided to the PMCSC use and take forward to support their management of the project. The tracker is updated on each six-month basis to speed up the process of development of safeguard documents, getting the respective permits/approvals from the relevant authorities, meeting the conditions set in the EIA approval from MoEPA, compliance with the suggested mitigation measures set in the EMP, and resolution of the complaints from the project affected communities and workers.

5.2 Preparation of Topic Specific Plans

236. The updated status for the approvals of site specific and topic specific plans for Lot 1 up to December 2025 is given in Table 22 A.

Summary of Approvals for Lot 1

Total submitted by CC=32

Approved = 32

Not approved = 0

Not applicable during reporting period = 2

% approved = 100 %

Table 22 A: Updated Approval Status for the Site Specific and Topic Specific Plans Lot 1

No.	Plans	Revision Version	Approval Date	Status
1	SEMP	E	10/8/2020 Updated on November 06, 2023 including SDA 3 and avalanche protection measures.	Approved
2	Topsoil Management Plan	E	23.10.2023	Approved
3	Waste Management Plan	D	23.06.2021 Approved by MoEPA on 17.03.21 Updated on 14-06-2024	Approved
4	Waste Water Management Plan	E	25.01.2023	Approved
5	Noise Control Plan	D	02.12.2020	Approved

6	Air Quality Management Plan	C	28.04.2021	Approved
7	Construction Vibration Management Plan	B	23.07.2020	Approved
8	Spill Management Plan	D	23.10.2020	Approved
9	Occupational and Community Health and Safety Plan	E	27.02.2024	Approved
10	Labor and Working Conditions Management Plan	E	06.12.2023	Approved
11	Traffic Management Plan	A	06.05.2020	Approved
12	Emergency Response Plan	F	15.03.2021	Approved
13	Ground Water Management Plan	E	23.03.2022	Approved
14	Recultivation/Land Restoration Plan Kobi	C	29.12.23	Approved
15	Recultivation/Land Restoration Plan Tskere	D	29.12.23	Approved
16	Biodiversity Management Plan	I	20.05.2021	Approved
17	Tunnel Blasting Plan	C	22.06.2020	Approved
18	Cultural Heritage Management Plan	Final Document updated on 27-09-2023	29-09-2023	Approved Updated version
19	Local Content Management Plan	E	02.11.2020	Approved
20	Spoil Disposal Area SDA 1 Kobi	E	30-03-2022	Approved
21	Spoil Disposal Area SDA 3 Kobi	B	23-10-2023	Approved
22	Asphalt Plant Management Plan	N/A	CC should start working on that	-
23	Concrete Batching Plant Management Plan – Kobi	B	6.04.22	Approved
24	Concrete Batching Plant Management Plan – Tskere	B	22-03-2022	Approved
25	Construction Camp Management Plan # 1 Kobi Camp site	E	02.12.20	Approved
26	Construction Camp #2 Management Plan (Tskere Camp)	B	23-03-2022	Approved
27	OHS Plans for Tunnels	C	24.08.2020	Approved
28	Accommodation Option Risk Assessment Kobi and Tskere Camps	F	04.03.22	Approved
29	Code of Conduct (for workers)	E	05.12.23	Approved

30	Tunnel Transition Plan	To be prepared	To be prepared	
31	MES for Temporary Access Roads and River Crossings.	C	4/19/2022	Approved
32	Method statements for temporary storage areas	A	4/13/2022	Approved
33	Method Statement for Kobi Quarry # 1	A	4/14/2022	Approved
34	Method Statement for Kobi Quarry # 2	A	5/03/ 2023 submitted and approved on 23-10-2023	Approved

237. The updated status for the approvals of site specific and topic specific plans for Lot 2 up to December 2025 is given in Table 22 B.

Summary of Approvals for Lot 2

- Total submitted =30
- Approved = 30
- Not approved = 0
- Not required at this stage =1
- To be prepared =1
- % approved = 100 %

Table 22 B: Updated approval status for the site specific and topic specific plans Lot 2

No.	Plan	Revision Version	Approval Date	Status
1	SEMP	D	20.10.2020	Approved
2	Topsoil Management Plan	B	13.04.2022	Approved
3	Waste Management Plan	B	19.12.2020 Approved by MoEPA	Approved
4	Waste Water Management Plan	B	28-03-2022	Approved
5	Air quality Management Plan	A	15.02-2022	Approved
6	Noise Control MP	1v.	15-02-2022	Approved
7	Spill management Plan	A	19.02.2020	Approved
8	Traffic Management Plan	C	02.11.2020	Approved
9	OHS Management plan	C	30 .12 .2024	Approved
10	Labor and Working Condition MP	A	27.10.2020	Approved
11	Code of Conduct	A	4.10.2020	Approved
12	Emergency Response Plan	A	20.04.2020 Will be improved after the design for avalanche protection measures	Approved
13	Ground water MP	A	20.10.2020	Approved

14	Recultivation/Land restoration.	B	29.12.2023	Approved
15	Biodiversity MP	A	Sept 2021	Approved
16	Vibration MP	B	Main plan is approved on 24 January, 2022. Update, if any, will be provided by Gamma.	Approved
17	Tunnel Blasting Plan	B	24-09-2021	Approved
18	Cultural Heritage MP	9	26.09.23	Approved
19	Local Content MP	B	26-03-2021	Approved
20	Spoil Disposal Management Plan SDA# 1	A	3/1/2022	Approved
21	Spoil Disposal Management Plan SDA# 2	A	3/1/2022	Approved
22	Spoil Disposal Management Plan SDA# 3 (Kvesheti)	A	07-04-2022 approved by MoEPA. Approved on 25-10-2023 by PMCSC	Approved
23	Accommodation option risk assessment (Camp 1,2 & 3)	B	24.10.2020	Approved
24	Camp Management Plan (Camp 1,2 & 3)	A	PMCSC approved the document on 21 February, 2022.	Approved
25	Concrete Batching Plant MP	A	31.10.2020 PMCSC submitted the plan to RD on 21 February, 2022.	Approved
26	Asphalt plant MP	-	-	To be prepared by the Contractor.
27	MES for Temporary Access Roads and River Crossings.	C	PMCSC has reviewed the updated document and approved it on 25 February 2022.	Approved
28	Method Statement for Temporary Storage Area	B	Feb 21, 2022	Approved
29	Bridge Construction plan	B	11-03-2022	Approved
30	Tunnel transition Plan	To be prepared	To be prepared	-
31	MES for Temporary Access Roads and River Crossings.	A	PMCSC has reviewed the updated document and approved it on 25 February. It was shared with RD on 1 March	Approved
32	Method Statement for Mleta Quarry	A	02-08-2021	Approved

238. CC for Lot 2 has updated the SEMP during April 2024 by including Gudauri Access road and update the subplans of SEMP as per requirement of Table 81 & 82 of the IEE for Gudauri Access Road and get it approved from the relevant authorities.

239. The approvals for the Gudauri Access Road Project are summarized as follows:

Total submitted by CC=15

Approved = 15

Not approved = 0

% approved = 100 %

Table 22 C: Updated approval status for the site specific and topic specific plans for GARP, Lot 2

No.	Plan	Revision/ Version	Approval Date	Status
1	SEMP	V1	4/17/2024	approved
2	Topsoil Management Plan	V2	3/26/2024	Approved
3	Waste Management Plan	V1	2/22/2024	Approved
4	Air Quality Management Plan	V1	2/22/2024	Approved
5	Noise Control Plan	V1	2/5/2024	Approved
6	Traffic Management Plan	V1	2/22/2024	Approved
7	Occupational and Community Health and Safety Plan	V2	4/17/2024	Approved
8	Emergency Response Plan	V1	2/22/2024	Approved
9	Re-cultivation/Land Restoration Plan	V1	3/26/2024	Approved by UBM and NACHP (11.04.24)
10	Construction Vibration Management Plan	V1	5/23/2024	Approved
11	Cultural Heritage Management Plan	V1	3/26/2024	Approved (The KKR CHMP was updated by incorporating information on Gudauri ARP)
12	Local Content Management Plan	V2	3/27/2024	Approved
13	Labor and Working Conditions Management Plan	V2	3/27/2024	Approved
14	Code of Conduct	V1	5/23/2024	Approved
15	Spoil Management Plan	V1	3/7/2024	Approved

240. Environmental Due Diligence Report (EDDR) and Cultural Heritage Due Diligence Report (CHDDR) for avalanche protection walls in Khada Valley have been completed in December 2023.
241. The contractor for Lot 1 and Lot 2 completed the geodynamic process survey report in compliance with condition 21, in May 2024 stating that the construction of the project has no significant impact on the geological conditions of the project's rocks.
242. The Geodynamic Processes Monitoring conducted for Lot 1 (Tskere–Kobi) of the Kvesheti–Kobi section of the Zhinvali–Larsi Highway during the 2024–2025 construction period, prepared in accordance with the requirements of Paragraph 21 of Order No. 2-354 dated April 25, 2019, issued by the Minister of Environmental Protection and Agriculture of Georgia. The monitoring report was submitted to the LEPL National Environmental Agency under reference letter No. 2-06/17193 dated December 11, 2025, and was reviewed and approved with no comments, as confirmed by the Agency's official response issued in December 2025. As part of the approval, the Agency instructed that the next monitoring report shall include a schematic map illustrating the distribution of unstable areas within the road corridor under construction and in the adjacent territories, to support continued assessment of geodynamic risks and ensure full compliance with environmental decision requirements during subsequent project stages. The approval letter is attached as an annex-9. The contractor is required to follow the instructions mentioned in the report.
- 243.

5.3 Permitting Status

244. The updated status for the approvals and permits from MoEPA and other relevant authorities as per requirement of National Legislation and requirement of the EIA for both Lot 1 and Lot 2 up to December 2025 is given in the Table 23A and 23B respectively.

Table 23A: Updated Status for the National Permits/ Approval from MoEPA and other Relevant Authorities for Lot 1

#	Item	Current Status	Approval Date	Comments
1	Campsite Layout Plan - Kobi	Approved / Being Implemented	Approved on 11-10- 2021 by letter # 10640-01-2-202110111800	N/A
2	Campsite Layout Plan - Tskere	Approved / Being Implemented	Approved by MoEPA on 18.03.22.	N/A
3	Forest use agreement	Approved / Being Implemented	Approved. The tree cutting permit No 11/67971 10-03-2019	N/A
4	Approval of construction or upgrade activities	Approved / Being Implemented	CC Obtained the permission from Kazbegi Municipality for construction/upgrade of the access road to quarry near Kobi village 21-03-2022	N/A

5	Transportation permit	Approved / Being Implemented	Approved from Ministry of Internal Affairs for oversized and over weight - Permit No 2-03171 30-8-2021	N/A
6	Spoil disposal approval – SDA 1 (Kobi) Environmental Decision	Approved / Being Implemented	Approved on 11-10- 2021 by letter # 10640-01-2-202110111800	N/A
7	Spoil Disposal approval- SDA 3 (Kobi)	Approved / Being Implemented	Approved on 28-12-2022. Letter # N 21/8291	N/A
8	Permit to use explosives	Approved / Being Implemented	Issued by the Ministry of Sustainable Development and Infrastructure - Permit N000310 01-10-2020	N/A
9	Construction permit	Approved / Being Implemented	Approved by Public Law Legal Entity Technical and Construction Supervision Agency - 6 - 11- 2019 #188-04	N/A
10	Batching Plant Layout Plan - Kobi	Approved / Being Implemented	Approved on 11-10- 2021 by letter # 10640-01-2-202110111800	N/A
11	Batching Plant Layout Plan - Tskere	Approved / Being Implemented	The Layout Plan approved by MoEPA on 18.03.22.	N/A
12	Emissions of hazardous substances in to ambient air from stationary sources for batching plant - Kobi BP	Approved / Being Implemented	Approved for Kobi site - N 14248/01, 31.12.2021	N/A
13	Emissions of hazardous substances in to ambient air from stationary sources for batching plant - Tskere BP	Approved / Being Implemented	Approved on 27.05.22.	N/A
14	Emissions of hazardous substances in to ambient air from stationary sources for Crusher - Kobi side	Approved / Being Implemented	Approved with Crusher Screening.	N/A
15	Waste Management Plan	Approved / Being Implemented	Approved by MoEPA in March 17, 2021 Updated and approved on 14-05-24.	N/A
16	Maximum Permissible discharges of Pollutants discharged to Surface Water Tunnel #5 Water and Car washing Facility	Approved / Being Implemented	Approved on 10-12-2021 by MoEPA.	N/A
17	Maximum Permissible discharges of Pollutants discharged to Surface water	Approved / Being Implemented	Approved. STP screening document, covering permit	N/A

	for Sewage Water - Kobi Campsite		on MPDP, by MoEPA on 01.06.22.	
18	Maximum Permissible discharges of Pollutants discharged to Surface water for Sewage Water - Tskere Campsite	Approved / Being Implemented	Approved STP screening document, covering permit on MPDP, by MoEPA on 24.05.22.	N/A
19	Water extraction from River Baidara for Batching Plant - Kobi	Approved / Being Implemented	Approved by MoEPA on 23.05.22.	N/A
20	Water extraction for TBM	Approved / Being Implemented	Approved on 25-11-2022	N/A
21	Water extraction for Camp in Kobi	Approved / Being Implemented	approved 10-05-2021	N/A
22	Water extraction for Crusher in Kobi	Approved / Being Implemented	Approved 10-05-2021	N/A
23	Water extraction for Tskere Camp	Approved / Being Implemented	Approved. 10-05-2021	N/A
24	Water extraction for Tskere Batching Plant	Approved / Being Implemented	Approved 10-05-2021	N/A
25	Quarry # 1 Kobi	Approved / Being Implemented	CC got the license from Kobi quarry Operator 10-10-2019Add	N/A
26	Quarry # 2 Kobi	Approved / Being Implemented	27-07-2022	N/A
27	Explosive Storage Area - Kobi	Approved / Being Implemented	CC got approval from MoEPA. 13-07-2021	N/A
28	Explosive Storage Area - Tskere	Approved / Being Implemented	Approved CC got approval from HACHP and local municipality. 21-10-2022	N/A
39	Re-cultivation Plan - Tskere	Approved	Approved 11-09-2022	N/A
40	Re-cultivation Plan - Kobi	Approved	14-02-2022	N/A

Table 23B: Updated Status for the National Permits/ Approval from MoEPA and other Relevant Authorities for Lot 2

#	Item	Current Status	Approval date	Comment
1	Campsite Layout Plan #1	Approved / Being Implemented	The layout plan was approved on 16.03.22 by MoEPA.	N/A
2	Campsite Layout Plan #2	Approved / Being Implemented	The layout plan was approved on 10.03.22 by MoEPA.	N/A

3	Campsite Layout Plan #3	Approved / Being Implemented	Approved by MoEPA on 30.05.22.	N/A
4	Forest use agreement	Approved / Being Implemented	Approval granted for RoW and Access roads. The tree cutting permit No 11/67971, No 11/66281, 2598/S 21-11-2019	N/A
5	Approval of construction or upgrade activities	Approved / Being Implemented	Obtained from Dusheti Municipality for construction/upgrade of access roads. 25-12-2019	N/A
6	Transportation permit	Approved / Being Implemented	Approved 22-07-2020	For TBM not applicable to Lot 2
7	Spoil disposal approval – SDA #1 Environmental Decision - Plateau	Approved / Being Implemented	Approved by MoEPA on 28-09-2021	N/A
8	Spoil disposal approval – SDA #2 Environmental Decision - Plateau	Approved / Being Implemented	Approved by MoEPA on 25.02.22.	N/A
9	Spoil disposal approval – SDA #3 Environmental Decision (covers two areas 0.4 km and 0.8 km approval (Kvesheti)	Approved / Being Implemented	Approved on 07.04.22.	N/A
10	Environmental Decision	Approved / Being Implemented	Approved by MoEPA 25-04-2019 Order # 2354	N/A
11	Construction permit	Approved / Being Implemented	Approved by Public Law Legal Entity Technical and Construction Supervision Agency - 6 -11- 2019 #188-04	N/A
12	Batching Plant Layout Plan #1	Approved / Being Implemented	Approved by MoEPA on 18-11-2021.	N/A
13	Batching Plant Layout Plan #2	Approved / Being Implemented	The layout plan was approved on 10.03.22 by MoEPA.	N/A
14	Batching Plant Layout Plan #3	Approved / Being Implemented	Approved by MoEPA on 30.05.22.	N/A
15	BP# 1 - Emissions of hazardous substances in to ambient air from stationary sources for batching plant	Approved / Being Implemented	Approved by MoEPA by Permit # N 13163/01 dated: 15/12/2021.	N/A
16	BP# 2 Emissions of hazardous substances in to ambient air from stationary sources for batching plant	Approved / Being Implemented	Approved 26-09-2022	N/A

17	BP# 3 Emissions of hazardous substances in to ambient air from stationary sources for batching plant	Approved / Being Implemented	Approved 20-07-2022	N/A
18	Waste Management Plan	Approved / Being Implemented	- Approved by MOEPA On 05-07-2021 - The updated version, which also covers the Gudauri bypass, was approved on 14.06.2024	N/A
19	Camp 1 Maximum Permissible discharges of Pollutants discharged to Surface Water	Approved Screening documents for biological treatment approved	25-11-2022	N/A
20	Camp 2 Maximum Permissible discharges of Pollutants discharged to Surface Water	Approved	Screening documents for biological treatment approved. 16-09-2022	N/A
21	Camp 3 Maximum Permissible discharges of Pollutants discharged to Surface Water	Approved Screening documents for biological treatment approved;	13-09-2022	N/A
22	TUN# 1 Maximum Permissible discharges of Pollutants discharged to Surface Water	Approved	September 2023	N/A
23	Surface Water extraction for BP #1	Approved	29-07-2022	N/A
24	Surface Water extraction for BP #2 and Campsite #2	Approved	25-10-2022	N/A
25	Quarries Mleta quarry Quarry Near parking area)	Approved / Being Implemented	Permit # 1088 dated: 28-09-2020 by Ministry of Economy Permit # 10001723 dated : 01-10-2022	N/A
26	Explosive Storage Area	Approved / Being Implemented	Construction permit obtained on 21-06-2021 from Dusheti Municipality. Permit to use explosive from Ministry of Economy and Sustainable Development on 30-06-2021.	N/A

245. The updated status for the approvals and permits from MoEPA and other relevant authorities as per requirement of National Legislation and requirement of the IEE of GARP is given in the Table 23C.

Table 23C: Updated Status for the National Permits/ Approval from MoEPA and other Relevant Authorities for GAR Project Lot 2

#	Item	Current Status	Comment	Actions
Pre-construction				
1	Waste Management Plan	Approved / Being Implemented	Approved from MoEPA 02-02-2024	N/A
2	Cultural Heritage Clearance	Approved / Being Implemented	The NACHP's General Action Plan includes CH clearance for Gudauri ARP. Updated on 26-09-2023	N/A
Construction				
3	Forest Use Agreement	Approved / Being Implemented	Forestry Agency issued the tree felling permit. 12-11-2023	N/A
4	Non-forest Land Use Agreement	Approved / Being Implemented	-	N/A
5	Re-cultivation Plan	Approved / Being Implemented	Approved on 11.04.24 by MoEPA	N/A
6	Approval of the Topsoil Storage	Approved / Being Implemented	Approved on 11.04.24 by MoEPA	N/A

6. GOOD PRACTICES

6.1 Good Practices

246. The following good practices were adopted by the Contractors for Lot 1 and Lot 2 during the reporting period.

Lot 1

- The contractor improved the access road to Mughure village by using the spoil material and providing the safe access.

Figure 34: Improving the access road to Village Mughure



- The contractor helped to open the E-117 road closed due to land sliding in Kobi

Figure 35: CRTG and PMCSC helped to remove land silide from E-117



- The contractor washed and cleaned the batching plant and campsite with water truck and cleaned the site by taking concrete waste from the washout pit in October 2025.

Figure 36: Washing of the Batching Plant- Kobi



- The contractor for Lot 1 provided cement and sand on local request to build the grave for his father.

Figure 37: Material provided by the CRTG to build grave.



- The contractor removing the snow from the access corridors at the construction campsite in Kobi.

Figure 38: Snow Removing Activities from the Access Corridors Within the Campsite, Kobi



- Access to Tunnel #5 at Kobi has been controlled through the installation of a surveillance camera system and a boom barrier, ensuring that only authorized personnel and vehicles can enter the tunnel area. This measure helps monitor movements, prevent unauthorized access, and improve overall site security.

Lot 2

-
- The contractor repaired the concrete washout pit at batching plant 2 and installed new grass filter.
- CC provided the guard rail along the highway E-117 in Kvesheti to avoid accidents.
-
- CC carried out the seasonal fish monitoring
- CC controlled the access to the bridge 2 for the unauthorized vehicles by installing the temporary gates at bridge 2 and Tunnel 1.
- The contractor has installed the necessary signs and safety barriers at the site.
- CC provided additional sedimentation tank to treat wastewater at batching plant 2

Figure 39: Practices Adopted by Contractor at Lot 2

	
Maintenance of Washout pit	Site cleaning
  	 
Installation of safety signs	

PMCS

- The PMCS Safeguard team is closely monitoring the site, especially CH staff present at the site all the time during the soil stripping and earthworks at the site and providing H&S trainings and toolbox talks.
- Two UBM field officers for environmental compliance monitoring — one for Lot-1 and one for Lot 2 are present on-site at all times to guide the Contractors respectively.
- Additionally, PMCS along with RD tracking the progress of resolving issues noted in the Environmental and Social Action Tracker, which is being prepared by ADB ESM, on a weekly basis.
- Reviewed and approved the Contractors' required plans and reports.
- PMCS CH experts are actively engaged in their work and are present during the land clearing activities and conduct regular visual inspection of the CH Sites located in the vicinity of the Project area

RD

- The RD safeguards team, led by the Deputy Chairperson, conducts regular site visits for compliance monitoring, coordinating with the PMCSC team and the Contractors safeguard teams. RD actively urge the Contractors to address all non-compliance issues in a timely manner.
- RD Environmental Specialists visiting the site on a regular basis and are thoroughly familiar with the issues present on-site. During the reporting period frequency of visits increased.
- RD's Health and Safety Consultant is permanently present at the worksites on a full-time basis, undertakes regular worksite inspections, tracks and revises the monthly H&S monitoring reports, checks the adequacy of corrective measures, provides necessary instructions and trainings to the Contractors.
- RD Environment safeguard team regularly monitoring all the activities at site, visiting the site, meeting with the contractors and sharing non compliance pictures on separate group and strict follow up for the monitoring. During reporting period, specifically, the issue related to STPs at Lot 2 was resolved due to RD environment safeguard team efforts.

7. SUMMARY AND RECOMMENDATION

7.1 Summary

247. During the reporting period, Lot 1 continued construction activities for the development of TUN 5, which includes both the main tunnel and the Emergency Gallery (EG). Excavation for both the main tunnel and the EG has been completed and cut-and-cover works are currently in progress at both portals. The dismantling of the Tunnel Boring Machine (TBM) has also been completed, and the contractor has temporarily stored the TBM components at SDA 1. Additionally, drainage works, construction of ventilation decks, and lining works for the Emergency Gallery are underway in Lot 1. During this period, Lot 1 completed the lining of the Emergency Gallery and finished constructing drains to divert tunnel water from the north portal to the Baidara River as per design specifications.
248. Lot 2, construction activities included the lining of Tunnel 1 and the Emergency Gallery for Tunnel 1. Additionally, completion works for Bridge 2 involved installing railings, provision of drainage system and paving the deck. Piling works were conducted for Bridge 3, while excavation activities took place for Tunnel 2 and Tunnel 4. The construction also included underpasses, culverts, and retaining walls, as well as rock filling for the embankment. Road compaction, pavement, and asphalt work were ongoing at several locations during the reporting period.
249. During the monitoring period, the contractor for Lot 2 continued earthworks along the Gudauri Access Road, constructing embankments, relocating utilities, and asphalt works. The process of stripping soil near the CH Site #10 was being closely monitored by the PMCSC's Cultural Heritage team.
250. In terms of workforce changes, Lot 1 experienced a reduction of 295 workers, while Lot 2 has a decrease of 78 workers during the reporting period. The worker distribution for Lot 1 consists of 33.2% national and 66.8% foreign workers, whereas Lot 2 has a distribution of 29.4% national and 70.6% foreign workers. In winter the Lot-2 contractor is demobilizing the staff on temporarily basis due to restricted access to the site and temporarily closure of work activities.
- .
251. Out of six hundred eighty-eight (688) issues during the project life, six hundred seventy- four (674) issues were closed and some of them were partially mitigated or corrective action in progress requiring further improvement. Table 9 shows the number of emerged and closed issues during the reporting period. Additionally, There are 5 issues pending from the previous reports identified by the PMCSC as mentioned in Table 8C for which resolution is in progress. Pending issues from previous reports include: (i) Lot 2 Contractor to divert the tunnel #1 water to the river by extending the pipe. (ii) Lot 1 Contractor is required to remove the subsoil from the heap of topsoil (iii) Lot 1 Contractor needs to remove the scrap and hazardous material from the scrap yard (iv) handling of the used containers and used tyres by the Lot 1 contractor (v) Lot-1 contractor must remove the used tyres and waste material from behind the segment plant.
252. Tunnel water at the south portal of tunnel 5 was clean after the completion of the tunnel lining. However, due to the temporary diversion of water during the construction of the cut-and-cover section, the water carried rock sediments and turned grey. The contractor is required to regularly clean the water channel and sediment pond to effectively manage turbidity.

253. The contractor has constructed an asphalt road on the SDA 1 for traffic diversion to facilitate the building of the junction in Kobi for both the old road and the new alignment and has installed road safety signs. Additionally, the contractor has maintained regular cleaning of the camp, with municipal trucks transporting waste in a timely manner. Snow removal from access corridors has also been implemented.
254. In Kobi, the contractor has consistently cleaned the sedimentation ponds and pits to effectively treat the water from the tunnel and batching plant. . Furthermore, the crushing plant in Kobi was not operational in December; however, during the reporting period, the contractor continued to clean the sedimentation ponds to manage the water mixed with clay from the crushing operations. The unauthorized discharge of the wastewater from the crushing plant to Tergi river remained issue during the reporting period and close monitoring is ongoing to control the unauthorized discharge of turbid water.
255. Regarding topsoil preservation, the contractor is required to prevent damage to topsoil in Tskere and Kobi due to construction activities near the heaps of topsoil. There has been no noticeable progress in rehabilitation or recultivation works for SDA 3. The contractor needs to initiate rehabilitation efforts for the SDA, which should include leveling, drainage provision, retaining wall construction, and grass seeding.
256. For Lot 2, at Bridge #6, the contractor has fenced the site at CH 28; however, they need to remove the boulders to restore access for the maintenance incase of accidental damage. Additionally, due to the contractor's negligence, some boulders have fallen into the Khada River and need to be cleared. The temporary bridge must also include guardrails.
257. The contractor has taken measures to resolve sewage and drainage issues, particularly at Camp 2 and Camp 3. A cesspool truck was also called in to collect sewage from the septic tank at Camp 2.
258. The contractor has provided the necessary safety signs and lighting on E-117 in Kvesheti. They have completed the guardrails on the bridge and maintained the gates at the entrance of Bridge 2 from E-117 and the exit of Tunnel 1 to prevent unauthorized entry onto Bridge 2. The contractor provided necessary safety signs.
259. CC has cleaned the washout pits at the batching plants and installed new grass filters for effective treatment of washout from the transmixer trucks at Batching Plant 2.
260. The contractor is required to clean the drainage channels along the road, address the issues at Bridge 6, repair the damaged drinking water pipe near the Bedoni filling area, collect oil spills and used drums from the site, complete the drainage network for Tunnel 1, and monitor the slopes near Bridge 2 and the entrance to Tunnel 1. Additionally, the contractor for Lot 2 is required to conduct regular water sprinkling in the Khada Valley during dry and windy days. They must also monitor the slopes, particularly near Bridge 2.
261. For Lot 2, the Contractor carried out fish monitoring in August 2025 and November 2025 in the Khadistskali and Aragvi Rivers. Fish monitoring was conducted at six locations by an independent ichthyologist. Caspian trout (*Salmo caspius*) were observed during the survey and are widely distributed in the upper basin of the Tetri Aragvi River and its tributaries. Recent field studies in this river basin have recorded trout, indicating that they are likely to inhabit the project area year-round and spawn there. A total of fifteen trout individuals were recorded in the project area during

November 2025, and eight were recorded in August 2025. The area near Bedoni village along the Khada River is significant for the fish population in the Khadistskali River. In addition to that the contractor installed one camera in Khada valley at the top of the Tunnel 3 exit to record the movement wild animals.

- 262. Both Contractors regularly conducted instrumental monitoring for air, noise, water, and vibration.
- 263. Out of the 24 issues highlighted for both Lots (nine issues for the Lot 1 contractor and fifteen issues for the Lot 2 contractor), during the reporting period by the ADB ESM, 11 issues have been resolved (four for the Lot 1 contractor and seven for the Lot 2 contractor), while 13 issues remain outstanding (five for the Lot 1 contractor and eight for the Lot 2 contractor).
- 264. Regular site visits were conducted by the ADB and RD safeguard teams, including visits during the ADB Safeguard Mission in October 2025.

7.2 Recommendations

- 265. Both contractors are recommended to improve the progress in resolving the current outstanding safeguard issues and to ensure proactive planning of future activities ensuring alignment with safeguard requirements and obtaining approval from PMCSC prior to start of new activities.
- 266. The Table 24 presents all outstanding issues/non-compliances identified during the reporting period (July – December 2025) and pending issues from the previous monitoring report(s), as well as the recommended mitigation measures which contractors are required to adopt in the 1st and 2nd quarter of 2026 to meet the requirements furnished in the EMP and conditions of the contract.

Table 24: Summary of Recommendations and Responsibilities

Recommendations for Lot 1 and Lot 2 for Q1 and Q2 of 2026	Responsibility
Lot 1	
Contractor should improve the write up for the Monthly progress report.	CC for Lot# 1 to implement and PMCSC to monitor
The contractor to find out the source and location of the contamination of tunnel water, occurring intermittently at the south portal and take the relevant corrective actions	CC for Lot# 1 to implement and PMCSC to monitor
The Contractor should submit plan for the management of tunnel water in Tskere.	CC for Lot# 1 to implement and PMCSC to monitor
The Contractor should start separating the topsoil from the subsoil immediately in Tskere and prevent the topsoil to be damaged due to construction of the tunnel water drain in Kobi.	CC for Lot# 1 to implement and PMCSC to monitor
The Contractor should start the reshaping activities of the SDA 3 activities and construction of the drainage system and retaining structures. additionally plan to rehabilitate SDA 1 also.	CC for Lot# 1 to implement and PMCSC to monitor
The Contractor must receive written confirmation of an acceptance for spoil disposed on request of the local municipality at the state property in SDA 2	CC for Lot# 1 to implement and PMCSC to monitor
Clean the crushing plant and Tskere sedimentation plants on regular basis.	CC for Lot# 1 to implement and PMCSC to monitor
Call the third party for collection of scrap, tires, and leftover hazardous material	CC for Lot# 1 to implement and PMCSC to monitor
Call the company to take stray dogs as population is increasing in Kobi and Tskere Camps	CC for Lot# 1 to implement and PMCSC to monitor

Regular cleaning of concrete washout pits, sedimentation ponds and change of absorbents to treat tunnel water in Tskere and Kobi	CC for Lot# 1 to implement and PMSC to monitor
Regular cleaning of the septic tank in Kobi and call the cesspool truck to deliver the sewage.	CC for Lot 1 to implement and PMSC to monitor
Regular cleaning of campsites in Tskere and Kobi and delivering the waste to the municipality. Waste should not be overflowing from the containers.	CC for Lot# 1 to implement and PMSC to monitor
Continue Tunnel gas monitoring on regular basis in main tunnel as well as EG.	CC for Lot# 1 to implement and PMSC to monitor
All the vehicles should be washed at washing area in Kobi near sedimentation ponds and no vehicle washing allowed in main tunnel.	CC for Lot# 1 to implement and PMSC to monitor
Carry out the tunnel water monitoring both in Tskere and Kobi at the exit of the tunnel to check the tunnel water quality.	CC for Lot# 1 to implement and PMSC to monitor
Improve the lighting in Tunnel 5 to avoid traffic accidents.	CC for Lot# 1 to implement and PMSC to monitor
Collect all the oil spills from the maintenance workshop and treat them as hazardous waste.	CC for Lot# 1 to implement and PMSC to monitor
Contractor to maintain security arrangement to restrict the public cars entrance in the tunnel during road closures in winter.	CC for Lot# 1 to implement and PMSC to monitor
CC to monitor and repair the unstable slope at both the portal while working near the tunnel portals.	CC for Lot# 1 to implement and PMSC to monitor
Regular water sprinklings required at the access roads in Kobi and E-117 during dry and windy season.	CC for Lot# 1 to implement and PMSC to monitor
Continue ground water level monitoring on quarterly basis both in Tskere and Kobi	CC for Lot# 1 to implement and PMSC to monitor
Remove snow from the walkways and access road to be used in the winter Q1.	CC for Lot# 1 to implement and PMSC to monitor
Submit the MSDS for any new material to be used and this should be available at the site all the time.	CC for Lot# 1 to implement and PMSC to monitor
Improve housekeeping and regular waste collection from the municipality containers to avoid overflowing of the waste both in Kobi and Tskere.	CC for Lot# 1 to implement and PMSC to monitor
Fencing of the sediment pits and all other ditches or excavated areas creating the risk of fall.	CC for Lot# 1 to implement and PMSC to monitor
Ensure the implementation of all agreed corrective actions following the fatal accident in Tskere.	CC for Lot# 1 to implement and PMSC to monitor
<i>Recommendations of ADB ESM</i>	
Remove the spoil from the topsoil stockpile under the supervision of PMSC Environmental Field Officer in Tskere.	CC for Lot# 1 to implement and PMSC to monitor
Install durable, stable fencing around the full perimeter of the sedimentation tanks in Tskere to prevent unauthorized or accidental access;	CC for Lot# 1 to implement and PMSC to monitor
Repair/replace the non-operational ambulance at the Kobi camp; (ii) ensure continuous medical coverage and emergency preparedness at both Kobi and Tskere worksites.	CC for Lot# 1 to implement and PMSC to monitor
The Lot 1 Contractor is recommended to: (i) Remove waste from the Tunnel #5 South Portal worksite and the campsite, ensure proper segregation, and store it appropriately prior to final disposal in accordance with the Waste Management Plan; (ii) Conduct a refresher TBT for personnel in Tskere village on waste management requirements.	CC for Lot# 1 to implement and PMSC to monitor

Obtain the letter of acceptance for the spoil dumped in the ex-spoil disposal area 2 in Kobi.	CC for Lot# 1 to implement and PMCSC to monitor
The Lot 1 Contractor is recommended to collect all waste from in and around the campsite in Tskere and dispose of it in accordance with the requirements outlined in the Waste Management Plan.	CC for Lot# 1 to implement and PMCSC to monitor
The Lot 1 Contractor is recommended to fence off the sedimentation ponds at the Rock Crusher site in Kobi village.	CC for Lot# 1 to implement and PMCSC to monitor
The Lot 1 Contractor is recommended to remove the concrete test cubes and any other waste materials from the bank of the Narvani River, as well as from the outer perimeter of the Kobi campsite, to ensure proper site cleanliness and prevent environmental contamination.	CC for Lot# 1 to implement and PMCSC to monitor
Lot 2	
The contractor should complete the drainage system for the tunnel water as per design at tunnel 1 entrance and extend the drainage up to the river Aragvi.	CC for Lot# 2 to implement and PMCSC to monitor
The contractor to restore the excess to the CH 28.	CC for Lot# 2 to implement and PMCSC to monitor
Improve the housekeeping at the site	
The contractor to remove the boulders from Khada river for smooth flow of the river at Bridge 6 worksite	CC for Lot# 2 to implement and PMCSC to monitor
The contractor to arrange the guard rail at the access bridge on Khada River at bridge 6.	CC for Lot# 2 to implement and PMCSC to monitor
The contractor to restore the washout pit at BP 3 and arrange the safety rail.	CC for Lot# 2 to implement and PMCSC to monitor
The contractor to take out the rock pieces from the road drainage at plateau.	CC for Lot# 2 to implement and PMCSC to monitor
The contractor to remove the waste from the slopes at the entrance of the tunnel 1.	CC for Lot# 2 to implement and PMCSC to monitor
The contractor to remove the diesel container and used oil containers at camp 3.	CC for Lot# 2 to implement and PMCSC to monitor
Carry out the regular maintenance of the STPs at all the campsites	CC for Lot# 2 to implement and PMCSC to monitor
The contractor to closely monitor the flow of water under the Bedoni filling area and complete the pipe net work for smooth flow in to the khada river.	CC for Lot# 2 to implement and PMCSC to monitor
The contractor to repair the drinking water supply pipe near Bedoni filling area.	CC for Lot# 2 to implement and PMCSC to monitor
Cover the used tyres with tarpuline placed in the parking area.	CC for Lot# 2 to implement and PMCSC to monitor
Collect oil spills at the BP 1 and placed the generator in the drip.	CC for Lot# 2 to implement and PMCSC to monitor
Arrange the spoil disposal area for the spoil to be generated in Khada valley to handle spoil around 0.72 million.	CC for Lot# 2 to implement and PMCSC to monitor
The contractor to arrange the access to the topsoil storage area in Plateau.	CC for Lot# 2 to implement and PMCSC to monitor
Maintain safety warning signs all the time at the construction sites.	CC for Lot# 2 to implement and PMCSC to monitor
CC to submit the monthly Environment and Social Monitoring reports and instrumental monitoring reports on monthly basis.	CC for Lot# 2 to implement and PMCSC to monitor
Monitoring the week slopes around all the bridges, worksites and access roads.	CC for Lot# 2 to implement and PMCSC to monitor

Regular water sprinkling on all the access roads according to dust management plan during Q 2.	CC for Lot# 2 to implement and PMCSC to monitor
Flagmen should be performing their duty actively for the smooth flow of traffic on E-117.	CC for Lot# 2 to implement and PMCSC to monitor
The contractor to clean the whole construction sites on monthly basis.	CC for Lot# 2 to implement and PMCSC to monitor
Closely monitor the topsoil stockpiles for damage to topsoil during rainy season.	CC for Lot# 2 to implement and PMCSC to monitor
Monitor all the STPs for the leakage and repair STPs and outlet pipes immediately when required.	CC for Lot# 2 to implement and PMCSC to monitor
Take strict measure to avoid rock mass / boulders movement to block the access road 1 at bridge 3.	CC for Lot# 2 to implement and PMCSC to monitor
Call the Medical Technology to take all the left-over hazardous material including the used oil, contaminated soil, used tires, plastic containers and other scrap material.	CC for Lot# 2 to implement and PMCSC to monitor
Provide the secondary containments/ drip trays to all the Generator at all sites.	CC for Lot# 2 to implement and PMCSC to monitor
CC to start rehabilitation of SDA #1 according to Spoil disposal management plan by fixing the height and completing the drainage channel and revegetation of the area.	CC for Lot# 2 to implement and PMCSC to monitor
<i>Recommendations of ADB ESM</i>	
The Lot 2 Contractor is required: (i) to repair the plumbing system in the toilets and bathroom of the Campsite #3; (ii) to ensure the wastewater is diverted to the STP for proper treatment prior to final discharge; (iii) to clean the drainage channel from the sewage.	CC for Lot# 2 to implement and PMCSC to monitor
Naer bridge 6 the Lot 2 Contractor is recommended to: (i) remove spoil from the Khadistskali riverbed under UBM supervision; (ii) restore the affected river section and prevent further dumping.	CC for Lot# 2 to implement and PMCSC to monitor
Establishing first-aid stations in Khada Valley (Campsite #3) and Didveli Plateau (Campsite #2 or Bridge #3 facilities), in addition to the existing facility at Arakhveti campsite and ensure presence of medical personnel there.	CC for Lot# 2 to implement and PMCSC to monitor
At Bridge 2, UBM is recommended to conduct a structural inspection of the bridge and ensure that the Lot 2 Contractor immediately undertakes stabilization or reconstruction of the damaged span.	CC for Lot# 2 to implement and PMCSC to monitor
At bridge 2 the Lot 2 Contractor should install safety barriers and warning signs, and the bridge must remain closed to all traffic until its structural safety is confirmed	
The Lot 2 Contractor is recommended to remove the damaged dump truck from the Khada Road to either the designated Truck Parking and Maintenance Area or the nearest worksite, and ensure all operational trucks are in good working condition.	CC for Lot# 2 to implement and PMCSC to monitor
The Lot 2 Contractor is advised to take the following corrective actions: 1. Demarcate the Bedoni spoil dumping area to ensure all activities are carried out within the approved footprint as per the Spoil Management Plan. 2. Avoid excessive spoil stockpiling by spreading the material evenly across the designated area. This will help maintain clear visibility, particularly in front of nearby residential houses. 3. Remove spoil deposited against tree trunks and install protective	CC for Lot# 2 to implement and PMCSC to monitor

fencing around the trees to prevent further damage to their root systems and ensure their preservation. 4. Revise the Management Plan to include specific mitigation measures for the protection of the groundwater stream identified on-site. The revised plan should be submitted to UBM for approval, and all approved mitigation measures must be fully implemented. Additionally, UBM Environmental Specialists are recommended to strengthen oversight of spoil management activities and ensure that all environmental mitigation measures are properly enforced in accordance with the approved Management Plan.	
For the slope below the BR #3 (positive direction): 1. Provide the erosion control measures on the impacted slope, e.g. provide the drainage water diversion channel on the upper part and on both sides of the impacted slope, to avoid erosion of the adjacent parts of the slope; 2. Reinstate the impacted area during the final reinstatement works.	CC for Lot# 2 to implement and PMCSC to monitor
At Access Road #3, remove the construction material (concrete pipes) and discarded tires to the designated area within the project footprint on Didveli Plateau.	CC for Lot# 2 to implement and PMCSC to monitor
Remove the dump trucks and excavator from the private land opposite the BP #2 on Didveli Plateau.	CC for Lot# 2 to implement and PMCSC to monitor
Tunnel 1 Entrance, the Lot 2 Contractor is recommended: (i) to reinstall the tunnel water sedimentation pond to ensure treatment of tunnel water, and (ii) reinstall the water discharge pipes to avoid erosion and degradation of forest land.	CC for Lot# 2 to implement and PMCSC to monitor

ANNEXES

Annex 1: Project Pictures

Pictures	Description
	Abandoned sedimentation ponds in Kobi, Tunnel water diverted to Baidara river as per design. December 2025
	Cleaning of the Parking area Lot 2 September 2025
	Workers removing snow from the Kobi Camp December 2025

	Plastic containers covered with sheet behind segment plant October 2025
	South Portal Tunnel 5 December 2025
	Turbed water coming out of the tunnel south portal December 2025

 A photograph showing a person in a dark jacket and blue jeans kneeling in a snowy field, installing a white signboard on a wooden post. In the background, there is a large, dark, rectangular structure made of metal or wood, possibly a temporary storage area for materials. The ground is covered in snow with some patches of brown earth visible.	UBM staff installing the signboard at temporary material storage area in Begoni village. November 2025
 A photograph of a snowy, icy access road. A temporary fence made of red and white striped poles and red plastic tape is installed along the edge of the road. In the background, a yellow crane or similar construction equipment is visible on a higher level of the road or embankment.	Temporary fence installed on access road near bridge 6 December 2025
 A photograph showing a view of a tunnel entrance. The foreground is a rocky, brownish area with some snow. In the middle ground, there is a concrete structure that appears to be the entrance to a tunnel. The background shows a steep, snow-covered mountain slope under a clear sky.	A view of Tunnel 4 December 2025

 A photograph showing a long, low, light-colored building with a corrugated metal roof. A dirt road runs alongside the building, and a drainage pipe is visible in the foreground. Snow-capped mountains are in the background under a blue sky.	Camp 3 Lot 2 drainage system maintained after ground failure November 2025
 A photograph of a drainage pipe running along a steep, rocky hillside. The pipe is dark and appears to be made of metal or plastic. The ground is dry and rocky, with some sparse vegetation.	Bear foot print near STP 3 December 2025

	Vehicle protection from falling object under bridge 3 December 2025
	Pipe to drain the water across village Bedoni December 2025
	Bedoni filling area December 2025

	A view of Parking Area Lot 2 December 2025
	A view of road construction on Didveli Plateau December 2025
	Bridge 3 ongoing construction December 2025

		Animal Corridor Near Zakatkari village December 2025
		Gudauri Access road near Setrubi village December 2025
		Slope to be stabilized near bridge 2 December 2025

		Drainage channel to be cleaned out from the rock pieces December 2025
		New drainage channel as per design to drain Kobi Tunnel water December 2025
		Washing of the corridor of engineer residences. November 2025

Annex 2: Instrumental Monitoring Test Results

(Sample reports only for vibration and instrumental monitoring for air, noise water. Summary of results for all the reports is in the section 4.1)

Environmental Monitoring Report : Lot 1 (September 2025)



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1. General Information

Project number: #110925

Date of the monitoring: 11.09.2025

Gergili LLC team undertakes monthly monitoring services for ambient air quality, noise, and water quality monitoring on Kvesheti-Kobi highway construction.

LLC Gergili is a subcontractor of China Railway Tunnel Group Co., Ltd. Branch In Georgia (CRTG) and is responsible for execution of monitoring works and preparation of monthly reports for the environmental instrumental monitoring for the Kvesheti-Kobi highway construction project, which includes following:

- Atmospheric Air Pollution (NO₂, SO₂, CO, Dust)
- Water (Surface water, ground water, sanitary sewage water...)
- Noise Level
- Vibration

This report represents the results of the monitoring activities performed by Gergili team in September, 2025. Davit Dabrundashvili (Sampler) from Gergili team and from CRTG – Vince Wenzhao Zhang (HSE Officer) participated in the monitoring.

The work was done according to the proposal prepared for Kvesheti-Kobi highway construction. The methodology and procedures follow international guidelines.

During the monitoring, the construction was in an active phase, all the technique was on and working. Therefore, the results of the monitoring activities represent the actual, full-scale impact of the construction activities on the environment.

Monitoring activities included ambient air monitoring of the following parameters: PM₁₀, PM_{2.5}, NO₂, SO₂, and CO concentrations, surface and ground water quality analysis, noise and vibration monitoring.

2. Description of the Performed Works

For September's monitoring, there were 5 different points for water quality. 4 points for surface water monitoring. measured parameters at both locations - Noise was measured at 2 locations: 1 point in Kobi and another point in the village of Tskere.

During the monitoring activities, Gergili team used Aeroqual Series 500 for ambient air monitoring (all parameters), water monitoring has not been done at the location, water was sampled and then analyzed in the lab. For noise monitoring, REED instruments 9300 was used. While, the vibration level was measured by REED instruments SD-8205.

The monitoring took place on 11th of September, 2025. In Kobi the weather was -14°C, in Tskere the weather was 14° C.



All the equipment was calibrated, cleaned, and tested for the field work.

Table 2.1 GPS coordinates of the monitoring points

#	Monitoring PointReference	Type Of Monitoring	E	N	Date
1	SWS #1	Surface Water	459160	4711681	11.09.2025
2	SWS#2	Surface Water	459256	4711930	11.09.2025
3	SWS #3	Surface Water	44°30'43.76"E	42°33'18.18"N	11.09.2025
4	SWS#4	Surface Water	459307	4711741	11.09.2025
5	GWS#1	Ground water	44°30'43.76"E	42°33'18.18"N	11.09.2025
6	AAS #1	PM2.5, PM10, CO, NO ₂ , SO ₂	459307	4711741	11.09.2025
7	AAS #2	PM2.5, PM10, CO, NO ₂ , SO ₂	459494	4711616	11.09.2025
8	NM #1	Noise (Kobi)	459943	4711826	11.09.2025
9	NM #2	Noise (Tskere)	44.535226	42.480379	11.09.2025



Figure 2.1. Monitoring Points on Kobi-Kvesheti Construction Site in September



Figure 2.2 Monitoring Points on Kobi-Kvesheti Construction Site in September





Figure 2.3 Monitoring Points in Village of Tskere Construction Site – September



Figure 2.4 Monitoring Points in Village of Beniani Construction Site – September





3. Water Quality Monitoring

3.1 Ground Water Monitoring - GWS-#1

The first sample of surface water was taken from the Ground water. A sterile bottle was used for sampling. Sampled water was transported to the lab for analysis. The volume of the water was – 5 liters.

The weather was 10°C, Cloudy weather.

The sampling time was – 10:15

Figure 3.1.1 GroundWater Quality Monitoring (SWS - #1)



Table 3.2.1 Results of Laboratory Analysis with Permissible Norms and Used Methods for SW-#1

Parameter	Measurement unit	Method used	Results	Maximum permissible limit according to ordinance #425
Organoleptic Parameters				
Color	Degrees	Gost 3351-74	0	not be observed in the water column
Physical-chemical Parameters				
pH	–	SST ISO 10523:2008/2010	6.57	6.5-8.5
TDS	mg/l	HACH's Manufacturer's instructions DOC 27253.80022	149	<1000
Turbidity	NTU	ISO 7027-1:2016	0.27	N/A
TPH	mg/l	Validated method GL-SOP Wch-73-G-19	0.17	≤0.3
Microbiological Parameters				
Total Coliforms	cfu/1 L	ISO9308-1:2014	310	≤10 000/ 1 L



3.2 Surface Water Sampling Point -SWS-#1

The first sample of surface water was taken from the river Tergi, approximately 150 meters above from the tunnel water discharge point. A sterile bottle was used for sampling. Sampled water was transported to the lab for analysis. The volume of the water was – 5 liters.

The weather was 11°C, Cloudy weather.

The sampling time was – 10:30

Figure 3.2.1 Upstream Water Quality Monitoring (SWS - #2)



Table 3.2.1 Results of Laboratory Analysis with Permissible Norms and Used Methods for SW-#1

Parameter	Measurement unit	Method used	Results	Maximum permissible limit according to ordinance #425
Physical-chemical Parameters				
pH	-	SST ISO 10523:2008/2010	6.91	6.5-8.5
Conductivity	mS/cm	SST ISO 7888:1985	0.510	≤0.3
Turbidity	NTU	ISO 7027-1:2016	65.90	N/A
TPH	mg/L	Validated method GL-SOP Wch-73-G-19	<0.05	≤0.3
Chemical Oxygen Demand (COD)	MgO/L	HACH Method LCK 214	0	≤30
Microbiological Parameters				
Total Coliforms	cfu/1 L	ISO9308-1:2014	580	≤10 000/ 1 L



3.3 Surface Water Sampling Point #2

Second sample of the surface water was taken from the same river Tergi, approximately 150 meters below the tunnel water discharge point. The team used the sterile bottle for sampling. The sample was taken in the lab for the analysis. The volume of the water was – 5 liters.

The weather was 12°C, Cloudy weather.

The sampling time was -11:30

Figure 3.3.1 Down Stream Water Quality Monitoring (SWS - #2)



Table 3.3.1 Results of the Laboratory Analysis with Permissible Norms and Used methods for SW-#2

Parameter	Measurement unit	Method used	Result	Maximum permissible limit according to ordinance #425
Physical-chemical Parameters				
pH	-	SST ISO 10523:2008/2010	6.83	6.5-8.5
Conductivity	mg/L	SST ISO 7888:1985	0.515	≤0.3
Turbidity	NTU	ISO 7027-1:2016	78.40	N/A
TPH	mg/L	Validated method GL-SOP Wch-73-G-19	<0.05	≤0.3
Chemical Oxygen Demand (COD)	MgO/L	HACH Method LCK 214	0	≤30
Microbiological Parameters				
Total Coliforms	cfu/1 L	ISO9308-1:2014	1400	≤10 000/ 1 L



3.4 Surface Water Sampling Point #3

Second sample of the surface water was taken from the same river Khadistskali, before the water discharge point. The team used the sterile bottle for sampling. The sample was taken in the lab for the analysis. The volume of the water was – 5 liters.

The weather was 13°C, Cloudy weather.

The sampling time was -12:25

Figure 3.4.1 Up Stream Water Quality Monitoring (SWS - #3)



Table 3.4.1 Results of the Laboratory Analysis with Permissible Norms and Used methods for SW-#3

Parameter	Measurement unit	Method used	Result	Maximum permissible limit according to ordinance #425
Physical-chemical Parameters				
pH	-	SST ISO 10523:2008/2010	7.13	6.5-8.5
Conductivity	mg/L	SST ISO 7888:1985	0.194	≤0.3
Turbidity	NTU	ISO 7027-1:2016	624	N/A
TPH	mg/L	Validated method GL-SOP Wch-73-G-19	<0.05	≤0.3
Chemical Oxygen Demand (COD)	MgO/L	HACH Method LCK 214	0.00	≤30
Microbiological Parameters				
Total Coliforms	cfu/1 L	ISO9308-1:2014	3000	≤10 000/ 1 L



3.5 Surface Water Sampling Point #4

Second sample of the surface water was taken from the same river Khadistskali, approximately 150 meters after the water discharge point. The team used the sterile bottle for sampling. The sample was taken in the lab for the analysis. The volume of the water was – 5 liters.

The weather was 13°C, Cloudy weather. The sampling time was -12:35

Figure 3.5.1 Down Stream Water Quality Monitoring (SWS - #4)



Table 3.5.1 Results of the Laboratory Analysis with Permissible Norms and Used methods for SW-#4

Parameter	Measurement unit	Method used	Result	Maximum permissible limit according to ordinance #425
Physical-chemical Parameters				
pH	-	SST ISO 10523:2008/2010	7.11	6.5-8.5
Conductivity	mg/L	SST ISO 7888:1985	0.217	≤0.3
Turbidity	NTU	ISO 7027-1:2016	892	N/A
TPH	mg/L	Validated method GL-SOP Wch-73-G-19	<0.05	≤0.3
Chemical Oxygen Demand (COD)	MgO/L	HACH Method LCK 214	15.20	≤30
Microbiological Parameters				
Total Coliforms	cfu/1 L	ISO9308-1:2014	1920	≤10 000/ 1 L



3.6 Conclusion

In the water samples taken on September 11th, 2025, according to Resolution #425, the level of water pollution in the current month in Kobi Up stream water conductivity exceeds the limit **0.510**. Kobi Down stream water conductivity also exceeds the limit **0.515**.

4. Air Quality Monitoring

Ambient air monitoring is an integral part of an effective air quality management system. The purpose of air quality monitoring is to study if an area has an air pollution problem and how construction works affect the air quality, which can lead to negative impacts on the environment, working personnel and the local population in close proximity of the works. Monitoring helps in assessing the level of pollution in relation to the ambient air quality standards.

Table 4.1.1 Dust Particles; Carbon Monoxide (CO); Nitrogen Oxides (NO₂) and Sulfur Oxides (SO₂) Concentration Permissible Limits

Parameter	Time Interval	Maximum Permissible Concentration $\mu\text{g}/\text{m}^3$	National limit for Human Rights of Health –MPC, $\mu\text{g}/\text{m}^3$	IFC/WHO (updated 2016) –guideline value, $\mu\text{g}/\text{m}^3$	EU Air Quality Standards, Permitted Exceedences Per Year $\mu\text{g}/\text{m}^3$
PM 2.5	1 hr	25		25	
	1 year	10	12-17	10	25 / n/a
PM 10	1 hr	50		50	
	24 hrs	50	25-35		50 / 35
	1 year	20	20-28	20	40 / n/a
CO	8 hour mean	10	5-7		1000
NO ₂	1 hour	200	35-140	200	200 / 18
	1 year	40	26-32	40	40 / n/a
SO ₂	1 hour	350	350	500	350 / 3
	24 hrs	125	5	20	125 / 24
	1 year	500			



4.1 Air Monitoring Point -AAS #1

Air monitoring point is located near the factory. At this location, carbon monoxide and particulate matter concentrations were evaluated.

During the AQ monitoring in Kobi, there was only heavy vehicle movement around the monitoring point, about 10-20 meters away.

The monitoring time was – 11:45

The weather was 12°C, Cloudy weather.

Figure 4.1.1 Air Quality Monitoring Point in Kobi (AAS- #1)



In order to evaluate dust particle concentration in the air, the team used Aeroqual Series 500, which includes PM10, PM2.5 sensors. The specific sensor is calibrated and tested for its accuracy and precision. CO concentration was also evaluated using Aeroqual series 500, with specific CO sensor, which is also calibrated and tested.

Table 4.1.1 #AAS-#1 Dust Particles; Carbon Monoxide (CO); Nitrogen Oxides (NO₂) and Sulfur Oxides (SO₂) monitoring results (µg/m³)

Parameters	Minimum	Maximum	Average value of measurements	Methods used
Wind speed and wind direction in the AQ monitoring in Kobi was – 0.2 m/s, from west to east.				
PM 10	0.004	0.024	0.011	Aeroqual SERIES500-PM Sensor
PM 2.5	0.001	0.002	0.001	Aeroqual SERIES500-PM Sensor
CO	9.5	10.6	9.6	Aeroqual SERIES500-CO Sensor
NO₂	0.0	0.0	0.0	Aeroqual SERIES 500-NO ₂ Sensor
SO₂	0.0	0.0	0.0	Aeroqual SERIES500-SO ₂ Sensor



4.2 Air Monitoring Point in the village of Tskere #AAS-#2

Air monitoring 2 point is located in Tskere settlement. At this location, Dust Particles; Carbon Monoxide (CO); Nitrogen Oxides (NO₂) and Sulfur Oxides (SO₂) were monitored. For these measurements, the device (Aeroqual SERIES 500) was working for 1 hour to the parameters.

During the AQ monitoring in Tskere, there were heavy vehicles around the monitoring point, about 70-80 meters away.

The monitoring time was- 12:09, The weather was 14°C, Cloudy weather

Figure 4.2.1 Air Monitoring Point in the village of Tskere #AAS-#2



Table 4.2.1 #AAS-#2 Dust Particles; Carbon Monoxide (CO); Nitrogen Oxides (NO₂) and Sulfur Oxides (SO₂) monitoring results (µg/m³)

Parameters	Minimum	Maximum	Average value of measurements	Methods used
Wind speed and Wind direction in the AQ monitoring in Tskere was – 0.4 m/s, From west/south to north/east.				
PM 10	0.005	0.012	0.007	Aeroqual SERIES 500-PM Sensor
PM 2.5	0.003	0.004	0.003	Aeroqual SERIES 500-PM Sensor
CO	3.1	3.7	3.5	Aeroqual SERIES 500-CO Sensor
NO₂	0.0	0.0	0.0	Aeroqual SERIES 500-NO ₂ Sensor
SO₂	0.0	0.0	0.0	Aeroqual SERIES 500-SO ₂ Sensor



4.3 Conclusion

The results of the air quality monitoring conducted on September 11th, 2025, carried out with the AEROQUAL 500 SERIES monitor in the villages of Tskere and Kobi, according to the above standards, the quality of air pollution in the current month does not exceed the permissible norms.



5. Noise Level Monitoring

Optimal Limits of Noise Level. These limits are based on IFC guidelines

Recipient status	Time interval	The average permissible norm of noise (dB)	Maximum permissible norm of noise (dB)
Populated area	7:00-23:00	55	70
Populated area	23:00-7:00	45	60
Industrial; Commercial	Day-Night	60	75

Noise level was determined at 2 locations - NM#1, NM#2, in Kobi and in the village of Tskere. The purpose of noise level monitoring is to determine how construction works affect the population. The noise level was determined using REED instruments 9300 (417 Sound Level).

5.1 Noise Level Monitoring first point – NM#1

The Monitoring time in Kobi was 10:55

The weather was 11°C, Cloudy weather.

In Kobi, the distance of the monitoring point from the noise source was 100 meter to main highway, 100 meter to living camp, 600 meter to batching plant and 3 kilometers to tunnel. During noise monitoring, heavy vehicles were moving around the monitoring point in Kobi.

Figure 5.1.1 Noise (NM#1) Monitoring Point in Kobi





Table 5.1.1 Noise (NM#1) Monitoring Results in Kobi

Different Parameters of NoiseLevel	Result (dB)
LAF _{max}	58.6
LAF _{min}	52.4
LAF_{av}	55.5

5.2 Noise Level Monitoring second point – NM#2

The monitoring time in Tskere was – 12:15

The weather was 14°C, Cloudy weather.

During the noise monitoring there were heavy vehicles around the monitoring point about 70-80 meter away.

Figure 5.2.1 Noise (NM#2) monitoring 2 point



Table 5.2.1 Noise (NM#2) Monitoring Results in the village of Tskere

Different Parameters of NoiseLevel	Result (dB)
LAF _{max}	54.2
LAF _{min}	48.6
LAF_{av}	51.4

LLC Gergili

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5.3 Conclusion

The results of the noise level monitoring conducted on September 11th, 2025, in the villages of Tskere and Kobi, according to the above standards, the noise of level in the current month does not exceed the permissible norms.



8. Annex 1 – Calibration Certificates



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e-posta: info@pentaotomasyon.com.tr
web: www.pentaotomasyon.com.tr

PENTA
KD-2407811/07
11-24

Kalibrasyon Sertifikası

Certificate of Calibration

Cihazın Sahibi / Adresi : METROLOGY LLC
Customer / Address : 191, Beri Gabriel Salosi ave, 0113, Tbilisi, Georgia

İstek Numarası : 2407811
Order No
Makine / Cihaz : Partikül Ölçer
Instrument / Device
İmalatçı : AEROQUAL
Manufacturer
Tip : SERIES 500
Type
Seri Numarası : 001
Serial Number
Penta Kodu : 2407811/07
Penta Code
Kalibrasyon Tarihi : 20.11.2024
Date of Calibration
Sertifikanın Sayfa Sayısı : 3
Number of pages of the certificate

Bu kalibrasyon sertifikası, Uluslararası Birimler Sistem'inde (SI) tanımlanmış birimleri realize eden ulusal ölçüm standartlarına izlenebilirliği beğeter.
This calibration certificate documents the traceability to national standards, which realize the unit of measurement according to the International System of Units (SI).

Ölçüm sonuçları, genişletilmiş ölçüm belirsizlikleri ve kalibrasyon metotları bu sertifikanın tamamlayıcı kısmı olan takip eden sayfalarda verilmiştir.
The measurements, the uncertainties with confidence probability and calibration methods are given on the following pages which are part of this certificate.

Mühür
Seal

Yayımlandığı Tarih
Date

Kalibrasyonu Yapan
Calibrated by

Onaylayan / Approval
Tarih / Date



20.11.2024

Teknik Müdür
Nergiz TEKİN
SN: 030018fa70d2e8edac081

Teknik Müdür
Hasan TANRIKULU
SN: 37965c5cbed914080169

e-imzalıdır

e-imzalıdır

Tel: 0 216 523 63 47 Fax: 0 212 243 63 41 web: www.kalibrasyonlaboratuvarı.com.tr e-mail: info@pentakalibrasyon.com

Bu sertifikadaki sonuçlar, cihazın kalibrasyon tarihindeki durumunu kapsamaktadır. Bu sertifika, laboratuvarın yazılı izni alınmadan kimsen kopyalanıp çoğaltılamaz. Sertifika 5070 sayılı kanununa göre görevli elektronik imza ile imzalanmıştır. İmza ve sertifikalar geçerlidir. This result in this certificate refer to condition of the instrument on the date of calibration. This certificate shall not be reproduced other than in full except with the permission of the laboratory. This certificate is signed using secure digital signature according to article of law number 5070. Calibration certificates without signature are not valid.

FR-18/91/Rev.01/19.11.2024



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Sayfa / Page: 2 / 3

PENTA
KD-2407811/07
11 - 24

1. Kalibre Edilen Cihaz / Device Under Calibration

Makine / Cihaz	: Partikül Ölçer	Model	: SERIES 500
İmalatçı	: AEROQUAL	Model	
Seri No	: 001	Envanter No	: -
Kalibrasyon Yeri	: Laboratuvar	Envanter No	
Bulunduğu Yer	: -		
Lab. Kabul Tarihi	: 12.11.2024		

2. Görsel ve Fonksiyonel Kontroller / Visual and Functional Controls

Cihazın fiziksel ve fonksiyonel kontrolünde, ölçüm sonuçlarını etkileyebilecek herhangi bir eksiklik ve hasar gözlenmemiştir.
No damage observed on the object that affects measurement results by physically and functionally control.

3. Kalibrasyon Yöntemi ve Prosedürü / Calibration method and Procedures

Kalibrasyon, TL-14/64 ve TL-16/63 talimatlarına ve ISO 21501-4:2018 standardına göre referans partikül ölçer ile karşılaştırma metoduna göre gerçekleştirilmiştir.

Calibration was performed according to TL-14/64 ve TL-16/63 documents and ISO 21501-4:2018 standard compare with reference particle counter method.

4. Ölçüm Şartları / Measurement Conditions

Kalibrasyon Yeri : Penta Kalibrasyon Partikül Ölçer Laboratuvarı

Place of Calibration

Cihaz, kalibrasyon öncesi laboratuvarında bekletilerek ortam şartlarına uyum sağladıktan ve kalibrasyon için gerekli şartlar oluşturulduktan sonra ölçümler gerçekleştirilmiştir.

Measurements have been carried out after the instruments were maintained in the suitable area and the environmental conditions as appropriate to the calibration activities in the laboratory.

5. Çevre Şartları / Environmental Conditions

Sıcaklık / Temp (°C) Başlama	: 21,8 °C	Nem / thum. (% Rh) Başlama	: 52 % Rh
Sıcaklık / Temp (°C) Bitiş	: 21,6 °C	Nem / thum. (% Rh) Bitiş	: 54 % Rh

6. Kalibrasyonda Kullanılan Referans Cihazlar / Reference Devices Used in Calibration

Cihaz Adı	Cihaz Kodu	İmalatçısı	Seri No	Sertifika No	İzlenebilirlik	Kalibrasyon Tarihi
Partikül Ölçer	CN-598	TSI	93101038009	RMA UK 14086	UKAS	5.07.2023
Debimetre	CN-601	TSI	40431909007	AK-2401530/100	AB-0113-K	2.07.2024
Partikül Jeneratörü	CN-604	Lighthouse	-	-	-	-
Referans Partiküller	-	Applied Microspheres	-	-	-	-
Sıcaklık-Nem Ölçer	CN-607	EMS	Penta1	S-2401530/101	AB-0113-K	31.07.2024

7. Ölçüm Belirsizliği / Measurement Uncertainty

Ölçüm belirsizliği, ölçüm sonuçları ile beraber verilmiştir. Beyan edilen genişletilmiş ölçüm belirsizliği, standart belirsizliğin, k=2 olarak alınan genişletme katsayısı ile çarpımı sonucunda bulunan değerdir ve %95 oranında güvenilirlik sağlamaktadır.

The measurement uncertainty has been giving with the measurement results by the third page. The reported expanded uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor k=2, which for a normal distribution corresponds to a coverage probability of approximately 95%.

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Bu sertifikadaki sonuçlar, cihazın kalibrasyon tarihindeki durumunu kapsamaktadır. Bu sertifika, laboratuvarın yasal limitlerinden kısmen koparılmış ve değiştirilmez. Sertifika 50/70 sayılı kanununa göre güvendi elektronik imza ile imzalanmıştır. Buzaan sertifikalar geçerlidir. / This result in this certificate refer to condition of the instrument on the date of calibration. This certificate shall not be reproduced other than in full except with the permission of the laboratory. This certificate is signed using secure digital signature according to article of law number 5070. Calibration certificates without signature are not valid.

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11 - 24

Sayfa / Page: 3 / 3

8. Ölçüm Sonuçları / Measurement Results

5005-ACC2-001

PM2,5

Referans Değer Reference Value	Test Değer Test Value	Sapma Deviation	Belirsizlik Uncertainty
mg/m ³	mg/m ³	mg/m ³	% ± U
2,48	2,50	0,02	0,4

PM10

Referans Değer Reference Value	Test Değer Test Value	Sapma Deviation	Belirsizlik Uncertainty
mg/m ³	mg/m ³	mg/m ³	% ± U
10,03	10,00	-0,03	0,2

9. Uygunluk Beyanı / Declaration of Conformity

Ölçüm sonuçlarının değerlendirilmesi müşteriye bırakılmıştır. / Evaluation of measurement results is customer's responsibility.

10. Görüş ve Yorumlar / Remarks and comments

11. Açıklamalar / Descriptions

Tel: 0 216 523 63 47 Fax: 0 212 243 63 41 web: www.kalibrasyonlaboratuvari.com.tr e-mail: info@pentakalibrasyon.com

Bu sertifikadaki sonuçlar, cihazın kalibrasyon tarihindeki durumunu kapsamaktadır. Bu sertifika, laboratuvarın yurtdışı ölçüden koruma sağlayarak enjeksiyonlar. Sertifikası 5079 sayılı kanunla
görsel elektronik imza ile imzalanmıştır. İmzasız sertifikalar geçersizdir. / This result is this certificate refers to condition of the instrument on the date of calibration. This certificate shall not be
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KD-2407811/07
14.11.2024

Kalibrasyon Sertifikası

Certificate of Calibration

Cihazın Sahibi / Adresi : METROLOGY LLC

Customer / Address

191, Beri Gabriel Salosi ave, 0113, Tbilisi, Georgia

İstek Numarası : 2407811

Order No

Makine / Cihaz : GAZ DEDEKTÖRÜ

Instrument / Device

İmalatçı : AEROQUAL

Manufacturer

Tip : SERIES 500

Type

Seri Numarası : 001

Serial Number

Penta Kodu : 2407811/07

Penta Code

Kalibrasyon Tarihi : 14.11.2024

Date of Calibration

Sertifikanın Sayfa Sayısı : 3

Number of pages of the certificate

Not: () İşaretili gazlar Akreditasyon kapsamı dışında izlenebilir olarak yapılmıştır.*

Bu kalibrasyon sertifikası, Uluslararası Birimler Sistem'inde (SI) tanımlanmış birimleri realize eden ulusal ölçüm standartlarına izlenebilirliği belgeler.

This calibration certificate documents the traceability to national measurement standards, which realize the units defined in the International Units System (SI).

Ölçüm sonuçları, genişletilmiş ölçüm belirsizlikleri ve kalibrasyon metotları bu sertifikanın tamamlayıcı kısmı olan takip eden sayfalarda verilmiştir.

The measurements, the uncertainties with confidence probability and calibration methods are given on the following pages which are part of this certificate.

Mühür

Seal

Yayınlandığı Tarih

Date

14.11.2024

Kalibrasyonu Yapan

Calibrated by

Kalibrasyon Sorumlusu

Mohammad TASHVIGHI

SN: 653fdda447805701

e-imzalıdır

Onaylayan / Approval

Tarih / Date

Teknik Müdür

Hasan TANRIKULU

SN: 37965c5cbcd914080169

e-imzalıdır



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Bu sertifikadaki sonuçlar, cihazın kalibrasyon tarihindeki durumunu kapsamaktadır. Bu sertifika, laboratuvarın yazılı testi olmadan kesin olarak yapılmamıştır. Sertifika 5070 sayılı kanununa göre güvenli elektronik imza ile imzalanmıştır. İmzasız sertifikalar geçersizdir. This result is in this certificate refer to condition of the instrument on the date of calibration. This certificate shall not be reproduced other than in full except with the permission of the laboratory. This certificate is signed using secure digital signature according to article of law number 5070. Calibration certificates without signature are not valid.

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Sayfa / Page: 2 / 3

PENTA
KD-2407811/07
11 - 24

1. Kalibre Edilen Cihaz / Device Under Calibration

Makine / Cihaz	: GAZ DEDEKTÖRÜ	Model	: SERIES 500
<i>Instrument / Device</i>		<i>Model</i>	
İmalatçı	: AEROQUAL	Envanter No	: -
<i>Manufacturer</i>		<i>Inventory Number</i>	
Seri No	: 001	Lab. Kabul Tarihi	: 12.11.2024
<i>Serial Number</i>		<i>Date of Accept to Lab.</i>	
Kalibrasyon Yeri	: Laboratuvar	Bulunduğu Yer	: -
<i>Place of Calibration</i>		<i>Place of Object</i>	
Kapasite	: 0...10 µmol/mol		
<i>Range</i>	: 0...1 µmol/mol		

2. Görsel ve Fonksiyonel Kontroller / Visual and Functional Controls

Cihazın fiziksel ve fonksiyonel kontrolünde, ölçüm sonuçlarını etkileyebilecek herhangi bir eksiklik ve hasar gözlenmemiştir.
No damage observed on the object that affects measurement results by physically and functionally control.

3. Açıklamalar / Description

*% LEL Değeri Hesaplanarak Sertifikada Verilmiştir.

4. Kalibrasyon Yöntemi ve Prosedürü / Calibration method and Procedures

Kalibrasyon, TL-14/40 ve TL-16/40 talimatları kullanılarak referans standart gaz ile karşılaştırma metoduna göre gerçekleştirildi.
Calibration was performed according to TL-14/40 and TL-16/40 documents by using reference standard gas

5. Ölçüm Belirsizliği / Measurement Uncertainty

Ölçüm belirsizliği, ölçüm sonuçları ile beraber verilmiştir. Beyan edilen genişletilmiş ölçüm belirsizliği, standart belirsizliğin, k=2 olarak alınan genişletme katsayısı ile çarpımı sonucunda bulunan değerdir ve %95 oranında güvenilirlik sağlamaktadır.

The measurement uncertainty has been giving with the measurement results by the third page. The reported expanded uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor k=2, which for a normal distribution corresponds to a coverage probability of approximately 95%.

6. Çevre Şartları / Environmental Conditions

Sıcaklık / Temp : 20,8 °C **Nem / Hum. (%rh)** : 57,5 %RH

7. Kalibrasyonda Kullanılan Referans Cihazlar / Reference Devices Used in Calibration

Cihaz Adı	Cihaz Kodu	Seri No	Sertifika No	İzlenebilirlik	Sertifika Tarihi
<i>Device Name</i>	<i>Device Code</i>	<i>Serial Number</i>	<i>Certificate No</i>	<i>Traceability</i>	<i>Certificate Date</i>
Sıcaklık-Bağıl Nem Ölçer	CN-253	OE27	S-2300835/12	AB-0113-K	18.03.2023
Gösterge Sıcaklık Ölçer (Yerinde)	CN-337	1201418	S-2200237/35	AB-0113-K	10.03.2022
Sıcaklık-Bağıl Nem Ölçer (Yerinde)	CN-579	171108803	S-2200237/34	AB-0113-K	28.04.2022
Multi metre	CN-240	240	E-2200237/90	AB-0113-K	7.11.2022
CN-572 Kükürtlük * SO ₂ / 10,00 ppm	CN-572	00028767	EIG00875.2024	ELITE	27.05.2024
CN-260 Azotliksit * NO ₂ / 0,90 ppm	CN-261	00028819	01611.2024	ELITE	09 - 24

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Bu sertifikadaki sonuçlar, cihazın kalibrasyon tarihindeki durumuna kapsamaktadır.

This result in this certificate refer to condition of the instrument on the date of calibration.

FR-18/66/Rev.03/25.12.2020



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Sayfa / Page: 3 / 3

8. Ölçüm Sonuçları / Measurement Results

SO₂ 0-10ppm 0509235-003
END NO2 0-1ppm 1506232-001

		Ölçülen cihaz / Measured device					
Uygulanan gaz derişimi Applied gas concentration	Uygulanan konsantrasyon Concentration app.	Ayar öncesi Before setting	Çöz. Res.	Okunan ortalama değer Average value read	Sapma Deviation	Ölçüm Belirsizliği ±Meas. Unc.	Birim Unit
Kükürtdioksit * SO ₂	10,03	-	0,01	9,03	-1,00	2,5%	µmol/mol
Azotdioksit * NO ₂	0,9	-	0,001	0,898	-0,002	3,0%	µmol/mol

Not: (*) İşaretli gazlar Akreditasyon kapsamı dışında izlenebilir olarak yapılmıştır.

µ mol/mol : ppm

cmol/mol : %

9. Uygunluk Beyanı / Declaration of Conformity

Ölçüm sonuçlarının değerlendirilmesi müşteriye bırakılmıştır. / Evaluation of measurement results is customer's responsibility.

10. Görüş ve Yorumlar / Remarks and comments

...

Tel: 0 216 523 63 47 Fax: 0 212 243 63 41 web: www.pentaotomasyon.com.tr

Bu sertifikadaki sonuçlar, cihazın kalibrasyon tarihindeki durumu
This results in this certificate refer to condition of the instrument on the d

12.2020



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Tel: 0216 523 63 47 - Fax: 0212 243 63 41
e-posta: info@pentaotomasyon.com.tr web: www.pentaotomasyon.com.tr



Kalibrasyon Sertifikası

Certificate of Calibration

Cihazın Sahibi / Adresi : METROLOGY LLC

Customer / Address

191, Beri Gabriel Salosi ave, 0113, Tbilisi, Georgia

İstek Numarası : 2407811

Order No

Makine / Cihaz : GAZ DEDEKTÖRÜ

Instrument / Device

İmalatçı : AEROQUAL

Manufacturer

Tip : SERIES 500

Type

Seri Numarası : 001

Serial Number

Penta Kodu : 2407811/07

Penta Code

Kalibrasyon Tarihi : 14.11.2024

Date of Calibration

Sertifikanın Sayfa Sayısı : 3

Number of pages of the certificate

Not: () İşaretli gazlar, Akreditasyon kapsamı dışında izlenebilir olarak yapılmıştır.*

Bu kalibrasyon sertifikası, Uluslararası Birimler Sistemi'nde (SI) tanımlanmış birimleri realize eden ulusal ölçüm standartlarına izlenebilirliği belgeler.

This calibration certificate documents the traceability to national measurement standards, which realize the units defined in the International Units System (SI).

Ölçüm sonuçları, genişletilmiş ölçüm belirsizlikleri ve kalibrasyon metodları bu sertifikanın tamamlayıcı kısmı olan takip eden sayfalarda verilmiştir.

The measurements, the uncertainties with confidence probability and calibration methods are given on the following pages which are part of this certificate.

Kalibrasyon laboratuvarı olarak faaliyet gösteren Penta Otomasyon, TÜRKAK'tan AB-0113-K ile TS EN ISO / IEC 17025:2017 standardına göre akredite edilmiştir. Penta Otomasyon accredited by TÜRKAK under registration number AB-0113-K & TS EN ISO / IEC 17025:2017 as Calibration Laboratory

Türk Akreditasyon Kurumu (TÜRKAK) kalibrasyon sertifikalarının tanınması konusunda Avrupa Akreditasyon Birliği (EA) ve Uluslararası Laboratuvar Akreditasyon Birliği (ILAC) ile karşılıklı tanıma anlaşmasını imzalamıştır. /The Turkish Accreditation Agency (TÜRKAK) is signatory to the multilateral agreements of the European co-operation for the Accreditation (EA) and of the International Laboratory Accreditation (ILAC) for the Mutual recognition of calibration certificates.

Mühür

Seal



Yayımlandığı Tarih

Date

14.11.2024

Kalibrasyonu Yapan

Calibrated by

Kalibrasyon Sorumlusu

Mohammad TASHVIGHI

SN: 653fda447805701

e-imzalıdır

Onaylayan / Approval

Tarih / Date

Teknik Müdür

Hasan TANRIKULU

SN: 37965c5ched914080169

e-imzalıdır

Tel: 0216 523 63 47 Fax: 0212 243 63 41 web: www.kalibrasyonlaboratuvarlari.com.tr e-mail: info@pentakalibrasyon.com

Bu sertifikadaki sonuçlar, cihazın kalibrasyon tarihindeki durumunu kapsamaktadır. Bu sertifika, laboratuvarın yazılı izni olmadan kısmen kopyalanıp çoğaltılamaz. Sertifika 5079 sayılı kanununa göre güvendi elektronik imza ile imzalanmıştır. İmzasız sertifikalar geçersizdir. This result in this certificate refer to condition of the instrument on the date of calibration. This certificate shall not be reproduced other than in full except with the permission of the laboratory. This certificate is signed using secure digital signature according to article of law number 5079. Calibration certificates without signature are not valid.

FR-15/68/Rev.03/25.12.2020



PENTA OTOMASYON
ve Endüstriyel Ürünler San. Tic. Ltd. Şti.

Sayfa / Page: 2 / 3

AB-0113-K
G-2407811/07
11 - 24

1. Kalibre Edilen Cihaz / Device Under Calibration

Makine / Cihaz : GAZ DEDEKTÖRÜ

Instrument / Device

İmalatçı : AEROQUAL

Manufacturer

Seri No : 001

Serial Number

Kalibrasyon Yeri : Laboratuvar

Place of Calibration

Kapasite : 0 .. 100 µmol/mol

Range

Model : SERIES 500

Model

Envanter No : -

Inventory Number

Lab. Kabul Tarihi : 12.11.2024

Date of Accept to Lab

Bulunduğu Yer : -

Place of Object

2. Görsel ve Fonksiyonel Kontroller / Visual and Functional Controls

Cihazın fiziksel ve fonksiyonel kontrolünde, ölçüm sonuçlarını etkileyebilecek herhangi bir eksiklik ve hasar gözlenmemiştir.

No damage observed on the object that affects measurement results by physically and functionally control.

3. Açıklamalar / Descriptions

4. Kalibrasyon Yöntemi ve Prosedürü / Calibration method and Procedures

Kalibrasyon, TL-14/40 ve TL-16/40 talimatları kullanılarak referans standart gaz ile karşılaştırma metoduna göre gerçekleştirildi.

Calibration was performed according to TL-14/40 and TL-16/40 documents by using reference standard gas.

5. Ölçüm Belirsizliği / Measurement Uncertainty

Ölçüm belirsizliği, ölçüm sonuçları ile beraber verilmiştir. Beyan edilen genişletilmiş ölçüm belirsizliği, standart belirsizliğin, k=2 olarak alınan genişletme katsayısı ile çarpımı sonucunda bulunan değerdir ve %95 oranında güvenilirlik sağlamaktadır.

The measurement uncertainty has been giving with the measurement results by the third page. The reported expanded uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor k=2, which for a normal distribution corresponds to a coverage probability of approximately 95%.

6. Çevre Şartları / Environmental Conditions

Sıcaklık / Temp : 20,8 °C

Nem / Hum. (%rh) : 58,0 %RH

7. Kalibrasyonda Kullanılan Referans Cihazlar / Reference Devices Used in Calibration

Cihaz Adı	Cihaz Kodu	Seri No	Sertifika No	İzlenebilirlik	Sertifika Tarihi
<i>Device Name</i>	<i>Device Code</i>	<i>Serial Number</i>	<i>Certificate No</i>	<i>Traceability</i>	<i>Certificate Date</i>
Sıcaklık-Bağıl Nem Ölçer	CN-253	0E27	S-2300835/12	AB-0113-K	18.03.2023
Göstergeli Sıcaklık Ölçer (Yerinde)	CN-337	1201418	S-2200237/35	AB-0113-K	10.03.2022
Sıcaklık-Bağıl Nem Ölçer (Yerinde)	CN-579	171108803	S-2200237/34	AB-0113-K	28.04.2022
Millimetre	CN-240	240	E-2200237/90	AB-0113-K	7.11.2022
CN-382 Karbonmonoksit CO / 100,73 ppm	CN-382	00587	EIG00989.2024	AB-0162-K	26.08.2024

Tel: 0 216 523 63 47 Fax: +90 212 243 63 41 web: www.pentaotomasyon.com.tr e-mail: info@pentaotomasyon.com.tr

Bu sertifikadaki sonuçlar, cihazın kalibrasyon tarihindeki durumunu kapsamaktadır.

This results in this certificate refer to condition of the instrument on the date of calibration.

FR-18/66/Rev.03/25.12.2020



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ve Endüstriyel Ürünler San. Tic. Ltd. Şti.

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G-2407811/07
11 - 24

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8. Ölçüm Sonuçları / Measurement Results

CO 0-100ppm 2606231-003

Uygulanan gaz derişimi <i>Applied gas concentration</i>	Uygulanan konsantrasyon <i>Concentration appli</i>	Ölçülen cihaz / <i>Measured device</i>				Ölçüm Belirsizli ği <i>Unc</i>	Birim <i>Unit</i>
		Ayar öncesi <i>Before setting</i>	Çöz. <i>Res.</i>	Okunan ortalama değer <i>Average value read</i>	Sapma <i>Deviation</i>		
Karbonmonoksit CO	100,75	-	0,1	97,6	-3,2	2,0%	µmol/mol

Not: (*) İşaretli gazlar Akreditasyon kapsamı dışında izlenebilir olarak yapılmıştır.

µ mol/mol : ppm

cmol/mol : %

100 Lel : 5 cmol/mol (Metan CH₄)

9. Uygunluk Beyanı / Declaration of Conformity

Ölçüm sonuçlarının değerlendirilmesi müşteriye bırakılmıştır. / *Evaluation of measurement results is customer's responsibility.*

10. Görüş ve Yorumlar / Remarks and comments

Tel: 0 216 523 63 47 Fax: 0 212 245 63 41 web: www.pentatautomasyon.com.tr

Bu sertifikadaki sonuçlar, cihazın kalibrasyon tarihindeki durumuna k

This result in this certificate refer to condition of the instrument on the date is

2.2020



შპს "მეტროლოგი"
"METROLOGY" LLC

თბილისი, 0144, ბერი გაბრიელ სალოსის გამზ. 191დ, ტელ.: +995 (32) 2-700-800
191d, Beri Gabriel Salost Ave, 0144/Tbilisi, Phone: +995 (32) 2-700-800
www.metrology.ge

აკრედიტებულია ILAC MRA-ის ხელმოწერილი საქართველოს აკრედიტაციის ცენტრის მიერ,
აკრედიტაციის მოწმობა #GAC-CL-0017
სსტ ისო/იეკ 17025:2017/2018

დაკალიბრების სერტიფიკატი № 10404
CALIBRATION CERTIFICATE

გაცემის თარიღი
Date of issue

26.11.2024 წ.

დაკალიბრების ობიექტი
Calibrated item

უნივერსალური ხელსაწყო SD-9300, №000793, ხმაურის ადაპტერი
REED INSTRUMENTS, SL-417 S/N 067603
გაზომვის საშუალების დასახელება/იდენტიფიკაცია
measuring instrument/identification

დამკვეთი
Customer

შპს „ბი-ბი-ი“ სამეცნიერო კვლევითი საგამოცდო ლაბორატორია
თბილისი, ვაჟა-ფშაველას III კვარტალი, კორპუსი 13
დასახელება, მისამართი
name of customer, address

დაკალიბრების მეთოდი
Calibration method

CP-092.G-1:2021 გოსტ 8.635-2013
მეთოდის დასახელება/იდენტიფიკაცია
method name/identification

დაკალიბრება შესრულებულია
Calibration is performed by using

ხმაურმზომების კალიბრატორი № E1-23071137,
სერტ. №202300306-82875, ძალაშია 06.03.2025
საწიგნო გაზომვის საშუალების დასახელება/იდენტიფიკაცია
description of the standard measuring instrument/identification

მიკვლევადობა
Traceability

West Caldwell Calibration Laboratories, inc. / NIST

დაკალიბრების ადგილი
Calibration Site

☒ შემსრულებლის ლაბორატორია/Supplier's Lab. ☐ დამკვეთის ობიექტი/Customer's Site

დაკალიბრების პირობები
Ambient condition

(21-22)°C; (45-44)%RH; (97.4-97.5)kPa

დაკალიბრების შედეგები იხილეთ მე-2 გვერდ(ებ)ზე
See Calibration Results on page(s)

ლაბორატორიის უფროსი
Chief of laboratory

ლ. ნანოშაშვილი
სახელი, გვარი
name

პირის ხელმოწერა, რომელმაც
ჩატარა დაკალიბრება
Signature of the person
who performed calibration

ლ. ბეგაშვილი
სახელი, გვარი
name



გვ. 1 2-დან

IF-03.G

სერტიფიკატი № 10404
Certificate №

დაკალიბრების შედეგები
CALIBRATION RESULTS

გარეგნული დათვალიერების შედეგი: ☒ დამაკმაყოფილებელი ☐ არადამაკმაყოფილებელი
მოსინჯვის შედეგი: ☒ დამაკმაყოფილებელი ☐ არადამაკმაყოფილებელი

დიაპაზონი dB	დაკალიბრების წერტილი, dB	ფაქტობრივი მნიშვნელობა, dB	სიხშირე 1 kHz		სიხშირე 4 kHz		სიხშირე 125 Hz	
			დასაკალიბრე ზელი ხელსაწყო ჩვენება, dB	განუსაზღვრე ლობა U, dB	დასაკალიბრე ზელი ხელსაწყო ჩვენება, dB	განუსაზღვრე ლობა U, dB	დასაკალიბრე ზელი ხელსაწყო ჩვენება, dB	განუსაზღვრე ლობა U, dB
30 - 80	74	73.70	72.9	0.25	72.8	0.12	72.9	0.24
80 - 130	84	84.05	82.4	0.24	82.5	0.12	82.5	0.24
	94	94.02	92.5	0.24	92.6	0.12	92.5	0.24
	104	104.04	102.6	0.24	102.6	0.12	102.2	0.24
	114	114.02	112.9	0.24	113.0	0.12	113.0	0.24

გადართობული განუსაზღვრელობის მნიშვნელობა მიღებულია სტანდარტული განუსაზღვრელობის მნიშვნელობის ჩამრგვალით პოპულაციის კოეფიციენტზე $k=2$, რაც ნორმალური განაწილების შემთხვევაში შეესაბამება დაფარვის 95% ალბათობას.

დაკალიბრების თარიღი
Calibration date 26.11.2024 წ.

დამატებითი ინფორმაცია
Additional Information

1 (ერთი) წელი
დაკალიბრებათმომხმარებლის ირტერვალის დასკვნის მოთხოვნის შემთხვევაში
Calibration interval, if requested by the customer

პირის ხელმოწერა, რომელმაც
ჩაატარა დაკალიბრება
Signature of the person
who performed calibration

ლ. ზეგაშვილი
სახელი, გვარი
name

ს. ბერიძე 2018/24
ხელმოწერა, ნიშანი
signature, stamp



LLC BBE Scientific Research Laboratory

**Kvesheti-Kobi Highway Lot 2 Kvesheti – Tskere
Section
Environmental Measurement Report November
2025**



Georgia, Tbilisi, Vaja-Pshavela Avenue, Quarter III, Building N7

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Director: Irakli Ramishvili

November. 2025



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Kvesheti-Kobi Highway Lot 2 Kvesheti – Tskere Section
Environmental Measurement Report – November
2025



1. General Information

Project number: #181125

Date of the monitoring: 18.11.2025

BBE LLC team undertakes monthly monitoring services for ambient air quality, noise, and water quality monitoring on Kvesheti-Kobi highway Lot 2 Kvesheti-Tskere section.

This report represents the results of the monitoring activities performed by BBE team in November, 2025. The work was done according to the proposal prepared for Kvesheti-Kobi highway Lot 2 Kvesheti-Tskere section. The methodology and procedures follow international guidelines.

During the monitoring, the construction was in an active phase, all the technique was on and working. Therefore, the results of the monitoring activities represent the actual, full-scale impact of the construction activities on the environment.

Monitoring activities included ambient air monitoring of the following parameters: PM10, PM2.5, NO₂, SO₂, and CO concentrations, surface water quality analysis noise level monitoring.

2. Description of the Performed Works

For November's monitoring, there was 3 points for water quality. Air quality was assessed at 5 points: measured parameters - carbon monoxide (CO) and pollution (PM2.5, PM10), sulfur dioxide (SO₂) and nitrogen dioxide (NO₂). Noise was measured at 4 locations.

Davit Dabrundashvili (sampler) from BBE team and from CRCC – Tamta Kapanadze (Environmental Manager) participated in the monitoring.

During the monitoring activities, Davit Dabrundashvili from BBE team used Aeroqual Series 500 for ambient air monitoring (all parameters), water monitoring has not been done at the location, water was sampled and then analyzed in the lab. For noise monitoring, REED instruments 9300 was used.

The monitoring took place on 18th of November, 2025. The weather was Cloudy, 143 C.

All the equipment was calibrated, cleaned, and tested for the field work.



Table 2.1 GPS coordinates of the monitoring points

#	Monitoring Point Reference	Type Of Monitoring	E	N	Date
1	SWS #1	Surface water	44.5085630° E	42.4308274° N	18.11.25
2	SWS #2	Surface water	44.5182498° E	42.4284740° N	18.11.25
3	SWS #3	Surface water	44.529248° E	42.427485° N	18.11.25
4	AAS #1	PM2.5, PM10, CO, NO ₂ , SO ₂	44.524469° E	42.433225° N	18.11.25
5	AAS #2	PM2.5, PM10, CO, NO ₂ , SO ₂	44.497582° E	42.448308° N	18.11.25
6	AAS #3	PM2.5, PM10, CO, NO ₂ , SO ₂	44.532888° E	42.468643° N	18.11.25
7	AAS #4	PM2.5, PM10, CO, NO ₂ , SO ₂	44.532870° E	42.468635° N	18.11.25
8	AAS #5	PM2.5, PM10, CO, NO ₂ , SO ₂	44.575948° E	42.420784° N	18.11.25
9	NM#1	Noise (Batching plant)	44.575948° E	42.420784° N	18.11.25
10	NM#2	Noise (Bridge #2)	44.524606° E	42.426190° N	18.11.25
11	NM#3	Noise (Zakharhvari)	44.524469° E	42.433225° N	18.11.25
12	NM#4	Noise (near to the camp #3)	44.532870° E	42.468635° N	18.11.25



3. Water Quality Monitoring

3.1 Surface Water Monitoring - SWS-#1

In the water sampling area there were several activities which can impact river water: Mleta quarry activities, Bridge N2 pilling activities, and heavy vehicle movement near temporary bridge N1 (which is connecting village Kvesheti to village Bedoni and also Khada valley).

At an upstream location, there are no activities (which can cause an impact on river) of Kvesheti-kobi lot 2 project. Thus, river water at selected area is itself as it is – that's why it is identified as up-stream.

The first sample of surface water, upstream water was taken from the Aragvi river. The volume of water was 5 liters. The team used sterile bottles for sampling. The samples were not examined/analyzed at the location. Instead, they were sent to the lab considering all the safety rules.

The weather was 13°C, Cloudy weather.

Time of sampling - 13:00

Figure 3.1.1 Surface Water Quality Monitoring (SWS-#1)





Table 3.1.1 Results of Surface Water Sample (SWS-#1) with Permissible Norms and Used Methods

Parameter	Measurement unit	Method used	Result	Maximum permissible limit according to ordinance #425
Physical-chemical Parameters				
pH	-	Apera Instruments PC60	8.08	6.5-8.5
Conductivity	mS/sm	Apera Instruments PC60 – V6.4	0.200	N/A
Turbidity	FTU	Hach Method 93703	0.72	N/A
TPH	mg/L	Validated method GL-SOP Wch-73-G-19	<0.05	≤0.3
Chemical Oxygen Demand (COD)	MgO/L	HACH Method LCI 400	0.7	≤30

3.2 Surface Water Monitoring - SWS-#2

This area was selected because of bridge N2 pilling. Those pilling areas are located near the river, that's why water quality has been checked to reveal if there is any impact on it.

The second sample of surface water, downstream water was taken from the Aragvi river. The volume of water was 5 liters. The team used sterile bottles for sampling. The samples were not examined/analyzed at the location. Instead, they were sent to the lab considering all the safety rules.

The weather was 13°C, Cloudy weather.

Time of sampling – 12,50

Figure 3.2.1 Surface Water Quality Monitoring (SWS - #2)





Table 3.2.1 Results of Surface Water Sample (SWS-#2) with Permissible Norms and Used Methods

Parameter	Measurement unit	Method used	Result	Maximum permissible limit according to ordinance #425
Physical-chemical Parameters				
pH	-	Apera Instruments PC60	6.73	6.5-8.5
Conductivity	mg/L	Apera Instruments PC60 - V6.4	0.204	N/A
Turbidity	FTU	Hach Method 93703	0.81	N/A
TPH	mg/L	Validated method GL-SOP Wch-73-G-19	<0.05	≤0.3
Chemical Oxygen Demand (COD)	MgO/L	HACH Method LCI 400	0.7	≤30

3.3 Surface Water Monitoring - SWS-#3

This area was selected because of heavy vehicle movement on temporary bridge N1 which is located on the river Aragvi. To reveal if there is any impact from accidental spill or falling of any materials which can be carried by trucks.

The third sample of surface water, downstream # 2 water was taken from the Aragvi river. The volume of water was 5 liters. The team used sterile bottles for sampling. The samples were not examined/analyzed at the location. Instead, they were sent to the lab considering all the safety rules.

The weather was 14°C, Cloudy weather.

Time of sampling – 14:00

Figure 3.3.1 Surface Water Quality Monitoring (SWS - #3)





Table 3.3.1 Results of Surface Water Sample (SWS-#3) with Permissible Norms and Used Methods

Parameter	Measurement unit	Method used	Result	Maximum permissible limit according to ordinance #425
Physical-chemical Parameters				
pH	-	Apera Instruments PC60	6.95	6.5-8.5
Conductivity	mg/L	Apera Instruments PC60 - V6.4	0.205	N/A
Turbidity	FTU	Hach Method 93703	0.41	N/A
TPH	mg/L	Validated method GL-SOP Wch-73-G-19	<0.05	≤0.3
Chemical Oxygen Demand (COD)	Mg0/L	HACH Method LCI 400	0.3	≤30

3.4 Conclusion

During the monitoring of the water on the 18th November of, 2025, no exceedance of the maximum allowable concentration was observed.



4. Air Quality Monitoring

Ambient air monitoring is an integral part of an effective air quality management system. The purpose of air quality monitoring is to study if an area has an air pollution problem and how construction works affect the air quality, which can lead to negative impacts on the environment, working personnel and the local population in close proximity of the works. Monitoring helps in assessing the level of pollution in relation to the ambient air quality standards.

Table 4.1.1 Dust Particles; Carbon Monoxide (CO); Nitrogen Oxides (NO₂) and Sulfur Oxides (SO₂) Concentration Permissible Limits

Parameter	Time Interval	Maximum Permissible Concentration $\mu\text{g}/\text{m}^3$	National limit for Human Rights of Health –MPC, $\mu\text{g}/\text{m}^3$	IFC/WHO (updated 2016) –guideline value, $\mu\text{g}/\text{m}^3$	EU Air Quality Standards, Permitted Exceedences Per Year $\mu\text{g}/\text{m}^3$
PM 2.5	1 hr	25		25	
	1 year	10	12-17	10	25 / n/a
PM 10	1 hr	50		50	
	24 hrs	50	25-35		50 / 35
	1 year	20	20-28	20	40 / n/a
CO	8 hour mean	10	5-7		1000
NO ₂	1 hour	200	35-140	200	200 / 18
	1 year	40	26-32	40	40 / n/a
SO ₂	1 hour	350	350	500	350 / 3
	24 hrs	125	5	20	125 / 24
	1 year	500			

In order to evaluate dust particle concentration in the air, the team used Aeroqual Series 500, which includes PM10, PM2.5 sensors. The specific sensor is calibrated and tested for its accuracy and precision. CO concentration was also evaluated using Aeroqual series 500, with specific CO sensor, which is also calibrated and tested.



4.1 Air Quality Monitoring First Location

The mentioned monitoring point is located in Zakatkari. The concentration of carbon monoxide, sulfur and nitrogen dioxide and dust in the air were measured at this point.

During the AQ monitoring, a work process was carried out around the monitoring point, about 10 meters away. Trucks were moving and one excavator was working. At the time of measuring, A full working process was underway. A truck was moving and one excavator was working.

Temperature 9°C, Cloudy weather
Monitoring Time – 10:40

Figure 4.1.1 Air Quality Monitoring - Zakatkari(AAS- #1)



Table 4.1.1 #AAS-#1 Dust Particles; Carbon Monoxide (CO); Nitrogen Oxides (NO₂) and Sulfur Oxides (SO₂) monitoring results (µg/m³)

Parameters	Minimum	Maximum	Average	Methods used
Wind speed and Wind direction in the AQ monitoring access road to the second camp – 0.4 m/s, From west/south to north/east.				
PM 10	0.022	0.045	0.027	Aeroqual SERIES 500-PM Sensor
PM2.5	0.012	0.016	0.013	Aeroqual SERIES 500-PM Sensor
CO	0.0	0.0	0.0	Aeroqual SERIES500-CO Sensor
NO ₂	0.0	0.0	0.0	Aeroqual SERIES500-SO ₂ Sensor
SO ₂	0.0	0.0	0.0	Aeroqual SERIES 500-NO ₂ Sensor



4.2 Air Quality Monitoring Second Location

The mentioned monitoring point is located in Seturebi road. The concentration of carbon monoxide, sulfur and nitrogen dioxide and dust in the air were measured at this point.

During the AQ monitoring, a second camp is located around the monitoring point, about 2 km away. Batching plant N2 was working and also nearly 2 heavy and small vehicles were moving around this area.

Temperature 11°C, Cloudy Weather

Monitoring Time –11:15

Figure 4.2.1 Air Quality Monitoring Kvesheti – Seturebi Road (AAS- #2)



Table 4.2.1 #AAS-#1 Dust Particles; Carbon Monoxide (CO); Nitrogen Oxides (NO₂) and Sulfur Oxides (SO₂) monitoring results (µg/m³)

Parameters	Minimum	Maximum	Average	Methods used
Wind speed and Wind direction in the AQ monitoring access road to the second camp – 0.3 m/s, From west/south to north/east.				
PM 10	0.022	0.030	0.025	Aeroqual SERIES 500-PM Sensor
PM2.5	0.013	0.016	0.014	Aeroqual SERIES 500-PM Sensor
CO	0.0	0.1	0.1	Aeroqual SERIES 500-CO Sensor
NO₂	0.0	0.0	0.0	Aeroqual SERIES500-SO ₂ Sensor
SO₂	0.0	0.0	0.0	Aeroqual SERIES 500-NO ₂ Sensor



4.3 Air Quality Monitoring Third Location

The mentioned monitoring point is located near Begoni/Beniani houses. The concentration of carbon monoxide, sulfur and nitrogen dioxide and dust in the air were measured at this point.

During the AQ monitoring, a work process was carried out around the monitoring point, about 70 meters away.

Temperature 11°C, Cloudy Weather
Monitoring Time – 13:00

Figure 4.3.1 Air Quality Monitoring Benian - Begoni / Near houses (AAS- #3)



Table 4.3.1 #AAS-#1 Dust Particles; Carbon Monoxide (CO); Nitrogen Oxides (NO₂) and Sulfur Oxides (SO₂) monitoring results (µg/m³)

Parameters	Minimum	Maximum	Average	Methods used
Wind speed and Wind direction in the AQ monitoring access road to the second camp – 0.3 m/s, From west/south to north/east.				
PM 10	0.022	0.343	0.106	Aeroqual SERIES 500-PM Sensor
PM2.5	0.015	0.035	0.024	Aeroqual SERIES 500-PM Sensor
CO	0.00	0.00	0.00	Aeroqual SERIES 500-CO Sensor
NO₂	0.00	0.00	0.00	Aeroqual SERIES500-SO ₂ Sensor
SO₂	0.00	0.00	0.00	Aeroqual SERIES 500-NO ₂ Sensor



4.4 Air Quality Monitoring fourth Location

The mentioned monitoring point is located close to camp #3. The concentration of carbon monoxide, sulfur and nitrogen dioxide and dust in the air were measured at this point

the work process was carried out around the monitoring point, about 2 km away. Work was underway near the third tunnel.

Temperature 11°C, Cloudy Weather

Monitoring Time – 13:10

Figure 4.4.1 Air Quality Monitoring Close to camp #3 (AAS- #4)



Table 4.4.1 #AAS-#1 Dust Particles; Carbon Monoxide (CO); Nitrogen Oxides (NO₂) and Sulfur Oxides (SO₂) monitoring results (µg/m³)

Parameters	Minimum	Maximum	Average	Methods used
Wind speed and Wind direction in the AQ monitoring access road to the second camp – 0.3 m/s, From west/south to north/east.				
PM 10	0.026	0.068	0.041	Aeroqual SERIES 500-PM Sensor
PM2.5	0.012	0.026	0.016	Aeroqual SERIES 500-PM Sensor
CO	0.00	0.0	0.0	Aeroqual SERIES 500-CO Sensor
NO₂	0.00	0.00	0.00	Aeroqual SERIES500-SO ₂ Sensor
SO₂	0.00	0.00	0.00	Aeroqual SERIES 500-NO ₂ Sensor



4.5 Air Quality Monitoring fifth Location

The mentioned monitoring point is located near the first concrete plant. The concentration of carbon monoxide, sulfur and nitrogen dioxide and dust in the air were measured at this point

During the AQ monitoring, a work process was carried out around the monitoring point

Temperature 13°C, Cloudy Weather
Monitoring Time – 14:00

Figure 4.5.1 Air Quality Monitoring near the first concrete plant / (AAS- #5)



Table 4.5.1 #AAS-#1 Dust Particles; Carbon Monoxide (CO); Nitrogen Oxides (NO₂) and Sulfur Oxides (SO₂) monitoring results (µg/m³)

Parameters	Minimum	Maximum	Average	Methods used
Wind speed and Wind direction in the AQ monitoring access road to the second camp – 0.3 m/s, From west/south to north/east.				
PM 10	0.123	0.988	0.359	Aeroqual SERIES 500-PM Sensor
PM2.5	0.024	0.114	0.046	Aeroqual SERIES 500-PM Sensor
CO	0.0	0.0	0.0	Aeroqual SERIES 500-CO Sensor
NO₂	0.00	0.00	0.00	Aeroqual SERIES500-SO ₂ Sensor
SO₂	0.0	0.0	0.0	Aeroqual SERIES 500-NO ₂ Sensor



4.6 Conclusion

The results of the air quality monitoring conducted on November 18th, 2025, carried out with the AEROQUAL 500 SERIES monitor according to the above standards, the quality of air pollution in the current month does not exceed the permissible norms.



5. Noise Level Monitoring

Optimal Limits of Noise Level. These limits are based on IFC guidelines

Recipient status	Time interval	The average permissible norm of noise (dB)	Maximum permissible norm of noise (dB)
Populated area	7:00-23:00	55	70
Populated area	23:00-7:00	45	60
Industrial; Commercial	Day-Night	70	70

Noise levels were measured at 4 locations. The purpose of noise level monitoring is to determine what impact the workflow has on residents. Noise was measured using the REED Instruments 9300-(417-sound level).

5.1 Noise Level Monitoring first Point

The mentioned monitoring point is located near the first concrete plant.

During the noise level monitoring near the first concrete plant, the work process was carried out around the monitoring point, 2 heavy vehicle was moving. This location was measured on the track where the cars were moving.

Temperature 13°C, Cloudy Weather

Monitoring Time – 14:05

Figure 5.1.1 Noise (NM#1) Monitoring Point – Close to the First Batching Plant





Table 5.1.1 Noise (NM#1) Monitoring Results - Close to the First Batching Plant

Different Parameters of Noise Level	Result (dB)
LAF _{max}	79.9
LAF _{min}	60.0
LAF_{av}	69.95

5.2 Noise Level Monitoring second Point

The mentioned monitoring point is located near Bridge 2.

During the noise monitoring near Bridge 2, the work process was carried out around the monitoring point, about 700 meters away. During the monitoring, a tractor was working in the tunnel and heavy machinery was moving around the tunnel. During the monitoring, only the noise received from the work was recorded. Construction of bridge N2 girders was in progress.

Temperature 12°C, Rainy weather

Monitoring Time – 12:05

Figure 5.2.1 Noise (NM#2) Monitoring Point – Around the Bridge #2





Table 5.2.1 Noise (NM#2) Monitoring Results - Around the Bridge #2

Different Parameters of Noise Level	Result (dB)
LAF _{max}	63.7
LAF _{min}	60.4
LAF_{av}	62.05

5.3 Noise Level Monitoring third Point

The mentioned monitoring point is located in Zakatkari

During the noise monitoring in Zakatkari, the work process was carried out around the monitoring point, about 10 meters away.

Temperature - 10°C, Cloudy weather

Monitoring Time – 11:05

Figure 5.3.1 Noise (NM#3) Monitoring Point – Zakatkari



Table 5.3.1 Noise (NM#3) Monitoring Results - Zakatkari

Different Parameters of Noise Level	Result (dB)
LAF _{max}	77.8
LAF _{min}	53.7
LAF_{av}	65.75



5.4 Noise Level Monitoring Fourth Point

The mentioned monitoring point is located close to camp #3. During the noise monitoring near camp #3, the work process was carried out around the monitoring point, about 2 km away. Work was underway near the third tunnel.

Temperature 11°C, Cloudy Weather
Monitoring Time – 13:07

Figure 5.4.1 Noise (NM#4) Monitoring Point – Close to Camp #3



Table 5.4.1 Noise (NM#4) Monitoring Results – Close To Camp #3

Different Parameters of Noise Level	Result (dB)
LAF _{max}	57.2
LAF _{min}	54.2
LAF _{av}	55.7



5.5 Conclusion

The results of the noise level monitoring conducted on the 18th of November, 2025 no exceedance of the maximum allowable concentration was observed.



6. Methodology and Instruments Used

6.1 Air

For air monitoring, BBE team used 4 different sensors of Aeroqual Series 500 (PM10/PM2.5, CO, NOx, SOx).

The Series 500 Portable Air Quality Monitor is a handheld portable monitor used to measure up to 30 pollutants using the unique sensor head format. Sensors are housed within an interchangeable cartridge ("head") that attaches to the monitor base. The head can be removed and replaced in seconds, allowing users to measure as many gases as they wish. Sensor heads feature active fan sampling which ensures a representative sample is taken, increasing measurement accuracy.

A long-life lithium battery and in-field zero and span calibration make this an easy-to-use device. Monitor ID identifies the monitor uniquely and ensures that all data from it are tied to that monitor. Location ID can be used to tag measurements to a specific location – helpful when sampling at multiple sites over the course of a day or week.

Figure 6.1.1 Air Quality Measuring Instrument Aeroqual Series 500



6.2 Noise

The noise monitoring spot was chosen so it could fully show the impact of construction processes on the population. Noise was monitored for an hour. BBE team used REED instruments 9300 to determine the noise level.



The sound level meter consists of a calibrated microphone, electronic circuits, and a display. The microphone detects small air pressure variations associated with sound and converts them into electrical signals. The aforementioned signals are then processed using the instrument's electronic circuitry. The display shows the sound level in decibels.

The sound level meter acquires the sound pressure level at a particular location.

A sound level meter is used for acoustic measurements. It is a hand-held instrument with a microphone.

Figure 6.2.1 Noise level is determined by the REED INSTRUMENTS 9300 model adapter



6.3 Wind

Wind speed is determined by testo anemometer 405i.

Figure 6.3.1 Testo anemometer 405i



8. Annex 1 – Calibration Certificate



შპს "მეტროლოგი"
"METROLOGY" LLC

თბილისი, 0144, ბერი გაბრიელ სალასის გამზ. 191დ, ტელ.: +995 (32) 2-700-800
 191d, Beri Gabriel Salasi Ave, 0144, Tbilisi, Phone: +995 (32) 2-700-800
 www.metrology.ge

აკრედიტებულია ILAC MRA-ის ხელშეწყობით საქართველოს აკრედიტაციის ცენტრის მიერ.

აკრედიტაციის მოწმობა #GAC-CL-0017

სსტ ისო/იეკ 17025:2017/2018

დაკალიბრების სერტიფიკატი №14296

CALIBRATION CERTIFICATE

გაცემის თარიღი
 Date of issue

29 ოქტომბერი 2025 წ.

დაკალიბრების ობიექტი
 Calibrated item

უნივერსალური ხელსაწყო REED INSTRUMENTS SD-9300, №000793,
 ხმაურის ადაპტერი SL-417 S/N R.083769
 გაზომვის საშუალების დასახელება/იდენტიფიკაცია
 measuring instrument identification

დამკვეთი
 Customer

შპს „ბი-ბი-ი“ სამეცნიერო კვლევითი ლაბორატორია,
 თბილისი, ბესარიონ ჟღენტის 63, Bbelab2019@gmail.com
 დასახელება, საკონტაქტო ინფორმაცია
 name of customer, contact information

დაკალიბრების მეთოდი
 Calibration method

CP-092.G-1:2021, გოსტ 8.635-2013

მეთოდის დასახელება/იდენტიფიკაცია
 method name/identification

დაკალიბრება შესრულებულია
 Calibration is performed by using

ხმაურმზომების კალიბრატორი № E1-23071137,
 სერტ. №37850-1 11.03.2025

საბოლოო გრომების საშუალების დასახელება/იდენტიფიკაცია
 description of the standard measuring instrument identification

მიკვლევადობა
 Traceability

West Caldwell Calibration Laboratories, inc. / NIST

დაკალიბრების ადგილი
 Calibration Site

☒ შემსრულებლის ლაბორატორია/Supplier's Lab. ☐ დამკვეთის ობიექტი/Customer's Site

დაკალიბრების პირობები
 Ambient condition

(21-22)°C; (45-44)%RH; (97.4-97.5)kPa

დაკალიბრების შედეგები იხილეთ მუ-2 გვერდ(ებ)ზე
 See Calibration Results on page(s)

ლაბორატორიის უფროსი
 Chief of laboratory

ლ. ნანოშაშვილი
 სახელი, გვარი
 name



სურს, რედაქტი
 signature, stamp

პირის ხელმოწერა, რომელმაც
 ჩაატარა დაკალიბრება
 Signature of the person
 who performed calibration

გ. პატაშვილი
 სახელი, გვარი
 name



სურს, რედაქტი
 signature, stamp

IF-01.G

სერტიფიკატი №14296
Certificate №

დაკალიბრების შედეგები
CALIBRATION RESULTS

გარეგნული დათვალიერების შედეგი: ☒ დამაკმაყოფილებელი ☐ არადაამაკმაყოფილებელი
მოსინჯვის შედეგი: ☒ დამაკმაყოფილებელი ☐ არადაამაკმაყოფილებელი

ფრეკუენცია dB	დაკალიბრების წერტილი, dB	ფაქტობრივი ჩანაწერილობა, dB	სიხშირე 1 kHz		სიხშირე 4 kHz		სიხშირე 125 Hz	
			დასაკალიბრებელი ხელსაწყო ჩვენება, dB	განუსაზღვრელი ლობა L, dB	დასაკალიბრებელი ხელსაწყო ჩვენება, dB	განუსაზღვრელი ლობა L, dB	დასაკალიბრებელი ხელსაწყო ჩვენება, dB	განუსაზღვრელი ლობა L, dB
30 - 80	74	73.98	72.6	0.25	78.0	0.12	71.5	0.24
80 - 130	84	84.00	82.1	0.24	87.5	0.12	81.8	0.24
	94	93.98	92.3	0.24	97.7	0.12	92.1	0.24
	104	104.00	102.5	0.24	108.0	0.12	102.2	0.24
	114	114.00	112.7	0.24	118.1	0.12	113.0	0.24

გარეგნული გაზუსტების მიზნების მიხედვით სტანდარტული გაზუსტების მიზნების მიხედვით მომსახურების კონტრაქტზე ხ.ა. რაც წარმოადგენს განმარტების შემთხვევაში შეესაბამება დაცემას 95% აღზრდას.

დაკალიბრების თარიღი 29 ოქტომბერი 2025 წ.
Calibration date

დამატებითი ინფორმაცია
Additional Information

I (ერთი) წელი

დაკალიბრებათმცემის ინტერვალის დამკვეთის მოთხოვნის შემთხვევაში
Calibration interval, if requested by the customer

პირის ხელმოწერა, რომელმაც
ჩატარა დაკალიბრება
Signature of the person
who performed calibration

გ. პატაშური
სახელი, გვარი
name

3.  20/10/25
საბეჭდო
signature, stamp
09

გვ. 2 2-დან

IF-03.G



შპს “მეტროლოგი”
“METROLOGY” LLC
თბილისი, 0144, ბერი გაბრიელ სალონის გამზ. 191ა, ტელ: +995 (32) 2-700-800
 Tbilisi, Bero Gabriel Salon Ave, 0144, Tbilisi, Phone: +995 (32) 2-700-800
www.metrology.ge

საგალობრო ლაბორატორია
CALIBRATION LABORATORY

დაკალიბრების სერტიფიკატი №13204
CALIBRATION CERTIFICATE

გაცემის თარიღი
 Date of issue

29 ოქტომბერი 2025 წ.

დაკალიბრების ობიექტი
 Calibrated item

აირანალიზატორი aeroqual, SERIES 500, S/N001
გაზოვანი საზღაურობის დასახელება/იდენტიფიკაცია
 Measuring instrument/identification

დამკვეთი
 Customer

შპს „ბი-ბი-ი“ სამეცნიერო კვლევითი ლაბორატორია,
 თბილისი, ზესარიონ ჭლენტის 63, Bbelab2019@gmail.com
დისახელება, საკონტაქტო ინფორმაცია
 Name of customer, contact information

დაკალიბრების მეთოდი
 Calibration method

CP-098.G-1:2025, IEC 60079-29-2
მეთოდის დასახელება/იდენტიფიკაცია
 name of the method/identification

დაკალიბრება შესრულებულია
 Calibration is performed by using

სანიმუშო აირები: CO; SO₂; O₂/N₂. Certificate 01086.
 მოქმედების ვადა 21 მაისი 2028 წ.; სანიმუშო აირები: NO; NO₂; N₂.
 Certificate 01096. მოქმედების ვადა 12 ივნისი 2028 წ.
სანიმუშო გაზოვანი საზღაურობის დასახელება/იდენტიფიკაცია
 Description of the standard measuring instrument /identification

მიკვლევადობა
 Traceability

Elitegaz/UME/BIPM/CMC

დაკალიბრების ადგილი
 Calibration Site

☒ შემსრულებლის ლაბორატორია/Supplier's Lab. ☐ დამკვეთის ობიექტი/Customer's Site

დაკალიბრების პირობები
 Ambient condition

(20.3 - 20.4) °C, (51 - 51)%RH, (97.7 - 97.5) kPa

დაკალიბრების შედეგები იხილეთ _მე-2_ გვერდ(ებ)ზე
 See Calibration Results on _____ page(s)

ლაბორატორიის უფროსი
 Chief of laboratory

ლ. ნანობაშვილი
სახელი, გვარი
 name

პირის ხელმოწერა, რომელმაც
 წაატარა დაკალიბრება
 Signature of the person
 who performed calibration

გ. პატაშვილი
სახელი, გვარი
 name







გვ. 1 2-დან

IF-03.G

სერტიფიკატი №13204

Certificate №

დაკალიბრების შედეგები

CALIBRATION RESULTS

გარეგნული დათვალიერების შედეგი: ☒ დამაკმაყოფილებელი ☐ არადამაკმაყოფილებელი
 მოსინჯვის შედეგი: ☒ დამაკმაყოფილებელი ☐ არადამაკმაყოფილებელი

№	სტანდარტული აირი	სტანდარტული აირის კონცენტრაციის სერტიფიცირებული მნიშვნელობა	დასაკალიბრებელი ხელსაწყოების ზეგნება	აბსოლუტური ცდომილება	განუსაზღვრე ლომა U
1	CO	59.00 ppm	80.1ppm	21.1ppm	2.95 ppm
2	SO ₂	5.06 ppm	5.58 ppm	0.52 ppm	0.25ppm
3	NO ₂	0.78 ppm	0.108ppm	-0.672 ppm	0.04 ppm

გაერთიანებული განუსაზღვრელობის მნიშვნელობა: მოცემული სტანდარტული განუსაზღვრელობის შესაქმნელად ჩასაძვლია მოცემული კოეფიციენტი ხ.ე. 2, რაც მომხმარებელს განუცხადებენ შემთხვევით დაფიქსირებულ შეცდომას.

დაკალიბრების თარიღი
Calibration date 29 ოქტომბერი 2025 წ.

დამატებითი ინფორმაცია
Additional Information

1 (ერთი) წელი

დაკალიბრებადი მოწყობის ინტერვალის გასაწყობის მოთხოვნის შემთხვევაში
calibration interval, if requested by the customer

პირის ხელმოწერა, რომელმაც
ჩაატარა დაკალიბრება
Signature of the person
who performed calibration

გ. პატაშური
საბუნებისმეტყველო
თარიღი

3. აქტი
20/10/25
სტამბა
signature, stamp



Aeroqual Limited

460 Rosebank Road, Avondale, Auckland 1026, New Zealand.

Phone: +64-9-623 3013 Fax: +64-9-623 3012

www.aeroqual.com

Calibration Certificate

Calibration Date: 29 Sep 2025

Model: PM2.5 / PM10 0 - 1.000 mg/m³

Serial No: SHPM 5006-4A4D-001

Measurements

	PM2.5 (mg/m ³)	PM10 (mg/m ³)
Reference Zero	0.000	0.000
AQL Sensor Zero	0.000	0.000
Reference Span	0.038	0.323
AQL Sensor Span	0.039	0.322

Calibration Standards

Standard	Manufacturer	Model	Serial Number	Calibration Due
Optical Particle Counter	MetOne Instruments	GT-526S	B13059	20 June 2026
Test aerosol	Powder Technology Inc.	ISO 12103-1, A1 ultrafine test dust	n/a	n/a

QC Approval: M Tse



**Kvesheti-Kobi Highway Lot 2 Kvesheti –
Tskere Section
Long-Term Vibration Monitoring Report–
October 2025**



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Tbilisi
October, 2025



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1. Introduction

Vibration induced in buildings are a frequent concern in cities around the world. Commonly, complaints are made by homeowners, as heavy construction vehicles travel at various speeds on adjacent roads, resulting in annoying vibrations and possible structural damage. Passenger vehicles rarely produce perceptible vibrations to cause significant structural damage. Generally, traffic induced vibrations are caused by heavy vehicles. These vibrations are generated by road surface irregularities, namely: potholes, cracks, and uneven pavement joints. Dynamic interaction forces between the vehicle and pavement are created by these irregularities resulting in a generation of stress waves that travel through the adjacent soils.

Vibrations produce damaging stress waves that quickly reach building foundations, causing them to vibrate. Several factors contribute to vibration levels, including: road condition, vehicle speed, vehicle weight, soil conditions, building characteristics, vehicle suspension system, season of the year, and distance between the structure and the road. When a large vehicle strikes an irregularity, an impact load, as well as an oscillating load due to the “axle hop” of the vehicle are generated. The impact load generates ground vibrations that are predominant at the natural vibration frequencies of the soil, whereas the axle hop generates vibrations at the hop frequency, which is a characteristic of the vehicle’s suspension system. Vibrations can be amplified if the natural frequency of the building coincides with the natural frequency of the soil.

Soil type and stratification can influence the level of vibration greatly. Vibration levels increase as soil stiffness and damping decrease. Traffic vibrations appear worst in areas underlain by a soft silty clay layer between 7 meters and 15 meters deep. The natural frequencies of the soil coincide with the natural frequency of the structures at these locations. Seasonal variations and the moisture content of the soil are also a consideration when measuring vibrations. In locations where the topsoil freezes, vibration levels can be less than half those in other seasons.

Vibration sources such as construction activities and road traffic, are among the sources considered potentially dangerous to buildings and structures. In general, structural damages to buildings are extremely rare and are in general caused by other sources. Structural damages occur when the permissive levels of vibration are exceeded. Degrees of damage are methodologically defined and vary from those that do not affect the structural safety of the buildings but affect the value of assets – e.g. formation of cracks in the plaster, increase in existing cracks, damage of architectural elements etc.

The classification of damage categories used in analysis of vibration impacts is determined by ISO 4866 and is the following:

- **Damage threshold:** Formation of cracks on the surfaces of the thread-like drywall, increase of existing cracks on the plaster surfaces or on the surfaces of dry-stone walls; also cracks in the mortar joints in the thread-like construction in brick and concrete;
- **Minor damage:** Widening of cracks, detachment and fall of plaster or pieces of plaster drywall; formation of cracks in blocks of brick or concrete;
- **Major damage:** Damage of structural elements; cracks in the support columns; opening of joints; set of cracks in masonry.



In the present work the effects of vibration in terms of nuisance/annoyance to people are not considered, and only the potential damage to structures are evaluated.

Based on the May 20th, 2024 agreement signed between parties LLC "Gergili" and "Constant Department (Branch) of China Railway 23rd Bureau Group Co. LTD", LLC "Gergili" conducted a study on the propagation of vibration during tunnel construction works in:

1. Mughure (VM#5 - Cultural Heritage #29);
2. VM #6 -. Arakhveti - Kakha Burduli

2. Project Description

The Government of Georgia (GoG) has launched a program to upgrade the major roads of the country. The program is being managed by the Roads Department (RD) of the Ministry of Regional Development and Infrastructure (MRDI). As a part of the program, The Kvesheti – Tskere section, or 'Lot 2' includes 2.5 km of tunnels and 1.5 km of bridges. The main elements of this section are:

- Kvesheti bypass road (length 3.2 km),
- Bridge 1 (length 27.8m, height 14m, 2 lane)
- Bridge 2 over the Aragvi river (length 435.28m, height 62m, 3 lanes)
- Tunnel 1 (length 1540.64m, 2 lanes) with gallery (1092m) (New Austrian tunneling method- NATM 3)
- Bridge 3 - Arch bridge over the river Khadistskali (length 426m, height 164m, 3 lane)
- Tunnel 2 (length 193.42m, C&C, 3 lane)
- Bridge 4 over the left tributary of River Khadistskali (length 147.80m, height 26m, 3 lane)
- Tunnel 3 (length 388.38m)
- Bridge 5 (length 322m, height 55m, 3 lane)
- Tunnel 4 (length 299m, C&C, 3 lane)
- Bridge 6 (length 218m, height 48m, 3 lane)
- Five grade junctions are planned (KM0.3, KM1.7, KM3.1, KM7.7, KM10.5) and 3 service roads.

The Lot 2 Project impacts eight villages – Kvesheti, Arakhveti, Zakatkari, Beniani, Begoni, Sviana, Rostiani and Mughure.

The tunnel provides more secure and reliable conditions for passengers on the road in winter. Besides The National Park of Kazbegi and Gudauri Winter Resort will avoid the traffic flow by the help of the new road. The road will also improve the livelihood conditions of inhabitants living in gorge. They are isolated from outside world in winter and the villages of Khada are almost empty. There are no grocery store and pharmacy and the medical assistance is not available. Because of the nonexistence of the road and severe weather conditions local people have to go to Kvesheti on foot, which is connected with a lot of difficulties and risks. We must take into consideration the fact that there are mostly middle aged and elderly people living in the upper villages of gorge. It's especially hard for them to pass this road in winter.



After project realization, distance between Kvesheti and Kobi will be reduced by 12 km instead of existing 35 km road, and travel time will be reduced to 15 minutes instead of 1 hour.

The construction works of The Kvesheti-Tskere Section is financing by Asian Development Bank. The construction works started in the end of 2019 and will be completed in 2023.

During this reporting period project is at construction stage:

1. VM#5 – Cultural Heritage #29;
2. VM #6 -. Arakhveti - Kakha Burduli

The length of the new alignment is 22.7 km and will be divided into two construction packages, or 'Lots' as follows:

- Lot 1: Tskere – Kobi: Chainage KM 12.7 – KM 22.7 (10 km);
- Lot 2: Kvesheti – Tskere: Chainage KM 0.0 – KM 12.7 (12.7 km).

The present vibration survey report covers Lot 2 - section.



Figure 1: Locations of Vibration Devices



Figure 2: Location of Vibration Device





Figure 3: Location of Vibration Device



3. Vibration Monitor SWARM

The SWARM vibration monitor is the most efficient and high-quality vibration monitor on the market and uses MEMS (Micro-ElectroMechanical Systems) technology. Geophones are no longer needed.

The SWARM vibration monitor worldwide in construction and infrastructure and also to measure vibrations of other nature, such as vibrations at windmills, vibrations at data centers and vibrations from heavy traffic. The SWARM is used to measure potential damage to structures and to measure nuisance for people in buildings.

The SWARM is IP65 rated, complies with industry standards and measures according to the latest and relevant standards and guidelines.

The measurement data is automatically sent from the SWARM to the Honeycomb platform via 4G/LTE or WiFi. There is no need to retrieve monitoring data from the jobsite. Saving time and manpower through the unprecedented efficiency of the SWARM.

Omnidots SWARM measures the Vtop (PPV / Peak Particle Velocity) and the Atop (PPA / Peak Particle Acceleration) for guidelines DIN4150-3, BS7385 and SBR-A.

All monitoring data is saved as CSV, Excel or retrieve the data using the Omnidots APL Honeycomb is capable of generating notifications for Vtop (PPV) and also for Atop (PPA).



Figure 4. Vibration Monitor SWARM



Installing the SWARM is incredibly fast and easy, as you can see in this video. You can configure the measuring points remotely via the Honeycomb web platform. There you can also access your measurement data 24/7, from anywhere in the world from your laptop, smartphone or tablet.

1. Complies with industry standards: DIN4150-2, DIN4150-3, DIN 45669-1, BS7385, BS6841, ISO2631, SBR-A 2010, SBR-A 2017, SBR-B, Circulaire du 23/07/1986, ISEE (USBM RI8507 & OSMRE) and SN640312a.
2. The SWARM continuously sends the measurement data automatically to Honeycomb via 4G/LTE, WiFi or PoE using an adapter.
3. Mounting is very quick and easy.
4. The SWARM is compact, lightweight, and IP65 rated.



4. Measuring in accordance with DIN 4150-3 Standard

DIN 4150-3 is the most widely applied standard internationally for measuring structural vibrations. The measurement procedure can be found in a similar form in other national standards, for example the Italian UNI 9916. The assessment parameter is the maximum value (V_i) of the three individual components (peak values) of vibration velocity at frequencies of 1 to 80 Hz.

The measurements are carried out at the foundation. Vibrations in the ceiling of the upper most outer walls also provide valuable information for analysis. These detect the horizontal response of the building to the vibration at the foundation. Only the greatest value of both the horizontal components is then used for the analysis.

The standard provides guide values for permissible vibration velocities for short time and sustained vibrations in three types of buildings (Notes from DIN 4150-3 about the guide values is given in Table 1, 2).

Table 1: Guide values for transient vibration

Guide values for vibration velocity for analyzing the effects of transient vibration					
Building Type	Foundation Frequency of the Significant Vibration			Upper ceiling	
Frequency range	1 – 10 Hz	10 – 50 Hz	50 – 100 Hz	All frequencies	
Direction	X / Y / Z	X / Y / Z	X / Y / Z	X / Y	Z
Reinforced or framed structures. Industrial and heavy commercial buildings	20 mm/s	20 – 40 mm/s	40 – 50 mm/s	40 mm/s	20 mm/s
Unreinforced or light framed structures/ Residential or light commercial type buildings	5 mm/s	5 – 15 mm/s	15 – 20 mm/s	15 mm/s	20 mm/s
Delicate, listed buildings e.g. historical monuments	3 mm/s	3 – 8 mm/s	8 – 10 mm/s	8 mm/s	20 mm/s



Table 2: Guide values for continuous vibration

Guide values for vibration velocity v_i for analyzing the effects of continuous vibration		
Building Type	Upper ceiling level, all Frequencies	
Direction	X / Y (horizontal)	Z (vertical)
Reinforced or framed structures industrial and heavy commercial buildings	10 mm/s	10 mm/s
Unreinforced or light framed structures, residential or light commercial type buildings	5 mm/s	10 mm/s
Delicate buildings, listed buildings e.g. historical monuments	2.5 mm/s	-

Vertical continuous vibration with a vibration velocity below 10 mm/s normally do not cause damage to ceilings in houses. For delicate buildings there are no guide values available.

For sustained vibrations on pipelines, the guide values for short time vibrations, reduced by 50%, can be applied.

The following advice is given in DIN 4150-3 for the placement of sensors:

- For foundation vibrations the transducer should be placed on the lowest floor at the foundation or on the outer wall.
- In the upper ceiling level, the sensor should be placed inside or very close to the outer wall.
- For buildings without a basement the measurement location must not be higher than 0.5m above the ground level.
- The measurement location should predominantly be on the side of the building facing the excitation.
- One of the lateral coordinates (X / Y) should be parallel to an outside edge of the building.
- Buildings with larger ground areas should be measured at several points.
- In addition to measuring at the foundation and the upper ceiling, if required, measurements can be carried out in the vertical direction on the ceilings, where the strongest vibrations are to be expected (mostly central).
- When measuring pipelines, where possible, the sensor should be placed on the pipeline itself.



5. Evaluation of Effects of Vibration on Buildings

5.1 DIN 4150-3 Standard

Categorization of buildings: Table 1, 2 contains building categorization determined by DIN 4150, in particular: Category 1: Commercial/Industrial buildings and similar; Category 2: Residential building and similar; and Category 3: Sensitive Buildings.

Short or long vibration: In case of construction of the road as well as in case of road operation, the buildings will be subject to short vibration impacts – impacts that occur for short period of time (e.g. the period of time when roller compactor is working or when a heavy vehicle is crossing in front of an impacted building). Characterization of long (transient) and short vibrations is defined in DIN 4150-3. Nevertheless, only for demonstration purpose, in comparison of modelled vibration impact to the damage thresholds, thresholds for both – short and long vibration impacts for II category buildings assigned to structures have been referred.

5.2 ISO 4866:2010 Standard – Mechanical Vibration and Shock

The principles for carrying out vibration measurement and processing data regarding the effects of vibration on structures are established by the International Standard ISO4866:2010 - "Mechanical vibration and shock, Vibration of fixed structures, Guidelines for the measurement of vibrations and evaluation of their effects on structures".

The most common and frequent structural damage from man-made sources occurs in the frequency range from 1 to 150 Hz.

Natural sources, such as earthquakes and wind excitation, usually contain damage-level energy at lower frequencies, in the range from 0,1 Hz to 30 Hz.

The classes are defined with reference to a building Unreinforced or light framed structures/ Residential or light commercial type. The reference building shall not have any constructional defects nor shall it have sustained accidental damage. If the construction does not fulfil these requirements, it shall be allocated to a lower class.

5.3 Description of Damage

For the purposes of this International Standard ISO 4866:2010, the damages classified into the following categories:

- **Cosmetic.** The formation of hairline cracks on drywall surfaces (see ISO 4356), or the growth of existing cracks in plaster or drywall surfaces; in addition, the formation of hairline cracks in mortar joints of brick/concrete block construction.
- **Minor.** The formation of large cracks or loosening and falling of plaster or drywall surfaces, or cracks through bricks/concrete blocks.
- **Major.** The damage to structural elements of the structure, cracks in support columns, loosening of joints, splaying of masonry cracks, etc.



6. Vibration Propagation Study

On 01.10 – 31.10, 2025, Vibration survey field works were carried out by the representatives of LLC "Gergili". The research procedure was conducted in accordance with the form approved by the organization. The aim of the study was to assess the impact of vibration generated during construction works on the surrounding buildings. 2 points were defined as the location of the vibrating device:

- 1) Mughure (VM#5 - Cultural Heritage #29);
- 2) VM #6 -. Arakhveti - Kakha Burduli

Figure 5: Study Area

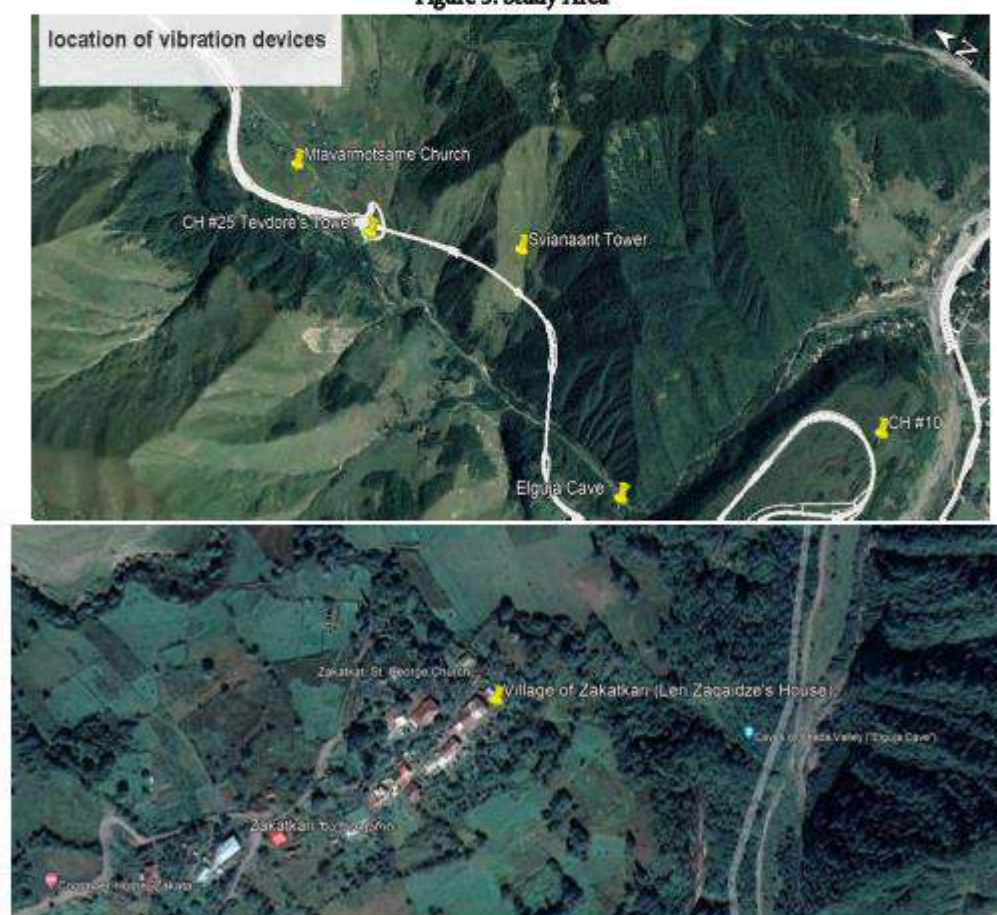




Figure 6: Measurement Point – VM#5 – Cultural Heritage #29



Figure 6.1: Vibration monitor SWARM was installed outside on the wall of the Tower





Figure 7: Measurement Point – VM#6 – Kakha Burduli



The tables below show the measurement protocol, VM#5, VM#6, where the technical details of the measurements are presented. Construction work was intensive while receiving the vibration data. Data collection at point VM#5, VM6, took during 01.10– 31.10

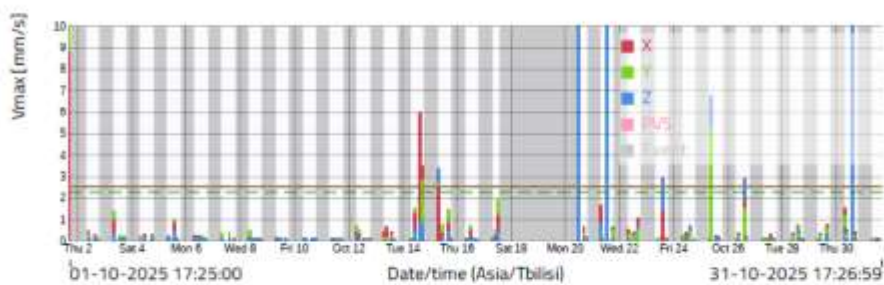


Measurement protocol VM#5 – Cultural Heritage #29	
1. General	
1.1 Person in charge	Irakli Ramishvili - Head of the BBE Science Research Laboratory
1.2 Measurement period	1/10/25 17:25:00 - 31/10/25 17:26:59
2. Kind of vibration	
2.1 Excitation	Construction work
2.2 Operating conditions	Intensive construction
3. Structure	
3.1 Name and address	Cultural Heritage in Mughure
3.2 Classification	Sensitive building. According to DIN 4150-3 standard N3 categories of buildings (sensitive buildings)
3.3 Description	Stone building
4. Location and position	
4.1 Source of vibration - [X: 42.47488271 Y: 44.53275790]	
5. Environmental conditions	Open space, smooth surface.
6. Subjective observations	The vibration of the working specifics affect minor on the general condition
7. Measuring chain	Threshold for measurement storage: 0.2 mm/s Guideline: DIN4150-3 80Hz Measuring interval (seconds): 2 Measurement method: DIN 4150-3; Settings: Long term; Calculate Vmax (Peak vibration velocity): On Measurement processing and report generation done with MEMS software.
8. Measurement result	

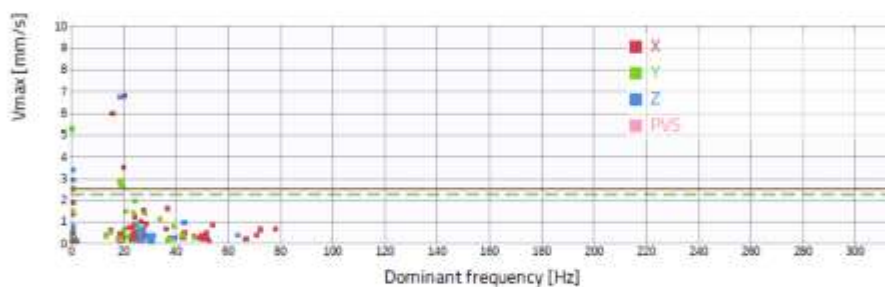


8.1 Event chart

Peak vibration velocity/time



Peak vibration velocity/frequency



9. Evaluation

Construction vibration does not affect the overall condition

10. Signs

Signature

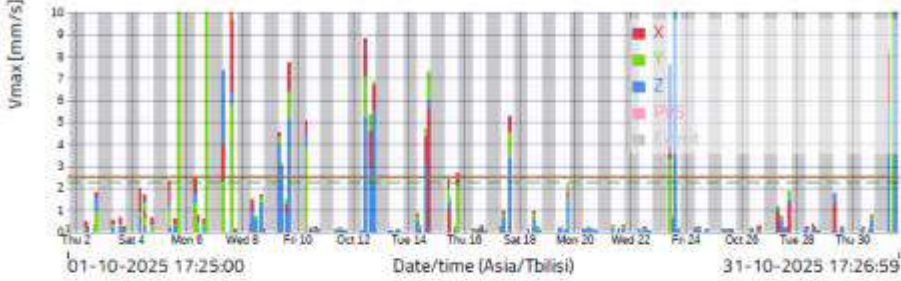
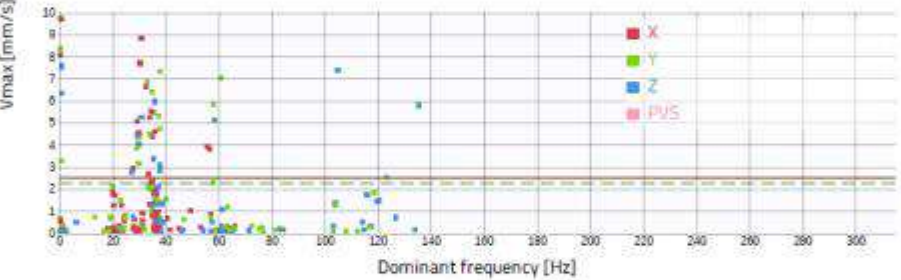
Irakli Ramishvili





Measurement protocol VM#6 – Kakha Burduli	
1. General	
1.1 Person in charge	Irakli Ramishvili - Head of the BBE Science Research Laboratory
1.2 Measurement period	1/10/25 17:25:00 - 31/10/25 17:26:59
2. Kind of vibration	
2.1 Excitation	Construction work
2.2 Operating conditions	Intensive construction
3. Structure	
3.1 Name and address	Kakha Burduli's house
3.2 Classification	Sensitive building. According to DIN 4150-3 standard N3 categories of buildings (sensitive buildings)
3.3 Description	Stone building
4. Location and position	
4.1 Source of vibration - [42.458977, 44.529776]	
5. Environmental conditions	Closed space.
6. Subjective observations	The vibration of the working specifics affect minor on the general condition
7. Measuring chain	Threshold for measurement storage: 0.2 mm/s Guideline: DIN4150-3 80Hz Measuring interval (seconds): 2 Measurement method: DIN 4150-3; Settings: Long term; Calculate Vmax (Peak vibration velocity): On Measurement processing and report generation done with MEMS software.
8. Measurement result	
8.1 Event chart	



Peak vibration velocity/time 	
Peak vibration velocity/frequency 	
9. Evaluation	Construction vibration does not affect the overall condition
10. Signs	
Signature	Irakli Ramishvili 



Exceedances of vibration levels were observed in October

From where, all exceedances observed, we do not have an information on exact reason of the exceedances

1. VM#5 – Cultural Heritage #29

Date	X Fdom (Hz)	X Vmax (mm/s)	Y Fdom (Hz)	Y Vmax (mm/s)	Z Fdom (Hz)	Z Vmax (mm/s)
Oct. 14, 2025 17:28:14	16.0	5.9534	16.5	5.9662	43.5	0.9546
Oct. 14, 2025 17:31:39	20.0	3.4763	25.5	2.5366	25.5	0.8318
Oct. 14, 2025 17:40:44	19.0	2.5465	19.0	2.8268	47.0	0.4991
Oct. 15, 2025 09:10:29	23.0	1.6075	22.5	2.4381	31.5	0.3399
Oct. 15, 2025 09:15:29	23.5	1.5579	23.5	2.4832	27.0	0.5796
Oct. 15, 2025 09:32:29	1.0	2.4972	1.0	2.2251	1.0	3.3547
Oct. 15, 2025 09:46:14	19.5	1.0857	19.5	2.6312	26.5	0.3206
Oct. 20, 2025 12:16:29	0.5	4.0014	0.5	2.2972	1.5	0.8466
Oct. 20, 2025 12:17:29	1.0	11.1812	1.0	5.5638	17.5	2.8007
Oct. 20, 2025 13:09:29	1.5	124.7035	1.0	80.5692	1.0	31.1449
Oct. 20, 2025 13:09:59	27.5	3.5489	27.5	1.8166	28.0	1.7429
Oct. 21, 2025 13:51:44	0.5	15.7166	0.5	28.6608	1.5	12.1353
Oct. 23, 2025 14:41:29	1.0	1.3538	1.0	1.4088	1.0	2.9315
Oct. 25, 2025 10:04:29	20.5	6.7593	0.5	5.2513	19.0	6.7350
Oct. 26, 2025 14:39:14	1.0	1.8555	1.0	1.4772	1.0	2.8915
Oct. 30, 2025 16:00:29	26.0	0.7503	38.0	1.9628	31.0	2.5739
Oct. 30, 2025 16:10:14	2.5	27.6486	2.5	27.4297	6.5	15.8160

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3. VM#6 -Kakha Burduli

Date	X Fdom (Hz)	X Vmax (mm/s)	Y Fdom (Hz)	Y Vmax (mm/s)	Z Fdom (Hz)	Z Vmax (mm/s)
Oct 5, 2025 18:21:14	34.0	22.5849	53.0	16.4402	74.0	16.7863
Oct 5, 2025 18:21:29	48.5	14.1439	48.0	22.1075	107.5	24.2794
Oct 6, 2025 18:11:14	62.0	9.8931	79.0	6.5925	114.0	2.9033
Oct 6, 2025 18:16:44	63.0	2.9564	117.0	1.5857	1.0	6.8937
Oct 6, 2025 19:06:29	61.5	13.6753	61.5	11.2700	68.5	22.7082
Oct 7, 2025 08:26:58	56.0	3.9188	58.0	2.2735	105.0	7.3628
Oct 7, 2025 11:31:58	80.0	3.6401	80.0	1.4772	1.0	4.4812
Oct 7, 2025 11:58:59	97.0	3.8035	57.0	1.9446	1.0	7.5191
Oct 7, 2025 14:10:44	3.5	77.3537	0.5	9.7100	1.5	4.5399
Oct 7, 2025 14:10:59	0.5	7.0746	0.5	7.3825	1.0	1.2974
Oct 7, 2025 16:07:29	1.0	9.6540	2.5	2.8844	1.5	1.4922
Oct 7, 2025 17:21:14	4.0	3.6362	4.0	5.6560	115.0	4.9918
Oct 7, 2025 17:21:29	58.0	3.7170	58.0	5.8085	1.0	6.3147
Oct 9, 2025 09:33:14	26.5	4.7841	26.5	3.3137	27.5	1.9182
Oct 9, 2025 09:33:29	27.5	3.8046	27.5	3.3483	27.5	2.0098
Oct 9, 2025 09:35:58	30.0	4.5172	30.0	4.2998	30.0	4.0083
Oct 9, 2025 09:36:14	30.0	3.7049	30.0	2.9279	30.0	2.9040
Oct 9, 2025 09:36:29	30.0	3.6820	30.0	2.9790	30.0	1.4873
Oct 9, 2025 16:48:29	34.5	4.4267	35.0	6.3791	36.0	4.2486
Oct 9, 2025 16:51:14	30.5	5.9898	30.5	5.6678	30.5	4.1112
Oct 9, 2025 16:51:29	30.5	7.6878	30.5	5.7027	60.0	4.2629
Oct 9, 2025 16:51:44	30.0	5.2548	30.0	4.3884	60.0	4.1259
Oct 9, 2025 16:51:58	30.0	3.9132	30.0	2.8171	30.0	1.6886
Oct 9, 2025 16:57:14	29.5	3.5738	29.5	3.0204	29.5	1.6975
Oct 9, 2025 16:57:29	29.5	4.2512	58.5	3.8934	29.5	4.3114
Oct 9, 2025 16:57:44	58.5	6.4473	58.5	5.4261	58.5	5.0986
Oct 9, 2025 17:00:14	26.0	3.7182	26.0	2.9524	26.0	2.6723
Oct 9, 2025 17:00:29	26.0	3.9989	26.0	3.1026	26.0	1.7144
Oct 9, 2025 17:56:14	22.0	3.8813	22.0	3.2546	36.5	1.8033
Oct 9, 2025 17:56:29	22.0	4.7302	21.5	4.1695	36.0	2.4321

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Date	X Fikom (µg)	X Vmax (mm/s)	Y Fikom (µg)	Y Vmax (mm/s)	Z Fikom (µg)	Z Vmax (mm/s)
Oct. 9, 2025 17:58:14	26.0	4.0520	26.0	3.9525	37.0	1.2481
Oct. 9, 2025 18:01:14	25.5	3.8048	25.5	3.6610	29.5	1.1483
Oct. 9, 2025 18:07:44	25.5	4.9775	25.0	4.8388	30.0	1.8527
Oct. 10, 2025 08:26:14	27.0	3.6521	27.0	2.9112	27.5	2.8954
Oct. 10, 2025 08:34:59	29.5	4.6258	29.5	3.6802	29.5	3.2057
Oct. 10, 2025 08:35:14	29.5	5.0499	29.5	3.5247	29.5	4.2156
Oct. 10, 2025 08:35:29	29.5	4.9580	29.5	3.8480	29.5	4.0821
Oct. 10, 2025 08:38:44	29.5	3.8878	29.5	2.7563	24.0	3.3328
Oct. 10, 2025 08:38:59	29.5	4.0487	29.5	3.3526	29.5	4.6183
Oct. 10, 2025 08:39:14	29.5	4.7989	29.5	3.7850	29.5	4.0506
Oct. 12, 2025 10:34:29	29.5	4.0890	29.5	3.5457	29.5	3.8141
Oct. 12, 2025 10:34:44	29.5	4.3720	58.5	3.3290	58.5	4.3277
Oct. 12, 2025 10:38:14	61.5	3.9351	61.5	4.1028	61.5	2.8179
Oct. 12, 2025 10:38:29	61.5	8.2004	61.5	4.8794	61.5	3.6241
Oct. 12, 2025 10:38:44	61.5	5.6512	61.5	4.5782	61.5	2.8873
Oct. 12, 2025 10:45:29	31.5	8.0316	31.5	5.6971	31.5	4.1088
Oct. 12, 2025 10:45:44	31.5	4.0070	31.5	3.7693	31.5	3.4793
Oct. 12, 2025 10:53:14	31.0	8.1231	61.0	5.8902	31.0	4.8428
Oct. 12, 2025 10:53:29	31.0	8.8043	61.0	7.0292	31.0	5.2135
Oct. 12, 2025 10:53:44	61.5	8.2673	61.5	5.4073	31.0	4.0840
Oct. 12, 2025 14:20:44	36.0	4.4147	36.0	3.5767	37.0	2.6628
Oct. 12, 2025 14:02:59	36.0	4.5881	36.0	3.5576	37.0	2.5418
Oct. 12, 2025 14:12:59	36.5	3.7884	36.5	3.2013	37.0	1.8817
Oct. 12, 2025 14:40:59	37.5	3.5163	37.5	5.3037	38.0	2.8968
Oct. 12, 2025 14:58:44	38.5	3.3113	38.5	3.8917	38.5	1.8947
Oct. 12, 2025 14:59:59	38.0	4.3962	38.0	5.2026	76.5	2.1487
Oct. 12, 2025 15:08:44	38.5	2.7817	38.5	3.6183	38.5	1.8944
Oct. 12, 2025 15:24:59	38.5	2.9805	38.5	3.6636	119.5	2.2794
Oct. 12, 2025 15:27:39	38.5	2.5468	38.5	4.4033	38.5	2.2500
Oct. 12, 2025 15:28:14	38.5	2.6030	38.5	4.5440	119.5	2.5120
Oct. 12, 2025 17:20:59	32.5	8.6214	33.0	8.8326	35.5	5.4674
Oct. 12, 2025 17:23:29	35.0	4.0373	35.5	3.0186	36.0	2.4042
Oct. 12, 2025 17:28:29	36.0	3.5458	32.0	3.5583	38.0	2.6837

Kvesheti-Kobi Highway Lot 2 Kvesheti – Tskere Section
Long-term Vibration Monitoring Report – October 2025



Date	X Filter (Hz)	X Vmax (mm/s)	Y Filter (Hz)	Y Vmax (mm/s)	Z Filter (Hz)	Z Vmax (mm/s)
Oct. 12, 2025 13:37:44	33.0	4.3104	33.0	3.7580	33.0	2.3774
Oct. 14, 2025 16:18:44	33.5	2.3406	33.5	4.2213	33.5	2.3164
Oct. 14, 2025 16:27:20	33.0	2.3347	33.0	4.8506	33.0	2.3404
Oct. 14, 2025 16:29:50	33.0	1.8230	33.0	3.8146	33.0	2.5723
Oct. 14, 2025 16:45:44	33.0	3.0823	33.0	4.0505	33.0	3.1323
Oct. 14, 2025 16:53:14	33.0	2.0542	33.0	4.0305	33.0	3.0740
Oct. 14, 2025 16:56:44	33.0	4.3617	33.0	3.5512	33.0	2.4037
Oct. 14, 2025 17:56:00	77.0	1.0137	33.5	5.5878	77.0	3.2358
Oct. 14, 2025 18:03:44	33.0	4.0275	33.5	4.2024	33.0	5.9523
Oct. 14, 2025 18:07:00	70.0	3.8886	33.0	3.8030	174.5	4.4895
Oct. 14, 2025 18:07:14	33.5	3.7480	75.5	4.1082	33.5	3.1603
Oct. 14, 2025 18:13:14	75.0	2.8039	33.0	3.8775	33.5	3.2270
Oct. 14, 2025 18:13:20	70.0	3.5167	33.0	4.8886	174.5	4.3674
Oct. 14, 2025 18:58:44	36.5	2.5445	33.0	4.7970	33.0	3.8427
Oct. 17, 2025 14:42:18	36.0	5.2534	34.0	4.4929	35.5	3.3939
Oct. 17, 2025 14:56:00	35.0	3.8199	35.5	3.3557	36.5	2.1132
Oct. 17, 2025 15:40:44	33.5	2.5088	33.5	2.8704	33.5	1.5063
Oct. 21, 2025 10:03:44	33.0	2.3733	33.0	3.2889	33.0	3.3893
Oct. 21, 2025 10:29:20	36.5	3.8083	36.5	2.8885	33.0	4.6293
Oct. 21, 2025 14:26:14	33.0	3.4244	33.0	3.5200	33.0	2.5094
Oct. 21, 2025 14:30:44	33.0	3.8439	33.0	3.9100	33.0	1.2859
Oct. 21, 2025 15:15:00	37.5	3.0348	33.0	3.1450	33.0	3.1566
Oct. 21, 2025 15:57:14	33.0	4.1789	103.5	3.0677	106.5	3.0433
Oct. 21, 2025 16:29:20	33.0	3.2989	33.0	4.0476	111.5	3.8804
Oct. 21, 2025 16:31:20	7.5	21.3345	33.0	36.5364	102.5	11.9430
Oct. 21, 2025 16:32:14	102.5	3.8401	33.0	3.8961	33.0	4.0375
Oct. 31, 2025 09:43:00	33.0	3.8674	33.0	3.3638	103.5	5.7892
Oct. 31, 2025 09:13:44	33.0	2.5630	35.5	3.6247	106.0	4.0052
Oct. 31, 2025 13:07:14	33.0	3.8888	34.0	4.4487	33.0	4.3076
Oct. 31, 2025 13:09:44	33.5	4.4877	33.0	4.6739	33.0	3.0307
Oct. 31, 2025 13:19:14	33.0	3.4850	33.0	2.5674	33.0	2.5634
Oct. 31, 2025 13:07:44	33.0	33.3375	4.0	17.4270	33.0	23.8277
Oct. 31, 2025 13:07:00	33.0	24.4884	42.5	13.4833	42.5	3.3361

We have only recorded the 10% highest accelerations

Date	X Filter (Hz)	X Vmax (mm/s)	Y Filter (Hz)	Y Vmax (mm/s)	Z Filter (Hz)	Z Vmax (mm/s)
Oct. 31, 2025 12:58:14	33.0	36.9117	33.0	3.8927	33.0	4.6391
Oct. 31, 2025 12:58:20	33.0	30.7178	33.0	4.4523	33.0	5.0874
Oct. 31, 2025 16:10:20	23.0	148.4747	23.0	90.5882	75.0	10.3317
Oct. 31, 2025 17:03:44	37.0	34.992	122.0	2.4809	33.0	3.7962



7. Conclusion

1. Based on the agreement, dated May 20th, 2024 (No. E/OT/201-2024) and signed between parties LLC "Gergili" and "Constant Department (Branch) of China Railway 23rd Bureau Group Co. LTD", LLC "Gergili" conducted a study on the propagation of vibration in Kvesheti and Gudauri, during construction works of tunnel and bridges.
2. First VM#5 point was selected as vibration location: 42.47488271, 44.53275790
 Second VM#6 point was selected as vibration location: X: 462145.54 Y: 4697533.05 (about 50 m from the project zone)
 Vibration survey was performed in accordance with the German standard DIN 4150-3 and the standard of the International Certification Organization ISO 4866:2010, as well as following the procedures of vibration survey developed by the company.
3. Vibration level data were collected:
4. VM#5 point- 1/10/25 17:25:00 - 31/10/25 17:26:59
 VM#6 point - 1/10/25 17:25:00 - 31/10/25 17:26:59
 VM#5, VM#6, shows the vibration level values in 2-second intervals for, VM#5, VM#6, point. Exceedance of the reference value of DIN 4150-3 standard at VM#5, VM#6, was observed in October 2025. We do not have an information on exact reason of the exceedances.
5. At the given stage, the construction works are accomplished with heavy vehicles and works done by personnel, so there is no source of a permanent vibration as a result of the construction activities. An analysis of the measurement values at point VM#5, VM#6, in October shows that some cases of sharp increases in vibration levels were observed.
6. At the measurement points the vibration data obtained as a result of construction works is significantly minimal than the values provided by the standard during most of the measurement period.



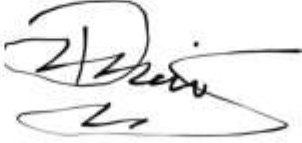
8. Calibration certificates

Calibration report

Certificate of Calibration

Certificate number: 20241012717390658344



Manufacturer	Omnidots B.V.
Location of calibration	Industrieweg 98 7903 AK Hoogeveen Nederland
Model	SWARM V2.2c-G
Name	GIZAPE
Date of calibration*	2024-10-12 (YYYY-MM-DD)
Temperature (°C)	20±3°C
Humidity (% RH)	60±30%
Signature:	

* Recommended calibration interval is 24 months from first day of use, unless otherwise required by local standards and/or local laws.

Calibration report

Certificate of Calibration

Certificate number: 20241012717390658344



Calibration procedure

The Swarms are mounted on the calibration mounts. The shaker then targets a speed and keeps the same power for 60 seconds. Over this time measurement samples are logged and compared to the reference sensor.

Calibration report

Certificate of Calibration

Certificate number: 20241012786572694621



Calibration equipment used

Model	Serial number	Description	Calibration certificate
OMNSH01	0001	Horizontal shaker	n.a.
OMNMO01	0001	Calibration mount	n.a.
OMNMO01	0002	Calibration mount	n.a.
OMNMO01	0003	Calibration mount	n.a.
OMNDR01	0001	Shaker driver	n.a.
Epson MA351AU	B0001691	Reference sensor	180911
Swarm	VELOHU	Reference check	2018-02-26
n.a.	8e5aae6	Calibration software	n.a.

Calibration report

Certificate of Calibration

Certificate number: 20241012786572694621



Calibration results after measurement

Axis	Frequency	Reference measurement Vref (Vref*weighting(f))	Excitation measurement of the device Vmeas	Deviation 100 X (Vmeas-Vref)/ Vref	Result
X	16.0	9.07	9.23	1.83	PASS
Y	16.0	9.18	9.19	0.14	PASS
Z	16.0	8.94	9.01	0.85	PASS

Name

NAHETI

Date of calibration*

2024-10-12 (YYYY-MM-DD)

* Recommended calibration interval is 24 months from first day of use, unless otherwise required by local standards and/or local laws.

Tunnel Water Test results from Lot-1 Tskere



LLC BBE Scientific Research Examining Laboratory

Identification Number: 405347469

Report № 201025 -1

Date of report delivery - 20.10.2025

Sample name and quantity Tunnel water, 5 Liters

Client name: Ltd. "Gergil", ID 405353610

Sample was taken in: 13.10.2025

Sampling Place: Tunnel water, China Railway Tunnel Group Co., Ltd. Territory.

Analysis start and finish: 15.10.2025-20.10.2025

Sample analysis goal: physical-chemical analysis

Analysis Done By: The Exam LLC BBE Scientific Research Testing Laboratory and Laboratory of the Scientific Research Laboratory of G.Natadze Sanitation, Hygiene and Medical Ecology Scientific Research Institute.

Contacts:

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bbelab2019@gmail.com

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№	Parameter	Measurement Unit	Used Method	Result
Physical-chemical Parameters				
1	pH	-	Hach HQ430d	7.14
2	*Turbidity	NTU	ISO 7027-1:2016	1.94
3	Chemical Oxygen Demand (COD)	MgO/L	Hach Metod LCI 400	7.28
4	Biochemical Oxygen Demand (BOD)	MgO/L	Hach Metod Lck 555	0
5	*TPH	mg/l	Epa 1664	<1.40

*Note: 1. It shall be inadmissible to partially reproduce the protocol of the exam without the written permission of the laboratory.
2. The results belong only to an experienced pattern.*

ლაბორატორიის ხელმძღვანელი : ლ.დავითაშვილი




Wastewater Test results from Lot-1 Kobi (August 2025)



LLC BBE Scientific Research Examining Laboratory
Identification Number: 405347469

Report № 010825 -10

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Date of report delivery - 01.08.2025
Sample name and quantity kobi, Sewage water, 5 liters
Client name: Ltd. "Gergili", ID 405353610
Sample was taken in: 17.07.2025
Sampling Place: Ground water, China Railway Tunnel Group Co., Ltd. Territory.
Analysis start and finish: 17.07.2025-24.07.2025
Sample analysis goal: physical-chemical and microbiological analysis
Analysis Done By: The Exam Laboratory of the Scientific Research Laboratory of G.Natadze Sanitation, Hygiene and Medical Ecology Scientific Research Institute.
Parameters (*) are prepared by Ltd Scientific Research firm "GAMMA".

№	საკვლევი პარამეტრი	საზომი ერთეული	გამოყენებული მეთოდი	შედეგი
ფიზიკურ-ქიმიური მაჩვენებლები				
1	pH		SST ISO 10523:2008/2010	7.55
2	Total suspended solids	Mg/l	ISO 11923-1997	59.00
3	chemical oxygen demand (COD)	MgO/l	HACH Method LCK214	95.20
4	Biochemical oxygen demand (BOD)	MgO/l	ISO 5815:-1:2019	24.50
5	Total Nitrogen	Mg/l	Validated Method HI-SOP-C77	26.88
6	Total Phosphorus	Mg/l	ISO 6878-2004	0.013
7	*ease and Oils	Mg/l	Epa 1664-B-10	<5.0
8	*Phenols	Mg/l	Validated Method HACH CLK345	<0.10
9	*Detergents	Mg/l	Validated Method HANNA Method HI 96769	<0.1

*Maximum Permissible Limit According to Ordinance #425 On the Approval of the Technical Regulations against surface water pollution in Georgia – 31.12.2013 Tbilisi, Georgia. *Note: 1. It shall be inadmissible to partially reproduce the protocol of the exam without the written permission of the laboratory.*

2. The results belong only to an experienced pattern.



LLC BBE Scientific Research Examining Laboratory
Identification Number: 405347469

QC Lab Manager: R.Zedginidze

Agreed: Director of Laboratory I. Ramishvili



Wastewater Test results from Lot-1 KOBİ (October 2025)



LLC BBE Scientific Research Examining Laboratory
Identification Number: 405347469

Report № 100925 -10

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[BBE.GE](https://www.facebook.com/bbelaboratory)

Date of report delivery - 10.09.2025

Sample name and quantity Well located in kobi, Sewage water, 5 Liters

Client name: Ltd. "Gergili", ID 405353610

Sample was taken in: 14.08.2025

Sampling Place: Ground water, China Railway Tunnel Group Co., Ltd. Territory.

Analysis start and finish: 14.08.2025-18.08.2025

Sample analysis goal: physical-chemical and microbiological analysis

Analysis Done By: The Exam Laboratory of the Scientific Research Laboratory of G.Natadze Sanitation, Hygiene and Medical Ecology Scientific Research Institute.

Analysis (*) are prepared by Ltd Scientific Research firm "GAMMA".

№	საკვლევი პარამეტრი	საზომი ერთეული	გამოყენებული მეთოდი	შედეგი
ფიზიკურ-ქიმიური მაჩვენებლები				
1	pH	-	SST ISO 10523:2008/2010	7.31
2	Total suspended solids	Mg/l	ISO 11923-1997	19.71
3	chemical oxygen demand (COD)	MgO/l	HACH Method LCK214	0.324
4	Biochemical oxygen demand (BOD)	MgO/l	ISO 5815:-1:2019	0.49
5	Total Nitrogen	Mg/l	Validated Method HI-SOP-C77	16.80
6	Total Phosphorus	Mg/l	ISO 6878-2004	0.056
7	Grease and Oils*	Mg/l	EPA 1664-B-10	<5.0
8	Phenols*	Mg/l	Validated method Hach CLK 345	<0.10
9	Detergents*	Mg/l	Validated method HANNA Method HI 96769	<0.1

*Maximum Permissible Limit According to Ordinance #425 On the Approval of the Technical Regulations against surface water pollution in Georgia – 31.12.2013 Tbilisi, Georgia



LLC BBE Scientific Research Examining Laboratory
Identification Number: 405347469

*Note: 1. It shall be inadmissible to partially reproduce the protocol of the exam without the written permission of the laboratory.
2. The results belong only to an experienced pattern.*

ლაბორატორიის ხელმძღვანელი : ლ.დავითაშვილი

ლ. დავითაშვილი



Annex 3: NCR Register

(No NCR Issued during reporting period all non-compliances sent through letters. Details of letter given in Table 8 D)

Lot 1 NCRs issued During the Project Life

Title	NCR #	Type	Status	Date of Issue
Absence of secondary retention	No.0001	NCR2	Closed	04/01/21
Missing medical service with ambulance	No.0002	NCR2	Closed	05/03/21
Electrical Failure	No.0003	NCR2	Closed	05/03/21
Improper refueling process	No.0004	NCR2	Closed	12/03/21
Not performing the sealing shotcrete and fore pole	No.0005	NCR2	Closed	26/03/21
Violation of Working at Height	No.0006	NCR3	Closed	06/04/21
Absence of sedimentation tank	No.0007	NCR2	Closed	06/04/21
Violations on Construction of Emergency Gallery	No.0008	NCR2	Closed	09/04/21
Violation on Backfilling of Voids and Cavities in Emergency Gallery	No.0009	NCR3	Closed	09/04/21
Lack of 2nd Layer of Shotcrete in Emergency Gallery	No.0010	NCR2	Closed	09/04/21
Unsupported Length of Tunnel in Emergency Gallery	No.0011	NCR3	Closed	09/04/21
Related to Main Tunnel	No.0012	NCR2	Closed	17/04/21
Improper storage and usage of oxygen cylinders	No.0013	NCR3	Closed	16/06/21
Improper Storage and Usage of oxygen cylinders	No.0014	NCR3	Closed	8/2/2021
Absence of HS Representative	No.0015	NCR3	Closed	10/1/2021
TBM Excavation	No.0016	NCR3	Closed	10/1/2021
Drainage system of Batching Plant N 2.	No.0017	NCR3	Closed	6/26/2022
Septic System in Tskere	No.0018	NCR3	Closed	6/26/2022
Sludge removal from sedimentation ponds	No.0022	NCR1	Closed	01/12/2022
Oil Spill	No.0021	NCR1	Closed	11/28/2022
Mixed waste at batching Plant in Tskere	No.0023	NCR1	Closed	12/2/2022
Covering of Diesel facility	No.0024	NCR1	Closed	12/2/2022
Improper placement of Used oil drums	No. 0025	NCR1	Closed	17/1/2023
Poorly managed scrap yard in Kobi	No. 0039	NCR1	Closed	20/06/2023

Lot 2 NCRs issued During the Project Life

Title	NCR #	Type	Status	Date of Issue
-------	-------	------	--------	---------------

Absence of secondary retention	No.0001	NCR1	Closed	2/27/2021
Waste Burning on the Site	No.0002	NCR2	Closed	2/27/2021
Waste Disposal Area	No.0003	NCR3	Closed	2/10/2021
Potable Water at Campsite 2	No.0004	NCR 2	Closed	6/8/2021
Unsanitary Condition in the Canteen and Kitchen at Campsite 2	No.0005	NCR3	Closed	6/8/2021
Violation of Boundaries	No.0006	NCR2	Closed	7/21/2021
Improper Topsoil Management	No.0007	NCR3	Closed	7/21/2021
Lack of Hazardous Material Management and Spill Management	No.0008	NCR3	Closed	7/21/2021
Improper Storage of Topsoil	No.0010	NCR3	Closed	9/11/2021
Absence of Health and Safety Representatives on Sites	No.0011	NCR3	Closed	9/23/2021
Absence of the and Safety Representatives on Sites	No.0012	NCR3	Closed	9/28/2021
Lack of waste water and waste management	No.0013	NCR3	Closed	11/4/2021
Oil Spill at TUN 1 Exit	No.0035	NCR1	Closed	11/28/2022
Chemical Spill at TUN# 1 Entrance	No.0030	NCR1	Closed	12/2/2022
Oil spill and scattered waste at TUN# 1 exit	No.0060	NCR 1	Closed	20/06/2023
Imprpoer Management of Hazardous Asphalt Management	No. 91	NCR1		14-11-2025

NCR 1: Issue to be consider and take corrective action

NCR 2: Issue with high importance more severe than type 1

NCR 3: Issue with very high importance

Annex 4: Photo evidence of training sessions conducted during the Reporting Period (July-December 2025)

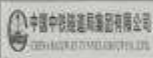
Lot 2



Lot-1



Annex 5: Samples attendance sheet of training sessions conducted during the Reporting Period (July – December 2025)


Construction of Kvesheti-Kobi Road Section

TRAINING REPORT
 Date: 2025.12.5 Time: 19:00
 Topic: New tunnel works
 Location (signature indicated):
 Training held by (signature indicated):
 Position: M.S.
 Signature: [Signature]
 Department:

ATTENDEES (signature indicated)

No.	Name (print & stamp)	Position (signature indicated)	Signature	Stamp
1	刘永传			
2	朱伟强			
3	张成子			
4	丁铁军			
5	田华			
6	高朝彬			
7	吴永平			
8	Kuefale wahan			
9	Elvir apah			
10	Dominic Tinas			
11	郭永辉			
12	张永平			
13	黄品洋			
14	张永			
15	郭永辉			
16	郭永辉			
17	郭永辉			
18	郭永辉			


Construction of Kvesheti-Kobi Road Tunnel Section

TRAINING REPORT
 Date: 2025.12.12 Time: 8:00
 Topic: Tunnel works
 Location (signature indicated):
 Training held by (signature indicated):
 Position: M.S.
 Signature: [Signature]
 Department:

ATTENDEES (signature indicated)

No.	Name (print & stamp)	Position (signature indicated)	Signature	Stamp
1	张永平			
2	张永平			
3	张永平			
4	张永平			
5	张永平			
6	张永平			
7	张永平			
8	张永平			
9	张永平			
10	张永平			
11	张永平			
12	张永平			
13	张永平			
14	张永平			
15	张永平			
16	张永平			
17	张永平			
18	张永平			


Construction of Kvesheti-Kobi Road Tunnel Section

TRAINING REPORT
 Date: 2025.12.12 Time: 18:00
 Topic: Tunnel works
 Location (signature indicated):
 Training held by (signature indicated):
 Position: M.S.
 Signature: [Signature]
 Department:

ATTENDEES (signature indicated)

No.	Name (print & stamp)	Position (signature indicated)	Signature	Stamp
1	张永平			
2	张永平			
3	张永平			
4	张永平			
5	张永平			
6	张永平			
7	张永平			
8	张永平			
9	张永平			
10	张永平			
11	张永平			
12	张永平			
13	张永平			
14	张永平			
15	张永平			
16	张永平			
17	张永平			
18	张永平			


Construction of Kvesheti-Kobi Road Tunnel Section

SITE INDUCTION
 Date: 2025.12.12 Time: 8:00
 Topic: Tunnel works
 Location (signature indicated):
 Training held by (signature indicated):
 Position: M.S.
 Signature: [Signature]
 Department:

ATTENDEES (signature indicated)

No.	Name (print & stamp)	Position (signature indicated)	Signature	Stamp
1	张永平			
2	张永平			
3	张永平			
4	张永平			
5	张永平			
6	张永平			
7	张永平			
8	张永平			
9	张永平			
10	张永平			
11	张永平			
12	张永平			
13	张永平			
14	张永平			
15	张永平			
16	张永平			
17	张永平			
18	张永平			

Annex 6: Delivery Notes for Handing Over Hazardous Material

Lot 2:

The image displays four copies of a 'Delivery Note for Handing Over Hazardous Material' form, numbered 103603, 103604, 103605, and 103606. Each form is filled out with handwritten details in blue and black ink, including dates, times, and signatures. The forms are organized into sections: A (General Information), B (Hazardous Material Details), C (Transfer Details), and D (Consent/Declaration). Section B includes a table for listing hazardous materials. At the bottom of each form are two colored boxes: a blue box for 'Hazardous Material' and a green box for 'Hazardous Waste'.

Annex 7: License for Medical Technology



საქართველოს გარემოს დაცვისა და სოფლის მეურნეობის მინისტრი

ბრძანება N 2-714

26/07/2019

ქ. თბილისი

შპს „მედიკალ ტექნოლოგის“ ნარჩენების განთავსების (ინსინერაციის) საწარმოს მოწყობასა და ექსპლუატაციაზე გარემოსდაცვითი გადაწყვეტილების გაცემის შესახებ

მიმდინარე წლის 17 ივლისს სამინისტროს მომართა შპს „მედიკალ ტექნოლოგის“ წარმომადგენელმა და ითხოვა გარემოსდაცვითი გადაწყვეტილების მიღება.

2015 წელს სამინისტროს მიერ შპს „მედიკალ ტექნოლოგის“ „ნარჩენების განთავსების (ინსინერაციის) საწარმოს მოწყობისა და ექსპლუატაციის“ პროექტზე გაიცა N74 (29.12.2015) ეკოლოგიური ექსპერტიზის დასკვნა.

„გარემოსდაცვითი შეფასების კოდექსის“ 48-ე მუხლის მე-4 ნაწილის თანახმად, პირი, რომელზედაც 2018 წლის 1 იანვრამდე გზშ-ის სფეროში გაცემულია შესაბამისი აღმჭურველი ადმინისტრაციულ-სამართლებრივი აქტი, ვალდებულია 2021 წლის 1 იანვრამდე, განცხადების საფუძველზე მოითხოვოს გარემოსდაცვითი გადაწყვეტილების გაცემა. სამინისტრო აღნიშნული აღმჭურველი ადმინისტრაციულ-სამართლებრივი აქტის საფუძველზე, ამ კოდექსით გარემოსდაცვითი გადაწყვეტილების გაცემისთვის განსაზღვრული პროცედურების გარეშე, მარტივი ადმინისტრაციული წარმოების წესით გასცემს გარემოსდაცვით გადაწყვეტილებას.

აღნიშნულის გათვალისწინებით მომზადდა მინისტრის ბრძანების პროექტი, რომლის შესაბამისად გარემოსდაცვითი გადაწყვეტილება გაიცემა 2015 წლის N74 სახელმწიფო ეკოლოგიური ექსპერტიზის დასკვნის პროექტის საფუძველზე და საქმიანობის განმახორციელებელს დაეკისრება ვალდებულება, უზრუნველყოს გარემოსდაცვითი გადაწყვეტილებით განსაზღვრული პირობების შესრულება.

ამავედროულად ძალადაკარგულად ცხადდება „შპს „მედიკალ ტექნოლოგი“-ს ნარჩენების განთავსების (ინსინერაცია) საწარმოს მოწყობასა და ექსპლუატაციაზე ეკოლოგიური ექსპერტიზის დასკვნის დამტკიცების შესახებ“ საქართველოს გარემოსა და ბუნებრივი რესურსების დაცვის მინისტრის 2015 წლის 30 დეკემბრის №ი-1037 ბრძანება, თუმცა აღნიშნული გარემოსდაცვითი გადაწყვეტილებით იურიდიულ ძალას ინარჩუნებს 2015 წლის სახელმწიფო ეკოლოგიური ექსპერტიზის დასკვნა პროექტზე, რომელიც დანართის სახით თან დაერთდება მოცემულ გადაწყვეტილებას.

ზემოაღნიშნული გარემოებებისა და „გარემოსდაცვითი შეფასების კოდექსის“ 48-ე მუხლის მე-4 ნაწილის საფუძველზე,

ვ ბ რ ძ ა ნ ე ბ:

1. შპს „მედიკალ ტექნოლოგის“ ნარჩენების განთავსების (ინსინერაციის) საწარმოს მოწყობასა და ექსპლუატაციაზე გაიცეს გარემოსდაცვითი გადაწყვეტილება თანდართული ეკოლოგიური ექსპერტიზის დასკვნის საფუძველზე (დასკვნა №74; 29.12.2015);
2. გარემოსდაცვითი გადაწყვეტილების მფლობელი ვალდებულია დაიცვას თანდართული ეკოლოგიური ექსპერტიზის დასკვნის პირობები;
3. ამ ბრძანების პირველი პუნქტით გათვალისწინებული გარემოსდაცვითი გადაწყვეტილება გაიცეს განუსაზღვრელი ვადით;
4. ძალადაკარგულად გამოცხადდეს „შპს „მედიკალ ტექნოლოგი“-ს ნარჩენების განთავსების (ინსინერაცია) საწარმოს მოწყობასა და ექსპლუატაციაზე ეკოლოგიური ექსპერტიზის დასკვნის დამტკიცების შესახებ“ საქართველოს გარემოსა და ბუნებრივი რესურსების დაცვის მინისტრის 2015 წლის 30 დეკემბრის №ი-1037 ბრძანება;
5. გარემოსდაცვითი გადაწყვეტილების სხვა პირზე გადაცემის შემთხვევაში გარემოსდაცვითი გადაწყვეტილების გადაცემა განახორციელოს „გარემოსდაცვითი შეფასების კოდექსით“ დადგენილი წესით;
6. ბრძანება დაუყოვნებლივ გაეგზავნოს შპს „მედიკალ ტექნოლოგის“;
7. ბრძანება ძალაში შევიდეს შპს „მედიკალ ტექნოლოგის“ მიერ ამ ბრძანების გაცნობისთანავე;
8. ბრძანების გაცემიდან 3 დღის ვადაში აღნიშნული ბრძანება განთავსდეს სამინისტროს ოფიციალურ ვებგვერდზე;
9. ეს ბრძანება შეიძლება გასაჩივრდეს თბილისის საქალაქო სასამართლოს ადმინისტრაციულ საქმეთა კოლეგიაში (თბილისი, დ. აღმაშენებლის ხეივანი, მე-12 კმ. №6) მხარის მიერ მისი ოფიციალური წესით გაცნობის დღიდან ერთი თვის ვადაში.

ლევან დავითაშვილი



მინისტრი



საქართველოს გაეროს ღაცვისა და სოფლის მეურნეოების მინისტრი

გარემოსდაცვა N 2-1261

31/12/2020

ქ. თბილისი

შპს „მედიკალ ტექნოლოგის“ ნარჩენების აღდგენის და განთავსების (ნარჩენების გაუვნებელყოფა-დეტოქსიკაცია, ვერცხლისწყლის შემცველი ნარჩენების დემერკურიზაცია და გამოყენებული ზეთების რეგენერაცია) საწარმოს ექსპლუატაციაზე გადაწყვეტილების გაცემის შესახებ

2020 წლის 10 დეკემბერს სამინისტროს მომართა შპს „მედიკალ ტექნოლოგის“ დირექტორმა და ითხოვა გარემოსდაცვითი გადაწყვეტილების მიღება.

2017 წელს საქართველოს გარემოსა და ბუნებრივი რესურსების დაცვის სამინისტროს მიერ შპს „მედიკალ ტექნოლოგის“ ნარჩენების აღდგენასა და განთავსებაზე (ნარჩენების გაუვნებელყოფა-დეტოქსიკაცია, ვერცხლისწყლის შემცველი ნარჩენების დემერკურიზაცია და გამოყენებული ზეთების რეგენერაცია) გაიცა №4 (11.01.2017) ეკოლოგიური ექსპერტიზის დასკვნა და გარემოზე ზემოქმედების ნებართვა.

„გარემოსდაცვითი შეფასების კოდექსის“ 48-ე მუხლის მე-4 ნაწილის თანახმად, პირი, რომელზედაც 2018 წლის 1 იანვრამდე გზმ-ის სფეროში გაცემულია შესაბამისი აღმჭურველი ადმინისტრაციულ-სამართლებრივი აქტი, ვალდებულია 2021 წლის 1 იანვრამდე, განცხადების საფუძველზე მოითხოვოს გარემოსდაცვითი გადაწყვეტილების გაცემა. სამინისტრო აღნიშნული აღმჭურველი ადმინისტრაციულ-სამართლებრივი აქტის საფუძველზე, ამ კოდექსით გარემოსდაცვითი გადაწყვეტილების გაცემისთვის განსაზღვრული პროცედურების გარეშე, მარტივი ადმინისტრაციული წარმოების წესით გასცემს გარემოსდაცვით გადაწყვეტილებას.

აღნიშნულის გათვალისწინებით მომზადდა მინისტრის ბრძანების პროექტი, რომლის შესაბამისად გარემოსდაცვითი გადაწყვეტილება გაიცემა 2017 წლის 11 იანვრის №4 ეკოლოგიური ექსპერტიზის დასკვნის საფუძველზე და საქმიანობის განმახორციელებელს დაეკისრება ვალდებულება, უზრუნველყოს გარემოსდაცვითი გადაწყვეტილებით განსაზღვრული პირობების შესრულება.

ამავდროულად ძალადაკარგულად ცხადდება „ნარჩენების აღდგენის და განთავსების (ნარჩენების გაუვნებელყოფა-დეტოქსიკაცია, ვერცხლისწყლის შემცველი ნარჩენების დემერკურიზაცია და გამოყენებული ზეთების რეგენერაცია) საწარმოს ექსპლუატაციაზე გარემოზე ზემოქმედების ნებართვის გაცემის შესახებ“ საქართველოს გარემოსა და ბუნებრივი რესურსების დაცვის მინისტრის 2017 წლის 13 იანვრის №14 ბრძანება, თუმცა აღნიშნული გარემოსდაცვითი გადაწყვეტილებით იურიდიულ ძალას ინარჩუნებს

2017 წლის №4 ეკოლოგიური ექსპერტიზის დასკვნა, რომელიც დანართის სახით თან დაერთვება მოცემულ გადაწყვეტილებას.

ზემოაღნიშნული გარემოებებისა და „გარემოსდაცვითი შეფასების კოდექსის“ 48-ე მუხლის მე-4 ნაწილის საფუძველზე,

ვ ბ რ ძ ა ნ ე ბ ა:

1. შპს „მედიკალ ტექნოლოგის“ ნარჩენების აღდგენის და განთავსების (ნარჩენების გაუვნებელყოფა-დეტოქსიკაცია, ვერცხლისწყლის შემცველი ნარჩენების დემერკურიზაცია და გამოყენებული ზეთების რეგენერაცია) საწარმოს ექსპლუატაციაზე გაიცეს გარემოსდაცვითი გადაწყვეტილება თანდართული ეკოლოგიური ექსპერტიზის დასკვნის საფუძველზე (დასკვნა №4; 11.01.2017);
2. გარემოსდაცვითი გადაწყვეტილების მფლობელი ვალდებულია დაიცვას თანდართული ეკოლოგიური ექსპერტიზის დასკვნის პირობები;
3. ამ ბრძანების პირველი პუნქტით გათვალისწინებული გარემოსდაცვითი გადაწყვეტილება გაიცეს განუსაზღვრელი ვადით;
4. ძალადაკარგულად გამოცხადდეს „ნარჩენების აღდგენის და განთავსების (ნარჩენების გაუვნებელყოფა-დეტოქსიკაცია, ვერცხლისწყლის შემცველი ნარჩენების დემერკურიზაცია და გამოყენებული ზეთების რეგენერაცია) საწარმოს ექსპლუატაციაზე გარემოზე ზემოქმედების ნებართვის გაცემის შესახებ“ საქართველოს გარემოსა და ბუნებრივი რესურსების დაცვის მინისტრის 2017 წლის 13 იანვრის №ი-14 ბრძანება;
5. გარემოსდაცვითი გადაწყვეტილების სხვა პირზე გადაცემის შემთხვევაში გარემოსდაცვითი გადაწყვეტილების გადაცემა განხორციელდეს „გარემოსდაცვითი შეფასების კოდექსით“ დადგენილი წესით;
6. ბრძანება დაუყოვნებლივ გაეგზავნოს შპს „მედიკალ ტექნოლოგის“;
7. ბრძანება ძალაში შევიდეს შპს „მედიკალ ტექნოლოგის“ მიერ ამ ბრძანების გაცნობისთანავე;
8. ბრძანების გაცემიდან 5 დღის ვადაში აღნიშნული ბრძანება განთავსდეს სამინისტროს ოფიციალურ ვებგვერდზე;
9. ბრძანება შეიძლება გასაჩივრდეს თბილისის საქალაქო სასამართლოს ადმინისტრაციულ საქმეთა კოლეგიაში (თბილისი, დ. აღმაშენებლის ხეივანი, მე-12 კმ. N6) მხარის მიერ მისი ოფიციალური წესით გაცნობის დღიდან ერთი თვის ვადაში.

ლევან დავითაშვილი



მინისტრი

Annex 8: Lot-1 Renewal of Agreement with Medical Technology

March 13, 20225

ხელშეკრულება №13.03-146
წარმოება-დაწესებულებებიდან, ორგანიზაციებიდან - ჩამოწრილი, გადასული,
გაუქმებული პროდუქტებისა და ნაწილების გატანა-განადგურებაზე

ქ. თბილისი 13 მარტი 2025 წელი

ერთი მხრივ - შპს ჩინეთის სარკინიგზო გზების უკუფი კო. ფილიალი საქართველოში, საიდენტიფიკაციო კოდი: 405353610, იურიდიული მისამართი: საქართველო, თბილისი, პეტრიაშვილის ქუჩა 10, წარმოდგენილი დირექტორის გაი ფიფვი (პასპორტის ნომერი: E64737933) მინდობილი პირის (მინდობილობა გაკეთებული 03.10.2019 წელს, ნოტარიუსი: ანელა მანისა მურ) ცენ დათხოვნის, პასპორტის ნომერი: E22588093 სახით, შემდგომში მოხსენიებული როგორც „დამკვეთი“ და

მეორე მხრივ - შპს „მედიკალ ტექნოლოჯი“, საიდენტიფიკაციო კოდი: 404384590, იურიდიული მისამართი: საქართველო, ქ. თბილისი, ჩუღურეთის რაიონი, ივ. ჯავახიშვილის ქუჩა №4, წარმოდგენილი იმის დირექტორის ზია გოგბაძის სახით, შემდგომში მოხსენიებული როგორც „შემსრულებელი“ ვალებთ წინამდებარე ხელშეკრულებას შემდეგზე:

1. ხელშეკრულების საგანი

1.1. „დამკვეთი“ უკვეთავს, ხოლო „შემსრულებელი“ ვალდებულია კისრულობს გაუწიოს მომსახურება - განადგუროს და კანონმდებლობით დადგენილი წესით ტრანსპორტირება უზრუნველყოს „დამკვეთის“ კუთვნილი გაუქმებული ნაწილის პროდუქტების დაზიანებული გრუნტი, ზეობის და ჰერის ფილტრები, ზეობით დაზიანებული კასრები და შესაფუთი მასალა, გამოუსადეგარი ნაწილის პროდუქტები, ნაწილთ პროდუქტებით დაზიანებული ჩვრები და სხვ ტანსაცმელი, აკუზულატორები, ფლურსცენციული ნათურები, ნაწილთ პროდუქტებით დაზიანებული სხვადასხვა ლუმინიკანტები და გაუქმებული საბურავები შემდგომში „მომსახურება“.

1.2. განადგურებული პროდუქტების სრული სახეობები, მოცულობები, მომსახურების ფასები პირიფ, დამოკიდებულია თითოეულ შემთხვევაზე, რაც მოცემულია დანართის სახით. დანართები წარმოადგენს ხელშეკრულების განუყოფელ ნაწილს.

1.3. მხარეთა შეთანხმებით, დამკვეთი მიაწვდის/გადასცემს შემსრულებელს საბიფათო ნარჩენს დამკვეთის კუთვნილ ობიექტზე, მდებარე ფაზგვის რაიონი, სოფელი კობის ტერიტორიაზე დამკვეთის კუთვნილი სამშენებლო ზაზა;

2. ფასი და ანგარიშსწორების პირობები

2.1. წინამდებარე ხელშეკრულებით გათვალისწინებული „მომსახურების“ ღირებულება განისაზღვრება ჩამოსაწერი პროდუქტების წონის მიხედვით, თანხა მოიცავს დღე-ის და-ველი არსებულ გადასახადზე.

2.2. განადგურებული პროდუქტების სრული სახეობები, მომსახურების ფასები დამოკიდებულია თითოეულ შემთხვევაზე, რაც მოცემულია დანართის №1 სახით. დანართები წარმოადგენს ხელშეკრულების განუყოფელ ნაწილს.

2.3. მომსახურების ღირებულების ანაზღაურება მოხდება პროდუქტების განადგურების აქტის გადაცემიდან 5 (ხუთი) სამუშაო დღის ვადაში.

2.4. ხელშეკრულებით გათვალისწინებული მომსახურება მოიცავს ხელშეკრულების 1.1, მუხლითა და დანართი #1-ით გათვალისწინებული კონკრეტული მომსახურების გაწვების, ტრანსპორტირება და განადგურების ღირებულებას;

3. პროდუქტების განადგურების პირობები

3.1. „დამკვეთი“ ვალდებულია განადგურებული პროდუქტების ხელშეკრულების 2.4. პუნქტის შესაბამისად მიწოდებამდე 2 (ორი) სამუშაო დღით ადრე შეატყობინოს „შემსრულებელს“ განადგურებული პროდუქტების ოდენობის შესახებ.

4. მხარეთა უფლება-მოვალეობები

- 4.1 "შესრულებლის" უფლება-მოვალეობები
- 4.1.1 "შესრულებელი" ადასტურებს, რომ გააჩნია სრული უფლებამოსილება წინამდებარე ხელშეკრულებით ნაკისრი ვალდებულებების შესრულებისთვის, რაც დასტურდება საქართველოს გარეშისა და ზენეროვი რესურსების დადგის სამინისტროს მიერ 29.12.2015 წელს გაცემული ცნაპერტიზის დასკვნა N74 და 16.01.2017 წელს გაცემული #000233, MD-1 ნებართვით.
- 4.1.2 "შესრულებელი" ვალდებულია განახორციელოს მომსახურება წინამდებარე ხელშეკრულებით გათვალისწინებულ ვადებში.
- 4.1.3 "შესრულებელი" ვალდებულია სრულად აღწახადაროს "დამკვეთს" მიყენებული ზიანი, მომსახურების ვადებისა და პირობების დარღვევის შემთხვევაში.
- 4.1.4 "შესრულებელს" უფლება აქვს მოითხოვოს "დამკვეთს" წინამდებარე ხელშეკრულებით ნაკისრი ვალდებულებების შესრულება წინააღმდეგ შემთხვევაში მოითხოვოს "დამკვეთისაგან" ზარალის სრული ანაზღაურება.
- 4.2 "დამკვეთის" უფლება-მოვალეობები
- 4.2.1 "დამკვეთი" ვალდებულია წინამდებარე ხელშეკრულებით განსაზღვრულ ვადებში აღწახადაროს "შესრულებელს" მომსახურების ღირებულება.
- 4.2.2 "დამკვეთი" ვალდებულია დროულად მაჩოდის "შესრულებელს" გასანადგურებელი პროდუქცია.
- 4.2.3 "დამკვეთი" უფლებამოსილია მოითხოვოს "შესრულებელს" ზარალის ანაზღაურება, "შესრულებლის" მიერ წინამდებარე ხელშეკრულებით გათვალისწინებული ვალდებულებების არაგუროვნად შესრულების შემთხვევაში.

5. დავათა გადაწყვეტა

- 5.1 წინამდებარე ხელშეკრულება განმარტება საქართველოს მოქმედი კანონმდებლობის შესაბამისად.
- 5.2 მხარეთა შორის დავა წდება ურთიერთმოღიპარაკების საფუძველზე, შეთანხმების მოუწველობის შემთხვევაში, მხარეთა შორის დავა წდება სასამართლოს წესით საქართველოს კანონმდებლობის შესაბამისად.

6. კონფიდენციალურობა

- 6.1 მხარეთა მიერ ურთიერთსამშრომლობის შედეგად მოპოვებული ინფორმაცია წარმოადგენს კონფიდენციალურ ინფორმაციას და არ დაიშლება წინამდებარე ხელშეკრულების პირობების გატონა შესამე პირთათვის, მეორე მხარის წინასწარი წერილობითი თანხმობის გარეშე, აგრეთვე მხარეებსა უნდა უზრუნველყონ ხელშეკრულების შესრულებისათვის გამოჩნული კორესპონდენციისა და სხვა საჭმანი დოკუმენტაციის შესამე პირთაგან დაცვა.
- 6.2 მხარეთა ეს მოვალეობა ძალაშია ხელშეკრულების შეწყვეტის შემდეგაც.
- 6.3 კონფიდენციალური ინფორმაციის ტებისმოვი სახით შესამე პირთათვის გადაცემის შემთხვევაში (გარდა კანონმდებლობით გათვალისწინებული შემთხვევებისა) დამრღვევი მხარე ვალდებულია გადაუხადოს მეორე მხარეს პირგასამტებლო, რომლის ოდენობა განსაზღვრული იქნება მეორე მხარის მიერ.

7. ფორს-მაჟორი

- 7.1 წინამდებარე ხელშეკრულების დარღვევად არ ჩაითვლება შემთხვევა, როცა რომელიმე მხარე ვერ ახერხებს თავისი მოვალეობების შესრულებას ფორს-მაჟორული (დაუძლეველი) გარემოების ზემოქმედების გამო;
- 7.2 ფორს-მაჟორული გარემოებების აღმოფხვრის შემდეგომ მხარეები შეთანხმდებიან ხელშეკრულებით ნაკისრი ვალდებულებების შესრულების ახალ ვადებზე, მოქმედი კანონმდებლობის შესაბამისად.



8.2 თუ წინამდებარე ხელშეკრულების ვადის გასვლამდე ერთი თვით ადრე არც ერთი მხარე არ განაცხადებს ამ ხელშეკრულების შეწყვეტის შესახებ, იგი ავტომატურად ჩაითვლება გაგრძელებულად იმავე ვადით, აღნიშნული მეტანიშნის კრძალვებზე ყოველ მომდევნო პერიოდზე.

8.3 მხარეები უფლებამოსილნი არიან ურთიერთპიკინგის საფუძველზე ვადად შეწყვიტონ წინამდებარე ხელშეკრულების მოქმედების ვადა, ხელშეკრულების ვადად შეწყვეტის შემთხვევაში, ამასთან, ასეთი ფაქტის დადგომისას მხარეებს არ წარმოეშობათ ერთმანეთის მიმართ რაიმე სახის ჯარიმის ან/და პირგასამტეხლოს გადახდის ვალდებულება;

8.4 მხარეები უფლებამოსილნი არიან წინასწარ 5 კალენდარული დღით ადრე გაუცხადონ შეტყობინების საფუძველზე, ნებისმიერ დროსა და ნებისმიერი მიზეზით გაღმხრეად, ვადად შეწყვიტონ ხელშეკრულების მოქმედების ვადა, ამასთან, ასეთი ფაქტის დადგომისას მხარეებს არ წარმოეშობათ ერთმანეთის მიმართ რაიმე სახის ჯარიმის ან/და პირგასამტეხლოს გადახდის ვალდებულება;

9. დასკვნითი დებულებები

9.1 მხარეები ხელმძღვანელებს ურთიერთპიკინგის პრინციპით და თანამშრომლობის გაღრმავების სურვილით.

9.2 ხელშეკრულების მხარეები ვალდებული არიან გაუყრთხილდნენ თითოეულის სახელის, საქმიან რეპუტაციას და ღირსებას.

9.3 მხარეთა შორის წამოჭრილი დავები შესაძლებელია გადაწყვეტილ იქნეს ორივე მხარის ერთობლივი მოლაპარაკების საფუძველზე თუ მხარეები ვერ შეძლებენ მოლაპარაკების საფუძველზე გადაწყვეტის დავა, მაშინ, ნებისმიერ მხარეს შეუძლია მიმართოს სასამართლოს კანონმდებლობით დადგენილი წესით.

9.4 წინამდებარე ხელმოწერილი ხელშეკრულება შედგენილია 2 (ორი) ეგზემპლარად ქართულ ენაზე, რომელთაგან თითოეულს გააჩნია თანაბარი იურიდიული ძალა და ინახება მხარეებთან.

10. მხარეთა რეკვიზიტები

„შემსრულებელი“

შპს „მედიკალ ტექნოლოჯი“
საიდენტიფიკაციო კოდი: 404384590
ფაქტ. მის.: საქართველო, თბილისი, დ/მ,
ევგენი მოქელაძის ქუჩა 9
მომსახურე ბანკი: სს „პროკრედიტ
ბანკი“ ბანკის კოდი: MIBGGE22
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ხელმოწერა: /



„დამკვეთი“

შპს „ქიმიკის სარკინიგზო გვირაბის ჯგუფი კო.,
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ხელმოწერა: /



Annex 9: Approval of Geodynamic Survey Report (2024-2025) Lot 2



სსიპ გარემოს ეროვნული სააგენტო

08 იანვარი 2026

დავით აღმაშენებლის გამზირი №150
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N 21/91

სსიპ საქართველოს საავტომობილო გზების დეპარტამენტს

ასლი: სახელმწიფო საქვეუწყებო დაწესებულება -
გარემოსდაცვითი ზედამხედველობის დეპარტამენტს

თქვენი 2025 წლის 11 დეკემბრის N 2-06/17193 წერილის (სააგენტოს №12619) პასუხად, რომლითაც აღუშეთისა და ყაზბეგის მუნიციპალიტეტების ტერიტორიაზე საქართველოს საავტომობილო გზების დეპარტამენტის ჟინვალ-ლარსის საავტომობილო გზის ქვეშეთი-კოხის მონაკვეთის მშენებლობასა და ექსპლუატაციაზე გარემოსდაცვითი გადაწყვეტილების გაცემის შესახებ საქართველოს გარემოს დაცვისა და სოფლის მეურნეობის მინისტრის 2019 წლის 25 აპრილის №2-354 ბრძანების 21-ე პუნქტით განსაზღვრული ვალდებულების შესრულების მიზნით წარმოდგენილია ჟინვალ-ლარსის საავტომობილო გზის ქვეშეთი-კოხის მონაკვეთის მეორე ლოტის (წვერე-კოხი) ტერიტორიის გეოდინამიკური პროცესების მონიტორინგის ანგარიში (2024-2025 წლების სამშენებლო პერიოდი), გაცნობებით, რომ აღნიშნული დოკუმენტის მიმართ სსიპ გარემოს ეროვნულ სააგენტოს შენიშვნები არ გააჩნია.

ამასთან, შემდეგი ეტაპისთვის გთხოვთ წარმოადგინოთ მშენებარე საავტომობილო გზის დერეფანში და მის მიმდებარედ არსებული არასტაბილური უბნების გავრცელების სქემატური რუკა.

დანართის ელ. ვერსია გაეგზავნოს სსიპ გარემოსდაცვითი ზედამხედველობის დეპარტამენტს

ელენე ლუბიანური

სააგენტოს უფროსი

სსიპ გარემოს ეროვნული სააგენტო

<https://edocument.ge/nea/public/#91-21-2-202601061649>


Ichthyological Monitoring Report
11 November 2025

Tbilisi, 2025

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1. Introduction

This report presents the results of the ichthyological monitoring carried out on the Khadistskali River in Dusheti municipality, which took place on November 11, 2025. The study area included the Khadistskali River, in the project area of Kvesheti-Kobi Road. The Khadistskali River is left tributary of the Tetri (Mtiuleti) Aragvi River. The mentioned river is characterized by fast-flowing and oxygen-rich water, which is a natural habitat for Caspian trout – *Salmo caspius* Kessler, 1877. The trout area in Khadistskali starts from the mouth of the Tetri Aragvi River and continues to the village Tskere. According to previous studies (EIA document), several fish species are common in the Khadistskali River (Tab. 2.3). During our monitorings, which were carried out in the summer and autumn seasons of 2024, and winter, spring and summer seasons in 2025, a total of two fish species were observed in the project area: Kura spirin – *Alburnoides eichwaldii* (De Filippi, 1863) and Caspian trout – *S. caspius*. Therefore, the purpose of the autumn monitoring was to study fish diversity in the project area and to assess the impact of the ongoing construction of the road on the ichthyofauna and fish habitats. Also, identifying critical barriers for fish migration, implementation of control fishing and verifying existing information.

2. Methods and Results of Ichthyological Research

On the Khadistskali River, ichthyological research was conducted at six (6) study points (Tab. 2.1), which are located from the confluence of the Khadistskali – Tetri Aragvi rivers to the village Tskere (Situational Chart. 2.1). An electrofishing device EFGI 650 (http://www.electric-fishing.de/efgi6_e.html) and cast net were used during the monitoring (permission number: N4326/01). Electrofishing device is high quality fishing instrument for similar types of habitats (from slow, to fast flowing water with average depth 0.1 to 0.8 meter). Electric fishing in Georgia is regulated by the Government Resolution N 423 (2013), which states that use of electro fishing equipment for the scientific studies is allowed if the appropriateness of fishing with a specific type of electrical equipment (electrofishing device that does not harm the fish) is justified and also, the safety of using a specific type of electrical equipment is substantiated and its description is presented.

Also, we were guided by the order of the Minister of Environmental Protection of Georgia No. 21 on the approval of fishing rules for scientific research purposes.

The caught material was identified and photographed in the field, after which all fish individuals were returned to the river (catch-and-release principle).

Fishes were examined in the field using standard methods of morphological research in ichthyology. In particular, the following parameters were measured:

- A) Total length;
- B) Standard length;
- C) Head length;
- D) Eye diameter;
- E) Number of scales in lateral line;
- F) The number of rays in the dorsal fin;
- G) The number of rays in the anal fin;
- H) Greatest height;
- I) Smallest height; (Kottelat & Freyhof 2007).

In total, up to 15 individuals of one fish species were recorded within the scope of the research (Tab. 2.2). At each study location, a 100 to 200 meter-long section of the river was studied. The research continued throughout the day.

Situational Chart 2.1. Kvesheti-Kobi Road project area. Research points are marked in yellow.



Table 2.1. Observation points selected in the research area of the Khadistskali River.

N	X	Y	Altitude	Date
Point 1	461698.23	4702639.57	1820	11/11/2025
Point 2	461260.92	4700330.79	1557	11/11/2025
Point 3	461150.24	4699365.16	1491	11/11/2025
Point 4	462419.61	4698202.97	1401	11/11/2025
Point 5	462907.40	4697893.18	1360	11/11/2025
Point 6	463195.62	4697578.80	1337	11/11/2025

Table 2.2. Fish species and their quantity in the Khadistskali River according to research points.

N	<i>Salmo caspius</i>	X	Y	Date
1	–	461698.23	4702639.57	11/11/2025
2	–	461260.92	4700330.79	11/11/2025
3	–	461150.24	4699365.16	11/11/2025
4	8	462419.61	4698202.97	11/11/2025
5	4	462907.40	4697893.18	11/11/2025
6	3	463195.62	4697578.80	11/11/2025

The first fishing attempt was carried out near the Tskere village (Fig. 2.1) (coordinates: X 461880.82 – Y 4702954.24). No trout were found in this location. The situation was similar during the previous monitoring. It seems that trout rarely reach this point because there are natural barriers (waterfalls) in the river. Below this point, a bridge (N6) is under construction. Also, down from the temporary bridge, ground water from the main tunnel enters the river. It is worth noting that at the time of monitoring, this water was almost dry, however the river was still turbid in this section (Fig. 2.2).

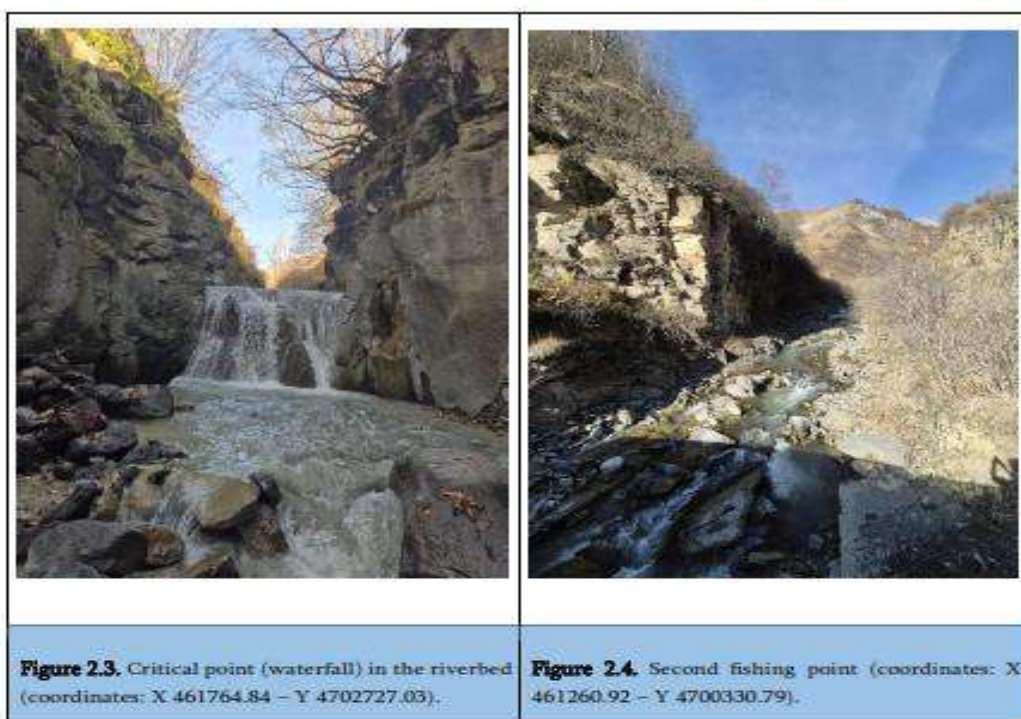
There is a critical barrier in the riverbed here, a waterfall about 5-6 meters high (Fig. 2.3; Situational Chart 2.1.) (coordinates: X 461764.84 – Y 4702727.03), which seems to be an insurmountable barrier for fish. Because of this, trout rarely manage to reach aforementioned waterfall, which is only possible if there is a large water flow in the riverbed.



Figure 2.1. The Khadistskali River, near the Tskere village. First fishing point (coordinates: X 461698.23 – Y 4702639.57).



Figure 2.2. Riverbed near the bridge N6. First fishing point.



Second fishing attempt carried out near the bridge (Fig. 2.4). On this section, small unnamed stream joins Khadistskali River from the left side, which has waterfall (coordinates: X 461260.92 – Y 4700330.79). No fish were observed at this location.

A third fishing attempt was carried out in the area of the project bridge (N3) (Fig. 2.5 & 2.6) (coordinates: X 461150,24 – Y 4699365,16). No fish were recorded in this section either.

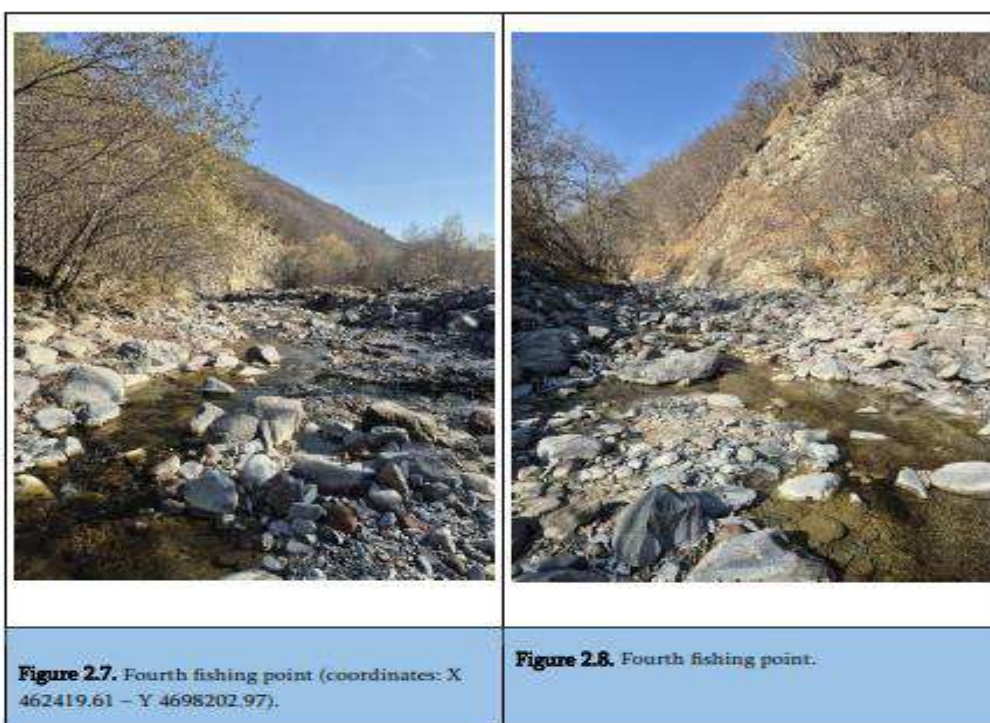


Figure 2.5. Placement area of bridge (N3), third fishing point (coordinates: X 461150,24 – Y 4699365,16).



Figure 2.6. Construction works of bridge (N3).

At the fourth fishing point (Fig. 2.7 & 2.8) (coordinates: X 462419.61 – Y 4698202.97), one juvenile and seven adult trout individuals were seen (Fig. 2.9 & 2.10). All of them were returned to the river after morphological research.



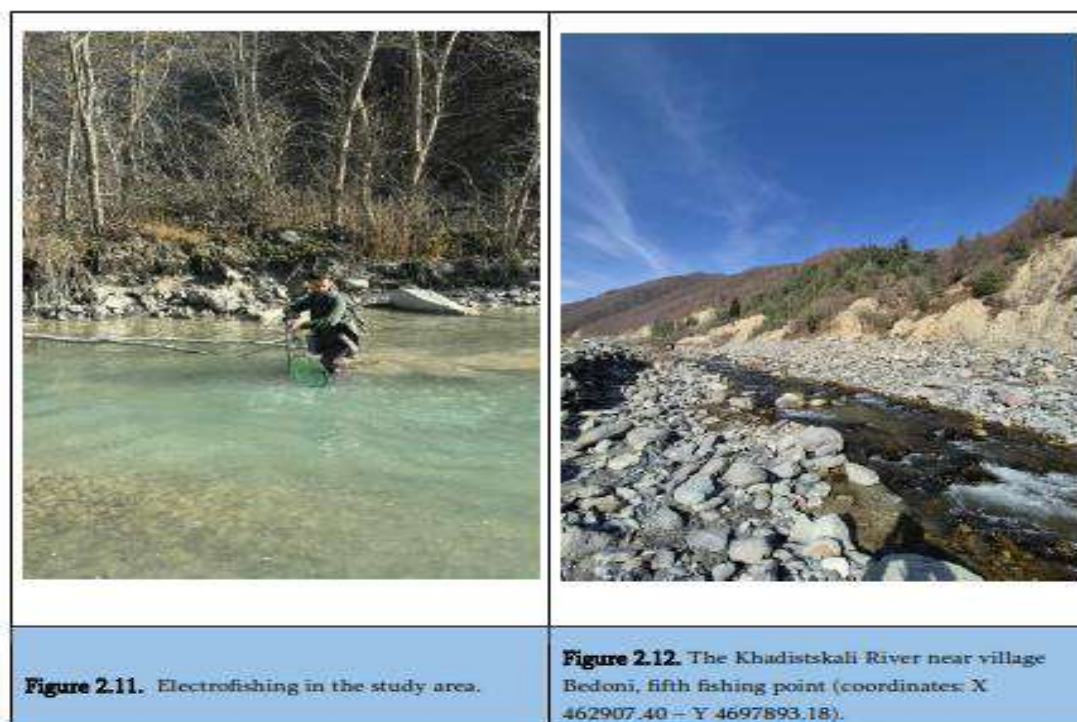
As this study and previous monitoring have shown, this area is the most important habitat for trout in the Khadistskali River. Here the river is divided into two parts by a large island, the left branch is relatively slow, and the right branch is fast. This section provides good shelter and food base for trout. As is known, Caspian trout spawn during this period (October-November). During monitoring, trout spawning was observed here, which once again emphasizes its high ecological importance. Therefore, protecting and monitoring this area is very important for maintaining the trout population.



Figure 2.9. Juvenile Caspian trout – *Salmo caspius*, fourth fishing point.



Figure 2.10. Adult trout, fourth fishing point.



Fifth fishing point is located near the village Bedoni (Fig. 2.12) (coordinates: X 462907.40 – Y 4697893.18), where two juvenile and two adult trout were seen.

At the sixth research point which is located near the confluence of the Khadistskali – Tetri Aragvi rivers (Fig. 2.13) (coordinates: X 463195.62 – Y 4697578.80), three adult trout individuals were observed (Fig. 2.14).

In total, fifteen trout individuals were recorded in the project area, which returned to the river after morphological research.



Figure 2.13. The sixth fishing point at the confluence of the Khadistskali-Tetri Aragvi rivers (coordinates: X 463195.62 – Y 4697578.80).



Figure 2.14. Adult trout individuals from the confluence of the Khadistskali-Tetri Aragvi rivers, sixth fishing point.

Table 2.3. Fish species of the Khadistskali River according to the EIA document and their protection statuses in the project area of influence.

N	Common name	Scientific name	IUCN	RLG	Fishes of the Khadistakali River	Species observed during the survey
1	Caspian trout	<i>Salmo caspius</i> Kessler, 1877	NE	VU	✓	✓
2	Kura spirlin	<i>Alburnoides eichwaldii</i> (De Filippi, 1863)	LC	NE	✓	
3	Khramulya	<i>Capoeta capoeta</i> (Güldenstädt, 1773)	LC	NE	✓	
4	Kura barbel	<i>Barbus cyri</i> De Filippi, 1865	NE	NE	✓	
5	Kura chub	<i>Squalius agdamicus</i> Kamensky, 1901	NE	NE	✓	
IUCN - The categories are formulated as follows:						
EX - Extinct; EW - Extinct in the Wild; CR - Critically Endangered; EN - Endangered; VU - Vulnerable; NT - Near Threatened; LC - Least Concern; DD - Data Deficient; NE - Not Evaluated						

3. Conclusion & Recommendations

It should be noted that, in the Kvesheti-Kobi Road project area, the Caspian trout – *Salmo caspius* observed during the survey, is widely distributed in the Tetri Aragvi River basin. In recent years and in the winter, spring and summer seasons of this year, several field works were carried out in the mentioned river, where the trout was recorded. Most likely, trout lives in the project area throughout the year and spawning here. During summer monitoring in 2024, Kura spirlin – *Alburnoides eichwaldii*

was also observed in the project area, near the Khadistskali-Aragvi confluence which was not seen this time. It seems that these species periodically enter Khadistskali from the Aragvi River. Other species mentioned in the EIA document do not inhabit the Khadistskali River.

In general, the Khadistskali River is poor in terms of fish species diversity and population density. The river is mainly populated by trout, and its population is small. Construction works of mentioned road are in active phase. Periodically, the water loses its clarity which was also observed during the last monitoring. In autumn season, the anthropogenic pressure on the Khadistskali River and its ichthyofauna can be assessed as medium. Field monitoring has shown that during the autumn (October-November), trout are found in the middle and lower sections of the river and spawn here. A similar situation occurred in previous seasons. At the headwaters, near the Tskere, where the water is the cleanest, the trout has not been observed. As mentioned above, there is a critical barrier (waterfall) at this location (Fig. 2.3), which hinders the movement of trout in the river.

In order to reduce the impact on the Khadistskali ichthyofauna, it is important to take the following measures:

- In the process of construction works in the riverbed, appropriate measures should be taken to prevent significant damage to the riverbed, which will worsen the existing ecological conditions and fish habitats;
- During construction works, waste should not be placed in the riverbed and on the banks;
- During construction works, waste should not be dumped / spilled into the river. Also, the riverbed must be cleaned from the waste. Materials must be located where there isn't a risk of them being washed into waterways or drains. Cover up all drains to prevent waste from ending up in the water. The road and footpath must be kept clean to the site at all times;
- During the construction of bridge piers, the discharge of muddy water into the river should be minimized as much as possible;
- All construction works must be carried out in full compliance with building regulations and safety requirements.

In summary, it should be said that fish are recorded in the Khadistskali River in all seasons and the main impact caused by road construction work is the periodic muddying of the water. As trout prefers to live in clean waters, so it is important to avoid this impact as much as possible. This is especially important during this period, before the trout finish spawning.

With appropriate mitigation measures and continuous seasonal monitoring, it is expected that the impact on the river's ichthyofauna will be minimized.

4. References

1. Kottelat, M. & Freyhof, J. (2007). *Handbook of European freshwater fishes*. Berlin, Germany: Kottelat, Cornol and Freyhof.
2. Kuljanishvili, T., Eptashvili, G., Freyhof, J., Japoshvili, B., Kalous, L., Levin, B., Mustafayev, N., Ibrahimov, S., Pipoyan, S. & Mumladze, L. (2020). Checklist of the freshwater fishes of Armenia, Azerbaijan and Georgia. *Journal of Applied Ichthyology*, 36 (4): 501-514.
3. Order of the Minister of Environmental Protection of Georgia No. 21 on the approval of fishing rules for scientific research purposes - <https://matsne.gov.ge/en/document/view/1493693?publication=0>
4. Regarding the approval of the technical regulation of fishing and protection of fish stock <https://matsne.gov.ge/en/document/view/2187155?publication=0>