Semi-Annual Environmental Monitoring Report

13th № Semestral Report
Reporting Period: July-December 2023
January 2024

Georgia: Batumi Bypass Road Project

(Financed by the Asian Development Bank (ADB) and the Asian Infrastructure Investment Bank (AIIB))

Loan Number: 3520-GEO Project Number: 50064-001

Prepared b:y Roads Department (RD) for the Ministry of Regional Development and Infrastructure of Georgia (MRDI) for the Asian Development Bank (ADB).

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Abbreviations

ADB	Asian Development Bank
AIIB	Asian Infrastructure Investment Bank
BOT	Batumi Oil Terminal
BoQ	Bill of Quantities
BR	Bridges
CSCS	Consultancy Services for the Construction Supervision
dB	Decibel
CPT-SPT	Cone Penetration Test - Standard Penetration Test
CC	Construction Contractor
CH	Cultural Heritage
CSEMP	Contractor's Contract Specific Environmental Management Plan
EIA	Environmental Impact Assessment
EDDR	Environment Due Diligence Report
EMP	Environmental Management Plan
EMR	Environmental Monitoring Report
ESP	Environmental and Social Policy
ESR	Environmental Sensitive Receiver
GRM	Grievance Redress Mechanism
GRCE	Grievance Redress Committee
HS	Health & Safety
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
MoRDI	Ministry of Regional Development and Infrastructure
MSs	Method Statements
m S/cm	Milli Siemens/ centimetre
NCN	Non-Conformance Notice
NCR	Non-Conformance Report
NOC	No Objection Certificate
PMCSC	"Project Management and Construction Supervision Contract
PPE	Personnel Protective Equipment'
PPT	Personnel Protective Technologies
PIU	Project Implementation Unit
QC	Quality Control
RD	Road Department
RoW	Right of Way
SAEMR	Semi Annual Environmental Monitoring Report
SDA	Spoil Disposal Area
SDS	Spoil Disposal Site
SSEMP	Site Specific Environmental Management Plan
SPS	Safeguard Policy Statement

1 INTRODUCTION

1.1 Preamble

1. Batumi Bypass Road Project: Major Change in Project (Change in Scope, Amount, and Implementation Arrangements) was conducted in September 2019. The major change is an increase in project scope through the addition of a fourth output under the project comprising two additional construction subprojects: a new bridge and approach roads over the Rioni River in Poti and a new bypass road from Bakurtsikhe to Tsnori. Reallocation of existing savings can be utilized to fund the new output, which will reinforce the project's impact of improving regional connectivity in Georgia. The change is considered major because it fundamentally affects the approved project scope and outcome by more than doubling the length of roads and/or bridges to be built. The approved revised Project completion date is 31 May 2024.

2. This report delineates the Semi-Annual Environmental Monitoring Review conducted for the Batumi Bypass Road during the period of July to December 2023. This report is the 13th Semi-Annual EMR for the Batumi Bypass Road Project and 5th Semi-Annual EMR for the construction of Poti Bridge (please see attachment 1) and Access Roads and Construction of Bakurtsikhe-Tsnori Road Projects (see attachment 2).

1.2 Project Overview

3. Batumi bypass road covers the section from Makhinjauri to riv. Chorokhi. Total length of the road is 14.325km while the width is 14.0m. The mentioned section flows through mountainous terrain and considers construction of 5 tunnels, 3 bridges, 10 viaducts, 8 overpasses, 1 underpass, 52 culverts and 4 interchanges.

4. The start section is separated from existing road to detour the village near Black Sea and then crosses the village on the mountainous area by tunnel. There are tunnels and bridges to cross the dismantled military base and mountainous area on the middle section. The end section exists in flat terrain and joins to the existing road while bypass the main obstacles.

5. Project outline (km.-1+000 - km.13+325):

Classification of road	International highway
Design speed	$V = 100\ km/hr$
Road length	$L = 14.325\ km$
Road width	$B = 14\ m$
Lane numbers	$2\ lanes$

2 PROJECT DESCRIPTION AND CURRENT ACTIVITIES

2.1 Project Description

6. The 81-km Poti–Batumi–Sarpi Road ("S2" under Georgian Highway Designation) along the western coast of Georgia, located in the Adjara Autonomous Republic, is a key international highway and international transit route in Georgia. It is connected to the important towns of Batumi, Poti and Kobuleti. Batumi is a major Black Sea port and a holiday resort. Poti is the largest port of Georgia and Kobuleti is a holiday resort. Due to heavy traffic on S2, there has been a significant increase in congestion and accidents particularly during the tourist season in Batumi and Kobuleti. The Government of Georgia is constructing two bypass roads around Batumi and Kobuleti to improve traffic flow from these towns.

7. The Project Road, bypassing the city of Batumi to the east, is entirely located in Khelvachauri District. The design alignment goes through the villages of Makhinjauri, Gantiadi, Kapreshumi, Salibauri, Peria, and Makhvilauri. Passing through these villages, the design alignment crosses a diverse landscape of multiple ravines, streams, rivers, hills, and hillsides. Thirteen kilometers of road, five tunnels, nineteen bridges and four interchanges are planned along the Project alignment.

8. Batumi Bypass Road Project is being co-financed by the Asian Development Bank (ADB) and the Asian Infrastructure Investment Bank (AIIB) and the Government of Georgia. The Project is classified as category A for the environment under ADB's Safeguard Policy Statement (2009) so that a full Environmental Impact Assessment Report and a Resettlement Action Plan were prepared for the Project and disclosed on ADB website on 27 March 2017. The Roads Department of the Ministry of Regional Development and Infrastructure of Georgia submitted an EIA to the Ministry of Environment and Natural Resources Protection on 18 August 2017. The EIA was approved by MoEPA on 30 August 2017.

Figure 1. Project Location Map

Table 1. Project Information

PROJECT ITEM	DETAILS
Employer	Roads Department (RD) of the Ministry of Regional Development and infrastructure of Georgia
Funding Source	Asian Development Bank and Asian Infrastructure Investment Bank
The Engineer	SMEC International Pty Ltd with Sub-consultants: Uniprof Group Ltd and Lider + Ltd
Contractor	JV Polatyol & Mapa
Letter of Acceptance	06.07.2017
Signing date of Contract	29.08.2017
Commencement Date of Works	14 March 2018: section km6+700 – km12+830 24 May 2018: section km1+750 – km2+250 15 Oct 2018: sections km0+00 – km0+650 and km2+250 – km6+700 30 April 2019: section km 0+850 - km 1+750 21 October 2019: section km12+830 - km13+325 (excluding land plot with cadastral code: 05.35.22.723) 12 March 2021: section km0+650 – km0+850 30 July 2021: section Km 12+870 – Km 12+980
Contract Period	2270 days
Original Completion date	30.08.2020
Time Extension (EOT No. 1)	31.12.2021
Time Extension (EOT No. 2)	31.12.2022
Time Extension (EOT No. 3)	31.05.2024
Expired time	2087 days
Remaining time	183 days
Certified Advance Payment	GEL 49,444,610.22
Advance repayment	444 GEL 49,610.22
Retention money (10 %)	GEL 30,007,489.02
Amount certified as per works done	GEL 300,074,891.37
Percentage of achieved Physical Progress	91.03%
Defects Notification Period	3 years

2.2 Project Contracts and Management

9. The Contract for CSCS was awarded to SMEC International Pty Ltd in September 2017 for three phases of the project:

Phase 1 – Design review, to be completed in a period of three months. The Design Review Report was completed and submitted to RD on 26 December 2017.

Phase 2 – Construction supervision and contract administration. The construction period is for 2270 days.

Phase 3 – Defects Notification Period, three years.

10. The TOR for the CSCS Contract contains the following tasks for the Environmental Specialists:

a. Ensure that the provisions of the approved Environmental Management Plan are reflected in the Contractor's Site-Specific Environmental Management Plan (SSEMP) prior to its acceptance by the Engineer and the Employer, and thereafter ensure that the Contractor complies in every respect with the provisions of the SSEMP
b. Make sure that approved SSEMP is reflected in the Supervision Consultant's monthly and quarterly report for further compliance of the Contractor
c. Develop an environmental auditing protocol for the construction period, regularly supervise the environmental monitoring, and submit periodic reports based on the monitoring data and laboratory analysis reports. These reports will be included as an annex to the Supervision Consultant's Monthly Report
d. Develop a program for hands-on training of Contractor's staff in implementing the SSEMP.

11. Contact details of the main organisations involved in the Project relating to Environmental Safeguards, including lender, borrower, Main Contractor/s and significant sub-contractors are given in **Table 2**.

Table 2. Main Organizations Involved in Project Implementation

Asian Development Bank	Zaigham Naqvi Senior Transport Specialist E-mail: znaqvi@adb.org Ninette R. Pajarillaga Senior Environmental Specialist, Country Environnemental Focal E-mail: npajarillaga@adb.org Nino Nadashvili Associate Safeguards Officer Georgia Resident Mission E-mail: nnadashvili@adb.org Cell: +995 595 070442 Giorgi Kobaladze RETA/ADB National Environmental Consultant Cell: +995599689834 e-mail: gkobaladze.consultant@adb.org

Asian Infrastructure Investment Bank	Runze Yu -Investment Operations Specialist E-mail: runze.yu@aiib.org
Road's Department	Gia Sopadze Deputy Head of Environmental Division Tel: (+995) 599 93 92 09 E-mail: sopgia@hotmail.com Luiza Bubashvili Environmental Safeguard Consultant under ADB Financed Projects Tel: (+995) 595 21 91 41 E-mail: Likabubashvili@yahoo.com
PolatYol & Mapa Joint Venture	Ejaz Maqbool Project Manager Tel: (+995) 591 06 37 55 E-mail: Ejaz.maqbool@polatyol.com Rashad Kerimov International Environmental Specialist Tel: (+994) 504 48 18 48, (+995) 591 06 37 51 E-mail: Kerimov_rashad@yahoo.com Ayaz Abdurahmanov Health, Safety & Traffic Manager Tel: (+995) 591 26 73 94 E-mail: Ayaz.abdurahmanov@polatyol.com
SMEC International PTY Limited	Michael Holics International Environmental Specialist Tel: (+995 577 329 095 Email: michael.holics@smec.com
Sub-consultant	Tengiz Lagidze Local Environmental Specialist Tel: (+995) 595 93 96 30 E-mail: tengizlagidze@upg.ge
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12. The Contractor shall comply with all applicable national, provincial, and local environmental laws and regulations as well as applicable respective standards under the Contract. The Contractor shall:

(a) Establish an operational system for managing environmental impacts,

(b) Develop the Environmental Management Plan (EMP) by identifying environmental risks arising from the Works, the mitigation measures to be applied, and monitoring to be carried out,

(c) Implement the required mitigation measures and monitoring,

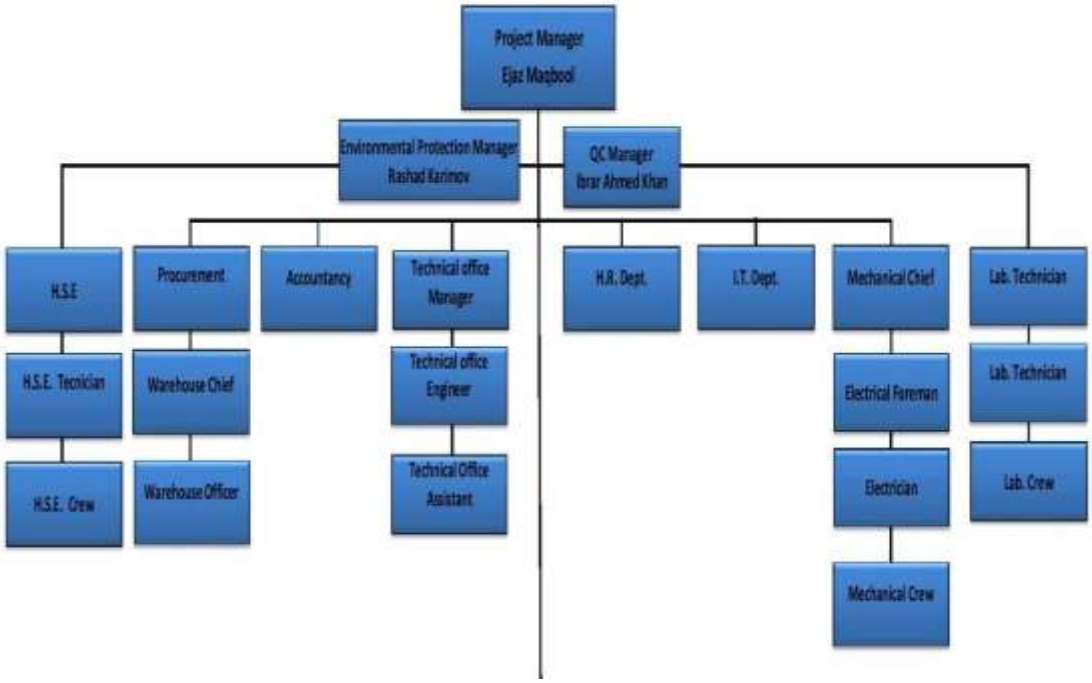
(d) take any corrective or preventative actions set out in safeguards monitoring reports that the Employer will prepare from time to time to monitor implementation of the EMP, and

(e) Submit quarterly reports on the carrying out of such measures to the Engineer.

13. Polatyol & Mapa Joint Venture Project Manager, Mr. Ejaz Maqbool has responsibility for all environmental aspects of construction work undertaken. He will be responsible for strictly monitoring that Polatyol & Mapa Joint Venture services site management team conforms to all environmental aspects in accordance with Polatyol & Mapa Joint Venture environmental access policy and safety plan.

14. Responsibility for daily management for environmental monitoring and implementation of the SSEMP is given to the Environmental Protection Manager Mr. Rashad Karimov. He has direct authority from the Project Manager to give instruction to all site staff regarding environmental issues. The project organization chart for key Contractor management staff is provided in **Figure 2**.

Figure 2. Contractor's Project Management Staff



2.3 Project Activities during Current Reporting Period

15. Supplementary Agreement No 3 (SA No 3) agreed between the Employer and Contractor was signed on 17 August 2023, agreeing an extension to the works Contract to 31 May 2024 incorporating the 21 Milestones for critical Items completion.

16. The Physical Progress of the Works at the end of December 2023 91.03% according to the Original Contract Price (329,630,734.84 GEL) and 81.56% calculated from revised Contract Price (367,903,168.39 GEL).

17. The Financial Progress of the Works is 91.03% according to Original Contract Price and 81.56% calculated from revised Contract Price, which is due to the price adjustments.
18. The cumulative physical progress for the third Qtr. 2023 as reflected in the last IPC No. 33 as of 30 September 2023 is 87.01% (out of which Legislation & Escalation was 3.21% and the material on construction sites was 3.56%).
19. The cumulative physical progress for the fourth Qtr. 2023 as reflected in the last IPC No. 36 as of 13 January 2024 is 91.03%.
20. During the third Qtr. 2023, the Contractor missed all the deadlines for the relocation of the pipelines within the Batumi Oil Terminal (BOT). However, the Contractor over the BOT to the Owner on the 12 September 2023. The Contractor continues with the installation of the piles for bridge No 5 located within the BOT. The Contractor was also completing the relocation of Water, Gas and Fibre Optic cables within the Highway corridor at Interchanges 2 and 4. At the end of the third Qtr. the Contractor continued with the detailed Design of the electrification of the Tunnels. The relocation of the Utilities has been very slow and Works are being held up in Interchange 1, 2 and 4, which affects the Earthworks, all this work should have been completed by now including the Earthworks.
21. During the fourth Qtr. 2023, the Contractor had little progress concerning the relocation of Utilities notably the fibre optic cables at Interchanges 1, 2 and 4, mainly due to the payment issues with the Sub-Contractor G Systems. The Sub-Contractor completed the detailed Design of the electrification of the Tunnels however; the conflict with the Contractor delayed the issuance of the Design. The lack of progress in the relocation of the Utilities has seriously affected the construction of the Earthworks to commence at Interchange 1. The Engineer constantly reminded the Contractor before the summer months to relocate the fibre optic cable to allow the E/W to begin, however this was not achieved.
22. **Tunnels:** The progress in the construction of the Tunnels is slow, again due to the lack of funds by the Contractor and not enough Plant/Equipment and manpower is available on the site to progress the Works to completion in a timely manner. In Tunnel No. 1, NATM works from Entrance portal continued in 3rd Qtr. 2023 with an advance of top heading of 155.77 metres and the Exit portal works recommenced with NATM to 193.84 metres. NATM works from Entrance portal continued in 4th Qtr. 2023 with an advance of top heading of 256.43 metres and the Exit portal works recommenced with NATM to 207.34 metres with the top Heading excavation completed in 4th Qtr. 2023.
23. Tunnel No. 2, Entrance portal: NATM excavation reached 650.02 metres at the end of the 3rd Qtr., 2023 with remaining 37metres to be excavated. NATM excavation reached 650.02 metres at the end of the 4th Qtr., 2023; Exit portal: NATM excavation reached 20.83 meters with remaining 37 meters to be excavated. NATM Top heading excavation reached 54.73 meters and excavation completed in 4th Qtr 2023; Emergency Exit: The Contractor to date has not submitted the Detailed Design.
24. In Tunnel No. 3, the installation of Utility Boxes and drainage were executed during the 2nd Qtr. 2023. the works on the emergency exit of tunnel No. 3 was stopped on May 15, 2023.
25. In Tunnel No. 4, Cut and Cover structural works completed at the end of the 3rd Qtr. 2023.
26. In Tunnel No. 5, Preparatory works for pavement works has been conducted in 4th Qtr. 2023.
27. **Bridges:** The progress in the construction of the Bridges is slow, again due to the lack of funds by the Contractor and not enough Plant/Equipment and workers is available on the

site to progress the Works to completion in a timely manner. The Bridge No 5 piling works recommenced within the Batumi Oil Terminal, however the Contractor did not complete the piling of the remaining works per the agreed target completion date of 15 September 2023 as per MS No.13 of the SA No.3. The piling has been completed with the construction of the piers nearing completion. The Contractor continued with the placement of fill and REW at Bridges 6A, 6C and 6D. The placement of fill for the embankments was completed in during the reporting period, also the construction of the MSE wall for Bridge No. 14 continued with the placement of fill located at Interchange 4, but the works are very slow due to the lack of resources. Also, the works on Bridge walkways and parapet walls continued during the reporting period, however the progress was slow again due to the lack of resources.

28. **Roadworks:** The Earthworks progress is approximately 73% completed, during the 3rd Qtr., 2023. The progress of Embankment construction/Earthworks was slow with the placing of fill in Interchange 4, construction of retaining wall at Interchange 1, also placing embankment fill at Bridges 6A,6C and 6D with MSE walls Also, during the 3rd Qtr. 2023, excavation continued at KM7+532-KM7+663, in a high cut section. The Earthworks progress is approximately 78% completed, during the 4th Qtr., 2023. The progress of Embankment construction/Earthworks indicated better progress however not as expected over the 3 months as not enough progress in the placement of Embankment fill was made in the E/W at Interchange 4 as was slow with the placing of fill. The construction of retaining wall at Interchange 1 was completed, also placing embankment fill at Bridges 6A, 6C and 6D with MSE walls were completed. Also, during the 3rd Qtr. 2023, excavation continued at KM7+532-KM7+663, in a high cut section, the works continue slowly.

29. The Contractor still has further submissions to provide to the Engineer notably a) Tunnel No 2 Detailed Design of Emergency Exit, and b) high cut/ retaining wall designs. The Engineer has reminded the Contractor in weekly progress meetings to submit the outstanding Design in a timely manner however the Contractor has continued to delay the submissions.

Table 3. Construction Progress

N	WORK DESCRIPTION	DIMENSION	DESIGN	ACTUAL	%	NOTE
I.	**Setting Out and Site Clearance**					
Basic topography and detailed setting out						
1	For main road	km	14.325	13.125	91.62	
	for ramps and secondary roads	km	10.858	8.287	76.32	
	Site cleaning	ha	76.80	36.37	47.35	
	Cutting trees of more than 0.1 m diameter	piece	1,908.00	6,502.0	340.8	
	Demolition of walls	m^3	244.00	509.23	208.00	
	Demolition of buildings	m^3	92,700.00	57,585.65	62.12	
II.	**Earthworks**					
2	Topsoil removal	m^3	56,000.00	9,466.13	16.90	

N	WORK DESCRIPTION	DIMENSION	DESIGN	ACTUAL	%	NOTE
	Removal of unacceptable soil at any level, withdrawal at stockpile/embankment area (according to the instruction)	m^3	137,520.24	297,154.60	216.08	
	Arrangement of embankment material to design level	m^3	603,734.55	465,392.73	77.08	
	Provision, allocation and compaction of acceptable material from the borrow pit at weak and hollow areas	m^3	6,890.00	13,789.63	200,13	
	Filling the embankment with soil excavated from Tunnel	m^3	320,519.00	116,815.13	36.44	
III.	**Water Culverts and Drainage**					
3.1	Cast-in-situ RC culvert - sq. m. 6,0∂ X 5,0m	piece	7	7	100	
	Precast RC culvert - sq.2,50∂ X 2,50m	piece	3	2	66.70	
	Precast RC pipe - d= 1,50m	piece	31	19	61.29	
	Precast RC pipe - d= 1,00m	piece	7	0	0	
	Precast RC (double) pipe - d= 2X1,50m	Piece	2	1	50	
	Metal pipe - d=0,50m	Piece	4	0	0	
	Lengthening of Cast-in-situ RC culvert - sq. m. 1,30m X 1,80m	Piece	1	0	0	
	Lengthening of Cast-in-situ RC culvert - sq. m. 1,50m X 1,50m	Piece	1	0	0	
Additional Culvert						
3.2	Cast in situ RC culvert – sq.5,00∂ X 2,50m	piece	1	1	100	
	Cast in situ RC culvert - sq.5,00∂ X 4,00m	piece	1	1	100	
Design Variation						
3.3	Cast-in-situ RC culvert - sq.1,50∂ X 1,20m	piece	1	1	100	
	Cast-in-situ RC round culvert d-1.5m	piece	2	2	100	

N	WORK DESCRIPTION	DIMENSION	DESIGN	ACTUAL	%	NOTE
	Cast-in-situ RC box culvert Section 2,50m X 2,50m	piece	1	1	100	
IV. Slope Stabilization						
RC Retaining Walls						
4.1	km 0+160 - km 0+400	m	240.00	216.00	90.00	
	Km 2+178 – km 2+215	m	37.00	37.00	100	
	km 3+941 - km 3+951	m	10.00	0	0	
	km 7+534 - km 7+663	m	149.80	58.00	38.72	
	Km 8+730 – km 8+760	m	10.00	0	0	
	km 9+470 - km 9+ 480	m	10.00	0	0	
	km 11+ 530 - km 11+540	m	10.00	10.00	100	
	Km 0+310 – km 0+377 (CL203)	m	73.92	73.92	100	
	Km 5+955 – km 5+994	m	30.85	30.85	100	
	Km 12+097	m	18.4	18.4	100	
Gabion Wall						
4.2	km 0+230 - km 0+265	m	35.00	0	0	CL 103
	km 0+850 - km 0+904	m	54.00	0	0	CL 103
	km 12+475 - km 12+725	m	250.00	0	0	
	km 12+814	m	50.00	0	0	Left
	km 12+814	m	48.00	0	0	Right
	km 12+831	m	50.00	0	0	Left
	km 12+831	m	54.00	0	0	Right
	km 13+940 - km 14+120	m	180.00	0	0	
"Terramesh" System						
4.3	"Terramesh" system arrangement	m	2769.00	0	0	
Design Variation						
4.4	Slope stabilization by soil nailing at section km10+102 - km10+340	m	238.00	238.00	100	
4.5	Drilled and filled RC pile wall at section km 11+ 460 - km 11+503	m	43.00	43.00	100	
4.6	Reinforced concrete supporting wall at	m	72	72	100	

N	WORK DESCRIPTION	DIMENSION	DESIGN	ACTUAL	%	NOTE
	section km 11+513 - km 11+585					
4.7	RC Retaining Wall (CL 203) at Km 0+310 – Km 0+377		73.6	73.6	100	
4.8	Drilled and filled RC pile wall at section km 9+244 - km 9+340	m	96	96	100	
4.9	Drilled and filled RC pile wall at section km 9+340 - km 9+440	m	100	100	100	
4.10	Slope strengthening by earth anchors at section km9+440 – km9+520	m	80	80	100	
4.11	RC Retaining Wall at Km0+080-Km0+110	m	38.85	38.85	100	
4.12	RC Retaining Wall at Km0+080-Km0+110	m	30	30	100	
4.13	CL 300 – CL 301 RC Retaining Wall	m	84.35	42.23	50.07	
4.14	Km 12+465 – Km 12+720 RC Retaining Wall	m	465.0	393.6	84.65	
4.15	Km 5+955 – Km 5+794 RC Retaining Wall	m	30.85	12.10	39.22	
4.16	Km 5+476 – Km 5+636 RC Piled Wall	m	160	160	100	
4.17	Km 0+612 – Km 0+686 RC Retaining Wall	m	60.60	6.0	3.64	
V.	**Bridges**					
5	Bored piles: BR-01 - BR-05; BR-07; BR-07.1; BR-12/13; BR-12/13A; BR-14: BR-03.1: BR-06A; BR-6B; BR-6C: BR-6D; BR-08A	Unit	1,558.00	1,500.00	96.28	
	Pile cap: BR-01 - BR-05; BR-07; BR-07.1; BR-12/13; BR-12/13A; BR-14: BR-03.1: BR-06A; BR-6B; BR-6C: BR-6D; BR-08A	Unit	142.00	142.00	100	
	Column: BR-01 - BR-05; BR-07; BR-07.1; BR-12/13; BR-	Unit	282.00	279.00	98.94	

N	WORK DESCRIPTION	DIMENSION	DESIGN	ACTUAL	%	NOTE
	12/13A; BR-14: BR-03.1: BR-06A; BR-6B; BR-6C: BR-6D; BR-08A					
	Crossbar: BR-01 - BR-05; BR-07; BR-07.1; BR-12/13; BR-12/13A; BR-14: BR-03.1: BR-06A; BR-6B; BR-6C: BR-6D; BR-08A	Unit	120.00	119.00	99.17	Construction in progress
	Back wall and wingwall: BR-01 - BR-05; BR-07; BR-07.1; BR-12/13; BR-12/13A; BR-14: BR-03.1: BR-06A; BR-6B; BR-6C: BR-6D; BR-08A	Unit	36.00	36.00	100	Construction in progress
	Installation RC beams: BR-01 - BR-05; BR-07; BR-07.1; BR-12/13; BR-12/13A; BR-14: BR-03.1: BR-06A; BR-6B; BR-6C: BR-6D; BR-08A	Unit	667	585	87.71	
	Unification of prestressed beams by cast in situ RC concrete slab	m	4,669.0	3,950.0	84.60	Construction in progress
5.1	Construction of cast in situ sidewalk	m	4,669.0	3,480.0	74.53	
5.2	Construction of cast in situ rails	m	4669.0	3,000.0	64.25	
VI. Tunnels						
Tunnel No. 3						
	Gravel foundation	m^3	7,391	7,391	100	
	Drainage system arrangement	m	805	805	1000	
	Utility Box arrangement	m	1610	1610	100	
6	Construction of pile wall system at the exit portal				100	
	Construction of pile wall system at the entrance portal	u	101	101	100	
	Soil excavation at the exit portal				100	

N	WORK DESCRIPTION	DIMENSION	DESIGN	ACTUAL	%	NOTE
	Tunnel excavation and installation temporary lining	m	749.0	749.0	100	
	Construction of permanent lining	m	749.0	749.0	100	
	Arrangement of Portal part	m	56	56	100	
Tunnel No. 4						
7	Construction of pile wall system at the exit portal	u	203	203	100	
	Utility channel	m	2,134	1,656	77.6	
	Soil excavation at the entrance portal	1000 m^3	51.25	51.25	100	
	Tunnel excavation and installation temporary lining	m	843.0	843.0	100	
	Construction of permanent lining	m	843.0	843.0	100	
	Arrangement of the Portal Part	m	224	224	100	
	Arrangement of the Drainage System	m	1,067.00	800.00	75.00	
Tunnel No. 5						
8	Gravel foundation	m^3	1,069	1,069	100	
	Tunnel excavation and installation of temporary lining				100	
	Portal excavation				100	
	Installation of waterproofing	m^2	20,650.0	20,650.0	100	
	Installation perforated PVC pipes	m	1,084.00	1,084.0	100	
	Filter concrete (C12/15)	m^3	8.0	8.0	100	
	Cast-in-situ concrete for drainage	m^3	20,030.0	20,030	100	
	Installation reinforcement frame	t	323.0	323.0	100	
	Tunnel lining (permanent lining)	m	542	542	100	
	Construction of portal part	m	45	45	100	
	Communication Channel	m	1084	1084	100	
	Arrangement of Drainage System	m	587	587	100	
Tunnel No. 1						

N	WORK DESCRIPTION	DIMENSION	DESIGN	ACTUAL	%	NOTE
9	Arrangement of the Piled Wall System at the Entrance Portal	u	131	131	100	
	Construction of pile system wall at the exit portal	u	131	131	100	
	Tunnel excavation and construction of temporary lining	m	465	465	100	
	Vertical Jet Grouting	u	625	625	100	
	Tunnel lining (permanent lining)	m	465	144	31	
	Installation of waterproofing	m^2	19,068.0	4,050	21,2	
Tunnel No. 2						
10	Construction of pile system wall at the entrance portal	u	119	119	100	
	Tunnel excavation and construction of temporary support	m	720	720	100	
	Construction of pile system wall at the exit portal	u	96	96	100	
	Installation of waterproofing	m^2	211.18	111,84	53	
	Installation perforated PVC pipes	m	1366.0	900	65.9	
	Cast-in-situ concrete for drainage	m^2	23.55	15	63,7	
	Tunnel lining (permanent lining)	m	705,0	420,0	59,6	
	Installation of waterproofing	m	705,0	408,0	58,0	

30. In December 2023 the total number of personnel is 489, 137 of whom are foreigners and 352 are locals (Table 4).

Table 4. Contractor's Personnel as of December 2023

N	POSITION	POLATYOL		SUBS		SUM
		Foreign	Local	Foreign	Local	
1	Project Manager	1	0	0	0	1
2	Site Manager	1	0	0	0	1
3	Engineer staff	10	0	0	0	10
4	Technical office	4	1	0	0	5

N	POSITION	POLATYOL		SUBS		SUM
		Foreign	Local	Foreign	Local	
5	Technicians	3	0	0	0	3
6	Skilled Labour	27	67	0	0	94
7	Unskilled Labour	2	27	0	0	29
8	Driver	5	39	0	16	60
9	Operator	16	19	0	0	35
10	Finance & Administration	1	2	0	0	3
11	HSE Team	1	4	0	3	8
12	Environmental Manager	1	0	0	0	1
13	Foreman	8	0	0	0	8
14	Repairman	7	0	0	0	7
15	Security	0	53	0	0	53
16	Forest Expert	0	0	0	0	0
17	Mechanical Department	2	1	0	0	3
18	Tunnel works Subcontractor	0	0	11	40	51
19	Concrete works (Subcontractor)	0	0	22	54	76
20	Pile construction team (Subcontractor)	0	0	0	0	0
21	Blasting works (Subcontractor)	0	0	0	2	2
22	Stone column works (Subcontractor)	0	0	0	0	0
23	Pre-cast beam (Subcontractor)	0	0	10	15	25
24	Designer	1	0	0	0	1
25	Catering service Subcontractor	0	0	4	9	13
Total		**90**	**213**	**47**	**139**	**489**

31. For enhance the site's day-to-day environmental management under the purview of the project, in response to the Engineer's directive, the Contractor has augmented its HSE Team by appointing Mr. Jaba Mzhavanadze as a full-time Environmental Specialist.

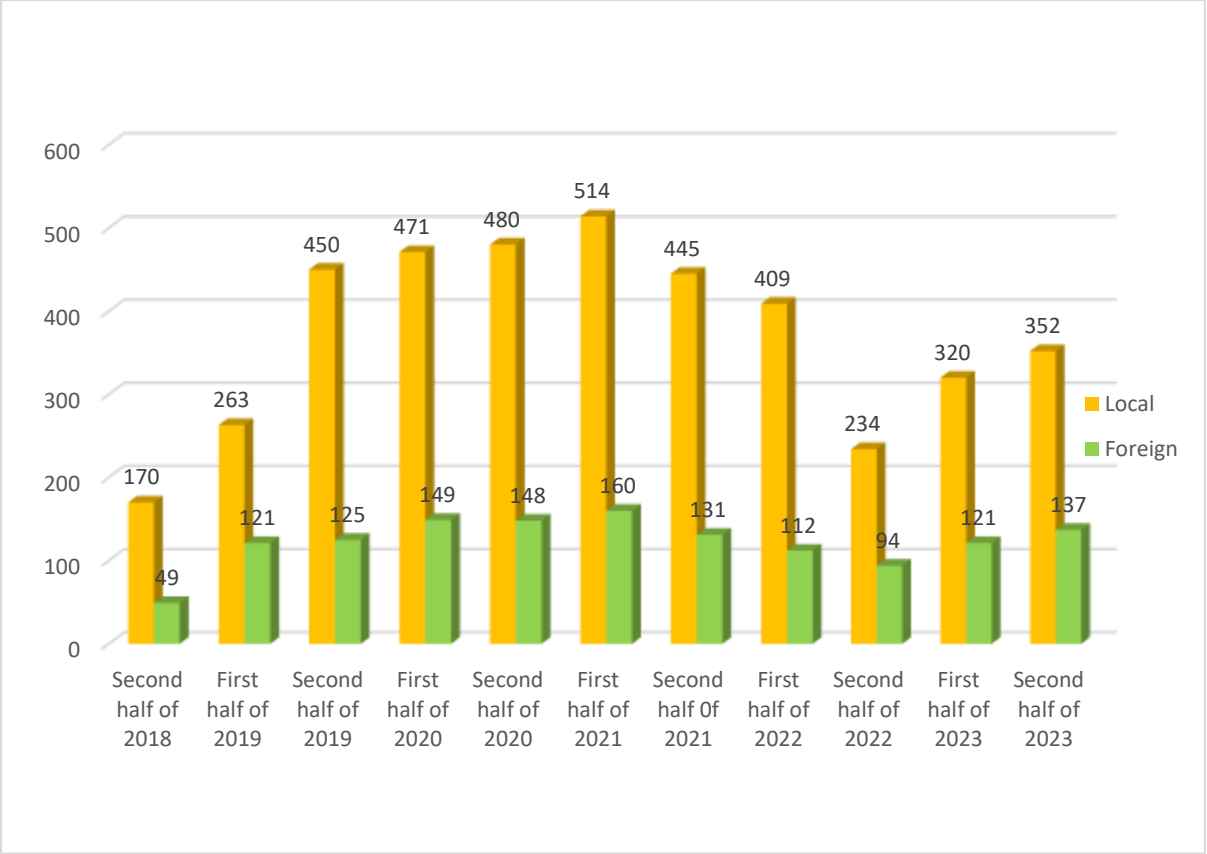


Figure 3. Contractor's Personnel as of December 2023

2.4 Changes to Project Design and Agreed Construction Methods

32. The list of minor variations made to the Project is outlined in Table 5. The variations made are similar to other Works undertaken within the Project; therefore, in case of any major environmental impacts respective preventive measures apply.

Table 5. List of Variation Orders during July-December 2023 Reporting Period

Variation No	Date	Description of the Variation Orders
102	03.07.2023	Concerning the arrangement of the Access Road to the land plots located at the Bridge No. BR-07 and construction of the New Bridge
103	06.07.2023	Concerning the Variation of the RC Culvert No. 7 at km 1+580
104	06.07.2023	Concerning the arrangement of the Additional Monolithic RC Retaining Wall at km 4+772 (Bridge No. 5 A2)
105	06.07.2023	Concerning the arrangement of the Additional Monolithic RC Retaining Wall at km 9+030 – km 9+060 (Bridge No. 10)
106	07.08.2023	Regarding the RC Retaining Wall Adjacent to the Tunnel No. 4 (Right Side) at Section km 7+554 – 7+565
107	07.08.2023	Regarding the Variation of Design Documentation of Pipe Culverts No. 34 at km 0+347 CL300 and No. 35 at km 0+317 CL300
108	07.08.2023	Regarding the Variation of Design Documentation of Box Culverts No. 16 and No. 20
109	25.08.2023	Regarding the Reconstruction Works of the Pumping Station Owned by Batumi Oil Terminal Ltd.

110	07.09.2023	Regarding the Approval of Revised Design Documentation for the slope stabilization works at section km 7+533 – km 7+663
111	05.10.2023	Regarding the arrangement of the access road to the land plot owned by Mr. Levan Tebidze
112	03.11.2023	Regarding the relocation of the Fibre-Optic Networks at km -1 – km 13+325
113	06.11.2023	Regarding the slope stabilization (shotcrete) measures at sections km 5+480 – km 5+505 and km 5+600 – km 5+642 at km-1 – km 13+325
114	06.11.2023	Regarding the revised Documentation of the Parapet Wall and RC Retaining Wall of the Tunnel No. 4 Exit Portal at km -1 – km 13+325
115	06.11.2023	Variation of the Design of the Reinforced Earth Retaining Wall at the Bridges No. 6A, 6C and No. 6D at km -1 – km 13+325
116	07.11.2023	Regarding the Design Variation of the Culvert No. 7.1 (km 2+210) at km -1 – km 13+325
117	14.12.2023	Regarding the Design Variation of MSE Wall located near the Bridge No. 14
118	15.12.2023	Regarding the arrangement of an access road to the land plot owned by Mr. Tamaz Gundadze
119	19.12.2023	Regarding the Design Documentation for the Tunnel Operational Control Centre (TOCC) within the construction works.

3 ENVIRONMENTAL SAFEGUARD ACTIVITIES

3.1 General Description of Environmental Safeguard Activities

1. Throughout the weekly monitoring sessions, the Environmental Specialists designated by the Engineer, namely Mr. Tengiz Lagidze (national), Mr. Giorgi Shiukashvili (national, until the conclusion of the first half of the reporting period), and Mr. Davit Tevzadze (national, commencing from the onset of the second half of the reporting period), conducted assessments. Their evaluations focused on scrutinizing the Contractor's activities with regard to environmental impact and assessing the Contractor's adherence to the environmental stipulations outlined in the Project's requirements.

2. The Engineer's international Environmental specialist Mr. Michael Holics was mobilized twice during the reporting period from 12 July to 5 August and from 8 November to 9 December. During this period, Mr. Holics worked with the Engineer's local Environmental Specialists in undertaking site visits and participated in the Engineer's Weekly Progress Meetings as well as HSE Meetings with the Contractor.

3. With respect to site assessment, in addition to weekly visits to relevant sites, at the end of each month there is full in-depth site visit undertaken by the Engineer and findings are sent to the Contractor for follow up. During the reporting period access to the site was not limited, however, safety-warning signage's were placed by the Contractor.

4. Where non-compliance is detected during the monitoring process, the non-compliance is recorded with the photo evidence, and an Environmental Non-Conformance Report (ENCR) is issued and sent to the Contractor. The list of ENCRs sent to the Contractor by the Engineer, where above-mentioned environmental issues are described and copies of the ENCRs are enclosed in Annex 7 – [ENCRs] of this report.

5. The Engineer's environmental specialists prepare monthly, quarterly, and semi-annual reports which are submitted to the Roads Department. These reports summarise all construction activities and their environmental impact; describe the Environmental Specialist's monitoring and site inspection activities; and lists ENCRs (and their status) issued to the Contractor.

6. The contractor's environmental specialist Mr. Rashad Kerimov (International) visited the project site twice during the reporting period for several days.

3.2 Site Monitoring/Inspections

39. In the second half of 2023 (July-December) the Engineer's specialists Mr. Tengiz Lagidze, Mr. Giorgi Shiukashvili (until the end of the first half of the reporting period) and Mr. Davit Tevzadze conducted weekly monitoring of the following Project sites:

- Office and accommodation camp of the Contractor
- Construction camp of the Contractor
- Access roads to Bridges and Tunnels
- Tunnel No 1
- Tunnel No 2
- Tunnel No 3
- Tunnel No 4
- Tunnel No 5

- Bridges Nos 1, 2, 3, 3.1, 4, 5, 6, 6a, 7, 7.1, 8, 8a, 9, 10, 11, 12, 13, 13.1, 14
- Road sections
- Interchanges 1, 2, 3, 4
- Precast yard
- Concrete mixing plant 1, 2.

3.3 Environmental Issues Tracking

40. During the reporting period, the works had a very low progress; however, numerous non-compliances were identified at Construction sites at various locations. Common non-compliances included:
- Construction and household (plastic containers etc.) waste pollution;
- Waste concrete contamination;
- Improperly stored materials;
- Metal scrap waste is not properly disposed;
- Waste burning on site.

41. Issues are tracked via letters (See Table 9 Correspondence) and Non-Conformance (See Annex 7 ENCRs) notices; the number of non-conformances is summarized in Table 6 for the current reporting period, as well as from the start of the Project to date.

Table 6. Summary of Environmental Issues Tracking Activity for the Project

Total Number of ENCRs for the Project	
Number of Issues Raised since start of Project	162
Number of Open Issues	2
Number of Closed Issues	160
Percentage Closed	99%
Issues Opened this Reporting Period (July–December 2023)	12
Issues Closed this Reporting Period (July–December 2023)	10

42. Note: As per the engineering ENCR register, items №1-ENCR 157, pertaining to tunnel material at the exit portal of the tunnel as well as the lack of a sediment basin and presence of hazardous waste in worker rest area, and №2-ENCR 162, relating to waste oil, concrete waste, and household waste at the entrance portal of the tunnel, are currently unresolved and remain open. ENCR 157 was due to be closed on 10 November 2023 and ENCR 162 was due to be closed on 29 December 2023. The Contractor has been requested to take urgent action to close these ENCRs as soon as possible.

43. Building upon the information provided in Table 6, Figure 4 below delineates the environmental issues categorized by significance levels, ranging from Minor to Major. The Engineer conducts individual assessments for each issue based on the scale of violation and its impact on the environment. Figure 4 visually represents the percentage

distribution of minor and major environmental issues observed during the reporting period.

Figure 4. Summary of Non-Conformance by Significance Level

44. Out of the 12 aforementioned non-conformances, 10 have been successfully resolved. These issues underwent comprehensive follow-up procedures facilitated through the issuance of Environmental Non-Conformance Reports (ENCR) and official correspondence from the Engineer. The letters from the Engineer outlined clear and established deadlines for the implementation of corrective actions. For a more in-depth understanding of the non-conformances, additional details are provided in Table 8.

45. Copies of the issued Environmental Non-Conformance Reports (ENCRs), inclusive of the outlined corrective measures, along with accompanying photographic documentation, are available for reference in Annex 7 – [ENCRs].

3.4 Non-Conformance Notices

1. Table 7 provides the status of implementation of the corrective actions proposed in the January-June 2023 environmental monitoring report.

2. The Contractor has been duly notified of the impending environmental issues, and an action plan has been devised to guide the implementation of corrective measures within a specified timeframe for the mitigation of non-conformances. Detailed information regarding the non-conformances observed during the reporting period is documented in Table 8.

Table 7 Status of identified non-conformances for the last reporting period January-June 2023

N	ENCR	DATE ISSUED	LOCATION	DESCRIPTION	CORRECTIVE ACTIONS	SPECIFIED CLOSING DATE	STATUS
1	ENCR 142	17/03/2023	Precast yard	Bad housekeeping, construction/household waste.	The mentioned area was cleaned.	29/03/2023	Closed 26/07/2023

Note- There are no open non-conformances pending from the last Semi-Annual Environmental Monitoring Report.

Table 8 Identified non-conformances for July-December 2023 reporting period

N	ENCR	DATE ISSUED	LOCATION	DESCRIPTION	CORRECTIVE ACTIONS	SPECIFIED CLOSING DATE	STATUS
1	ENCR 151	26/07/2023	Precast yard	The environmental issue identified as "Poor housekeeping" specifically pertains to the failure to empty a full rubbish container, leading to the pollution of the surrounding area.	The area has been cleaned	29/07/2023	Closed 01/08/2023
2	ENCR 152	26/07/2023	Construction Camp	Oil spill from vehicle maintenance. Waste oil stored outside bonded area.	Oil spills were cleaned. Waste oil container moved to the storage area.	02/08/2023	Closed 03/08/2023
3	ENCR 153	26/07/2023	Tunnel No. 2 Entrance Portal	Fuel leakage from fuel tank and generator. Oil and other hazardous liquid spillage at vehicle/plant maintenance area.	Fuel and oil spills were cleaned. Generator placed on concrete foundation for preventing watercourse contamination by fuel/oil spills.	02/08/2023	Closed 03/08/2023
4	ENCR 154	02/08/2023	Tunnel No. 1 Entrance Portal	Significant oil contamination from construction vehicle. Fuel/oil contamination from generator and fuel tank. Overflowing waste bin and burning of rubbish on site.	Area was cleaned. Generator was fixed. Vehicles will be repaired only in special designated area for preventing further oil spills. Waste bin was emptied and cleaned. The toolbox talk was conducted to	07/08/2023	Closed 07/12/2023

					employees about environmental safety.		
5	ENCR 155	27/10/2023	Hazardous Waste Collection and Temporary Disposal Area.	In the construction areas within the Batumi Bypass Road Project (BBRP), there is no designated and marked place for the collection and temporary storage of hazardous waste. Collection and storage of hazardous waste is not carried out.	Place for the collection and temporary storage of hazardous waste was arranged. All hazardous waste will be collected and placed above mentioned area. When licensed company takes out the waste, we will provide you all the necessary documentation.	02/11/2023	Closed 18/11/2023
6	ENCR 156	31/10/2023	Tunnel No. 2 Entrance Portal.	Accumulated household waste (disposable plastic containers used for food transportation) is not transferred to the relevant company and is not removed from construction sites. In the vicinity of the Entrance of Tunnel No. 2, the fact of burning of collected disposable plastic containers was observed. Oil spills directly onto the ground from the generator installed at the Entrance of Tunnel No. 2.	The vicinity of the Entrance of Tunnel No. 2 was cleaned. Oil contaminated soil was removed and the area was cleaned. Environmental training was conducted.	10/11/2023	Closed 09/12/2023
7	ENCR 157	31/10/2023	Tunnel No.1 Exit Portal.	The material removed from the Tunnel is placed at the Exit of Tunnel No. 1. Hazardous waste is located in the rest area for working personnel located near the Exit of Tunnel No. 1. There is no sedimentation tank installed at the Exit of Tunnel No. 1 to capture the contaminated muddy water as it flows out of the Tunnel.		10/11/2023	Open
8	ENCR 158	04/11/2023	Between the Bridges No. 8 and No. 9.	Concrete waste spilled from a concrete truck.	The area was cleaned from concrete waste. Necessary training was conducted for drivers.	10/11/2023	Closed 18/11/2023
9	ENCR 159	24/11/2023	Bridge No. 11	Concrete and concrete-mixed water have been spilled from the concrete mixer trucks on the embankment slope adjacent to the start point of Bridge No.	Start point of bridge No. 11 was cleaned from concrete waste. Necessary toolbox was conducted.	29/11/2023	Closed 05/12/2023

				11 and there is a small river flowing below the indicated area. Therefore, there is a danger of river pollution.			
10	ENCR 160	01/12/2023	Bridge No. 5	Burning of household waste at worksite, throwing plastic lunch boxes on the ground and polluting the nearby watercourse. There were no waste bins on site.	Area was cleaned. Waste bin was arranged. Environmental safety training was conducted.	07/12/2023	Closed 13/12/2023
11	ENCR 161	23/12/2023	Construction Campsite Area	Spillage of oil/hazardous waste was recorded at the construction campsite.	Oil contaminated soil was removed and placed in Hazardous waste storage.	27/12/2023	Closed 27/12/2023
12	ENCR 162	23/12/2023	Bridge No. 3 End & Tunnel No. 2 Entrance Portal	1) Spillage of used oil/hazardous waste at concrete surface, the contamination is observed on surrounding soil as well. Furthermore, rainwater can wash down the hazardous waste into the drainage channel. 2) Spillage of concrete waste and concrete mixed water at the mentioned location, on the embankment slope, from where the concrete mixed water flows into the nearby drainage channel. 3) Contamination of the aforementioned area with household waste/plastic containers.		29/12/2023	Open

3. At the direction of the Engineer, the Contractor mobilized a new full time Environmental Specialist (Mr. Jaba Mzhavanadze). The Contractor also filled its vacant HSE position by the appointment of Mr. Davit Metreveli. Both are on site full-time and conduct site checks and monitoring.

Table 9. Correspondence Regarding Environmental issues

NO	DATE	REF. NO.	SUBJECT
1	19 July 2023	5015001/2/3178	Reminder Regarding Air Pollution
2	22 July 2023	5015001/2/3184	Regarding the Hazardous Waste
3	19 August 2023	5015001/2/3204	Reminder Regarding the Testing of Environmental Parameters
4	19 August 2023	5015001/2/3203	Regarding the Repair of the Chemical Substance Cistern at Tunnel No. 1
5	21 August 2023	5015001/2/3207	Regarding the Environmental Pollution with Concrete
6	13 September 2023	5015001/2/3245	Regarding the Contractor's Environmental Specialist
7	14 September 2023	5015001/2/3247	Regarding the Environmental Issues at Tunnel No.2 Entrance Porta
8	14 September 2023	5015001/2/3248	Environmental Issues During the Construction Works of Bridges No. 6A, No. 6D, No. 6C
9	26 September 2023	5015001/2/3267	Regarding the Watering of the Dirt Roads
10	28 September 2023	5015001/2/3273	Regarding the Watering of the Dirt Roads
11	13 September 2023	5015001/2/3245	Regarding the Contractor's Environmental Specialist
12	14 September 2023	5015001/2/3247	Regarding the Environmental Issues at Tunnel No.2 Entrance Portal
13	14 September 2023	5015001/2/3248	Environmental Issues During the Construction Works of Bridges No. 6A, No. 60, No. 6C
14	26 September 2023	5015001/2/3267	Regarding the Watering of the Dirt Roads
15	12 October 2023	5015001/2/3298	Regarding the Environmental Condition of the Tunnel No.2
16	17 October 2023	5015001/2/3304	Regarding the Quarterly Report No. 21 of the Contractor's Environmental Management of 2023 (July-September)
17	14 November 2023	5015001/2/3353	Regarding the Waste Management adjacent to Concrete Batching Plant No.1
18	18 November 2023	5015001/2/3360	Concerning the Testing of Environmental Parameter
19	20 November 2023	5015001/2/3363	Regarding the Environmental Violations at Construction Campsites

20	25 November 2023	5015001/2/3368	Open Environmental Non-Conformance Reports
21	28 November 2023	5015001/2/3372	Regarding the Tree Planting and landscaping Plan
22	07 December 2023	5015001/2/3387	Regarding the Tree Planting and Landscaping Plan
23	15 December 2023	5015001/2/3396	Regarding the Landscaping at Tunnel Portals and Slopes
24	15 December 2023	5015001/6/3399	Regarding the Landscaping at Tunnel Portals and Slopes
25	22 December 2023	5015001/2/3415	Regarding the Administrative Office Reports Issued During the Ecological Monitoring

3.5 Disposal of Spoil Material from Tunnels

The Contractor utilizes the space under bridges for the temporary storage of spoil material excavated from tunnels so that the spoil material can be more easily used for construction activities. The Contractor proposes to remove the excess spoil material to landfill once construction has been completed. The Engineer has requested the Contractor to progressively remove excess spoil material in those areas where construction has been completed and the material can no longer be used on site as it is becoming an eyesore, and in some cases has the potential to pollute nearby watercourses.

3.6 Trends

50. Most of the violations by the Contractor are related to waste management. Despite numerous recommendations by the Engineer on how to resolve this issue, the Contractor does not take necessary steps and does not act proactively to avoid environmental pollution, such as plastic waste, waste concrete, oil spills, burning of waste etc. The poor environmental management relates in part to the attitude of construction workers who ignore the toolbox talks/training provided by Contractor Management. There is also a lack of enforcement by site supervisors. The Engineer has recommended that the Contractor implement disciplinary measures to its site supervisors to improve site environmental management.

3.7 Unanticipated Environmental Impacts or Risks

51. Three Administrative Offence Reports were issued against Polatyol & Mapa Joint Venture by Adjara and Guria Regional Division of the Department of Environmental Supervision during the period June to July 2023. These were:

1. Administrative Offence Report No. 082686 dated 05 September 2023 - as per the Article 32, Part 1 - Polatyol & Mapa Joint Venture in Georgia was fined by the Administrative Penalty in amount of GEL 2,000- The specified fine was issued in response to an incident of pollution involving household waste.
2. Administrative Offence Report No. 082648 dated 31 October 2023 - as per the Article 52 – Submitted to Batumi City Court- The specified fine was issued in response to an incident of pollution with construction waste.

3. Administrative Offence Report No. 084521 dated 12 December 2023 - as per the Article 32, Part 1 – Submitted to Batumi City Court- The specified fine was issued in response to an incident of pollution involving household waste.

The Engineer instructed the Contractor to review the offences committed in order to facilitate implementation of preventative measures to avoid the occurrence of violations in future. The Contractor was also reminded of its Contractual obligations to comply with the requirements of national and local laws, rules and regulations.

3.8 Compensatory Tree Planting Works

52. The contractor has completed the cutting of trees and the number of trees remove for the Project and their locations are given in Annex 9.

53. The Engineer met with the Contractor and their tree planting designer from ''Projekt Plus'' Ltd and sub-contractor ''Seedlings of Georgia'' Ltd on 4 December 2023 during which it was agreed that the revised Tree Planting Plan and BoQ will be submitted by the Contractor by 12th December 2023. However, despite this agreement and previous Engineer's Letters and numerous reminders during the Weekly Progress Meetings (WPMs) as well as the Health, Safety and Environmental Meetings over the last 12 months, the Contractor still has not provided to the Engineer/Employer an updated Compensatory Tree Planting Plan as required under the Construction Contract and in accordance with the Project's approved EIA. The Contractor has repeatedly missed tree planting seasons and given the advanced stage of construction, it is now critical that the Contractor submit the relevant Tree Planting Documentation before the next Tree Planting season (March-April 2024) for the Engineer's review and the Employer's subsequent approval so that all issues can be resolved, and the tree planting completed prior to the construction project completion date of May 31, 2024.

It is expected that progress with the Compensation Tree planting plan will improve with the recent employment of the Contractor's new Environmental Specialist since he has experience in landscaping including the selection, procurement and planting of plants in rehabilitation programs.

4 RESULTS OF ENVIRONMENTAL MONITORING

4.1 Overview of Contractor's Monitoring during the Reporting Period.

54. During the reporting period Contractor engaged an independent laboratory LEPL "Laboratory Research Centre" to conduct chemical-bacteriological analysis of water samples from rivers near the Project. The location of water sampling sites and parameters measured is in accordance with the SSEMP. Results can be found in Annex 5 [Water Quality Results]. The results of water quality tests are within Maximum Permissible Concentrations (see Table 10).

4.1.1 Water Quality Monitoring

Table 10. Chemical and Bacteriological Analysis of River Water

Water quality sampling undertaken on 8 September 2023

N	Parameter	Makhvilauri km11+500	Benze km4+700	Makhinjauri km1+950	Makhinjauri km0+550	Gorodoki km7+500	Maximum Allowable
1	Chlorides	12.40 mg/l	14.89 mg/l	9.92 mg/l	12.05 mg/l	13.11 mg/l	350 mg/l
2	Sulphates	16.0 mg/l	21.0 mg/l	19.0 mg/l	17.0 mg/l	18.0 mg/l	500 mg/l
3	Poly-phosphates	<0.01 mg/l	<0.01 mg/l	<0.01 mg/l	<0.01 mg/l	<0.01 mg/l	5 mg/l
4	Nitrates	0.4 mg/l	0.35 mg/l	0.28 mg/l	0.5 mg/l	0.48 mg/l	25 mg/l
5	Alkalinity	1.9 mmol/dm^3	1.7 mmol/dm^3	1.2 mmol/dm^3	1.4 mmol/dm^3	1.8 mmol/dm^3	-
6	Lead	<0.003 mg/l	0.001 mg/l	0.001 mg/l	0.002 mg/l	0.002 mg/l	0.03 mg/l
7	Zinc	0.06 mg/l	0.06 mg/l	0.05 mg/l	0.07 mg/l	0.05 mg/l	1 mg/l

Water quality sampling undertaken on 18 December 2023

N	Parameter	Makhvilauri km11+500	Benze km4+700	Makhinjauri km1+950	Makhinjauri km0+550	Gorodoki km7+500	Maximum Allowable
1	Chlorides	26.9 mg/l	34.7 mg/l	38.3 mg/l	36.8 mg/l	31.9 mg/l	350 mg/l
2	Sulphates	16.0 mg/l	17.0 mg/l	16.4 mg/l	16.5 mg/l	17.5 mg/l	500 mg/l
3	Poly-phosphates	<0.01 mg/l	<0.01 mg/l	<0.01 mg/l	<0.01 mg/l	<0.001 mg/l	5 mg/l
4	Nitrates	<0.1 mg/l	0.19 mg/l	<0.1 mg/l	<0.1 mg/l	<0.1mg/l	25 mg/l
5	Alkalinity	1.0 mmol/dm^3	0.7 mmol/dm^3	1.25 mmol/dm^3	1.2 mmol/dm^3	1.0 mmol/dm^3	-
6	Lead	0.003 mg/l	<0.001 mg/l	0.002 mg/l	0.002 mg/l	0.002 mg/l	0.03 mg/l
7	Zinc	0.09 mg/l	0.05 mg/l	0.08 mg/l	0.07 mg/l	0.07 mg/l	1 mg/l

55. Quarterly monitoring of the water quality was done on 08.09.2023 and 18.12.2023. Maximum allowable limits are based on Georgian standards for surface water quality as approved by the Ministry of Labour, Health and Social Protection.

4.1.2 Noise, Air Quality, Atmospheric Air Quality and Vibration Monitoring

56. The Contractor measured PM2.5 and PM10 twice during the reporting period (05.09.2023 and 01.12.2023) (see Table 12).

57. The Contractor conducted vibration measurements as part of the project assessment or monitoring process. Results can be found in Annex 6.

58. Blasting time is strictly controlled and is allowed only during daytime to avoid disturbance of residents and to comply with requirements of the SSEMP and EIA. Also, all residents are informed about blasting time in advance by text messages and phone calls. Explosives and discharge power are reduced so there are no negative effects due to vibration or noise on sensitive receptors. According to the international standards, the maximum allowable PPV (Peak Particle Velocity) value is 25, and according to the EIA of Batumi Bypass Road Project it is further limited to 5. As the discharge force is unchanged, vibration testing has been performed at various locations and ranges within the PPV-5 and is acceptable.

Table 11. Noise Measurement Results

Location	Third Quarter 2023 Monitoring (max dbA)	Fourth Quarter 2023 Monitoring (max dbA)
Makhinjauri km0+550	41.4	42.3
Makhinjauri km1+950	41.1	41.7
Benze km4+700	41.5	41.1
Makhvilauri km11+500	40.5	40.9
Gordoki km7+500	41.2	39.7

Georgian and IFC EHS noise standards indicate a 55 dB (A) limit for daytime and 45 dB (A) limit for nighttime noise levels. The noise measurement results in Table 11 are within both the permissible daytime and nighttime limits.

59. Certified laboratory LEPL "Laboratory Research Centre" has measured the parameters of atmospheric air and noise at the Contractor's office/accommodation camp and several construction sites according to the construction activities. Results of tests are enclosed as **Annex 3** (Atmospheric Air Quality Monitoring Results) and **Annex 4** (Noise Monitoring Results) to the report.

Table 12. Summary of Air Quality Parameters Measured

60. Monitoring of atmospheric air quality took place on 06.09.2023 and 18.12.2023 at five Project locations.

Measurement was undertaken on 05/09/2023.

Measurement Parameter			Value	Source of Pollution
PM2.5 (µg/m3)	Allowable Concentration	24 Hour	25	Construction Works
	Result - Location N1	20 Minute	17	
	Result - Location N2	20 Minute	11	
	Result - Location N3	20 Minute	12	
	Result - Location N4	20 Minute	10	
	Result - Location N5	20 Minute	13	
PM10 (µg/m3)	Allowable Concentration	24 Hour	50	
	Result - Location N1	20 Minute	41	
	Result - Location N2	20 Minute	16	
	Result - Location N3	20 Minute	26	
	Result - Location N4	20 Minute	14	
	Result - Location N5	20 Minute	21	

Measurement was undertaken on 01/12/2023.

Measurement Parameter			Value	Source of Pollution
PM2.5 (µg/m3)	Allowable Concentration	24 Hour	25	Construction Works
	Result - Location N1	20 Minute	7	
	Result - Location N2	20 Minute	3	
	Result - Location N3	20 Minute	7	
	Result - Location N4	20 Minute	9	
	Result - Location N5	20 Minute	10	
PM10 (µg/m3)	Allowable Concentration	24 Hour	50	
	Result - Location N1	20 Minute	10	
	Result - Location N2	20 Minute	4	
	Result - Location N3	20 Minute	16	
	Result - Location N4	20 Minute	15	
	Result - Location N5	20 Minute	23	

61. Monitoring of air quality took place on 05.09.2023 and 01.12.2023 at five Project locations. Allowed Norms are based on World Health Organisation (PM2.5, PM10) and Georgian legislation (PM10).

62. Certified laboratory LTD "Eco-Spectri" has measured the parameters of air quality at the Contractor's office/accommodation camp and several construction sites according to the construction activities. Results of tests are enclosed as **Annex 2** [Air Quality Monitoring Results] to the report.

Table 13. Summary of Atmospheric Air Quality Parameters Measured

The measurement was made on 06/09/2023

No.	Parameter	Measurement results by Location				
		Makhinjauri 0+550	**Makhinjauri 1+950**	**Benze settlement 4+700**	**Gorodoki settlement 7+500**	**Batumi Makhvilauri 11+500**
1	Nitrogen dioxide (NO^2)	Not detected	Not detected	Not detected	Not detected	Not detected
2	Hydrogen sulfide (H_2S)	Not detected	Not detected	Not detected	Not detected	Not detected
3	Sulfur dioxide (SO^2)	Not detected	Not detected	Not detected	Not detected	Not detected
4	Carbon Oxide (CO)	Not detected	Not detected	Not detected	Not detected	Not detected
5	Dust	0.03 mg/m³	0,04 mg/m³	0,02 mg/m³	0,01 mg/m³	0,01 mg/m³
6	Hydrocarbons (C_nH_m)	Not detected	Not detected	Not detected	Not detected	Not detected

The measurement was made on 18/12/2023

No.	Parameter	Measurement results by Location				
		Makhinjauri 0+550	**Makhinjauri 1+950**	**Benze settlement 4+700**	**Gorodoki settlement 7+500**	**Batumi Makhvilauri 11+500**
1	Nitrogen dioxide (NO^2)	Not detected	Not detected	Not detected	Not detected	Not detected
2	Hydrogen sulfide (H_2S)	Not detected	Not detected	Not detected	Not detected	Not detected
3	Sulfur dioxide (SO2)	Not detected	Not detected	Not detected	Not detected	Not detected

4	Carbon Oxide (CO)	Not detected	Not detected	Not detected	Not detected	Not detected
5	Dust	0.01 mg/m^3	0,01 mg/m^3	0,01 mg/m^3	0,01 mg/m^3	0,0 mg/m^3
6	Hydrocarbons (C_nH_m)	Not detected	Not detected	Not detected	Not detected	Not detected

4.2 Summary of Monitoring Outcomes

63. The current air quality monitoring results by the Contractor meet Georgian standards.

64. Noise and Water quality testing results meet the norms established by the legislation of Georgia and IFC standards.

4.3 Material Resources Mobilisation

65. Between July and December 2023, the Contractor (see Table 14) mobilized the following materials on site:

Table 14. Material Mobilization

N	MATERIALS	UNIT	QUANTITY
1	Gravel from Quarry Site	m^3	0
2	Reinforcement steel	T	1195
3	Cement	T	11500
4	Additives	T	356
5	Explosives	T	0

66. The Contractor utilizes its Construction Campsite for the storage and utilization of scrap material. Periodically, the scrap material is sold to various companies based on the prevailing market price of metal. This approach demonstrates a systematic and economic approach to managing and repurposing construction-related waste.

4.4 Waste Management

67. The Contractor has prepared a detailed plan for Waste Management which includes an agreement with ''Sanitary'' Ltd for hazardous and non-hazardous waste, as well as an agreement with ''Sandasuftaveba'' Ltd for disposal of sewage water and household waste (see Table 15).

Table 15. Waste Management

Contractor data during the reporting period				
No.	**Domestic/Hazardous Waste and Sewage**	**Estimated Volume**	**Storage Area**	**Licensed Company**
1	Wastewater, including sewage	48 m^3	Camp septic tanks	"Sandasuftaveba" LTD
2	Domestic waste	144 m^3	Camp and Plant Yard wastebaskets	"Sandasuftaveba" LTD

3	Used tires	62 pcs	Workshop designated area	"Sanitary" LTD
4	Used batteries	121 pcs	Workshop designated area	"Sanitary" LTD
5	Hydraulic and used oil	363 liters	Oil Change designated area	"Sanitary" LTD
6	Paint and other chemicals	2.5 m^3	Workshop designated area	"Sanitary" LTD
7	Chemical additive tanks	39 pcs	Plant yard designated area	"Sanitary" LTD
8	Oil drums	34 pcs	Plant yard designated area	"Sanitary" LTD
9	Used food oil	39 liters	Camp separate wastebaskets	"Sanitary" LTD
10	Bulbs, cartridges	3 pc	Camp separate wastebaskets	"Sanitary" LTD
11	Medical waste	0.4 m^3	Camp separate wastebaskets	"Sanitary" LTD

68. The main source that generates a large amount of waste is earthworks, specifically: excavation of the soil and rock material excavated from the tunnels. Part of the material is used for temporary service roads and excess material is disposed to an approved dumpsite.

69. The dumpsite area which is located at Airport and Kakhaberi settlement is agreed with the Ministry of Finance and Economy of Adjara on 19.11.2018 and a copy of the agreement was submitted to the Engineer.

4.5 Health and Safety

72. The Contractor has designated Mr. Ayaz Abdurahmanov as a full-time Accident Prevention Officer at the construction site. In this capacity, he assumes responsibility for ensuring safety and accident prevention measures are consistently maintained. Mr. Abdurahmanov is present on-site every day, actively contributing to the ongoing safety efforts and protocols.

73. The Contractor appointed Mr. Davit Metreveli as a HSE specialist.

4.5.1 Community and Worker Health and Safety

73. Descriptions of the incidents and accidents that occurred during the reporting period are described in **Table 16.**

Table 16. Incidents and Accidents Log

N	DATE	DESCRIPTION	MEASURES TAKEN	FOLLOW UP
1	10/07/2023	On 10 July 2023, at 11:15 a.m. an employee of the Contractor, was performing his duties at the batching plant. In particular, he was changing the tire on the excavator, when the incident happened: during the installation of the tire, the tire suddenly burst and the parts of the tire that broke out during the burst injured the employee's hand and leg. He was transferred to BAU International Hospital for medical treatment. In order to recover, the former employee continues his final treatment in Turkey.	In order to investigate the cause of the accident, a commission consisting of an Occupational Safety Manager and an Occupational Safety Specialist was established. Based on the analysis of facts, interviews of eyewitnesses and study of the incident epicenter, the commission concluded that the incident occurred due to a portion of the tire being ejected during the tire inflation process. This occurred because the tire had not been secured in a specialized cage. The detached part struck an employee, resulting in injuries, specifically dislocation of the fingers of their left hand and a contusion on their left leg; 1) To prevent similar incidents, the commission has issued an instruction stating that the supervisor (foreman) of the work facility must inform the working personnel of all potential risks associated with their work tasks. Additionally, the supervisor (foreman) is responsible for monitoring the work area, equipment, and tools. 2) For the safety of vulcanization process protective cages should be arranged. 3) The PPE should be inspected on a regular basis and replaced if damaged. 4) In order to raise awareness among working personnel, instruction/training on relevant issues should be provided.	The employee resigned from his position and left the job
2	31/07/2023	On July 31, an employee was performing his duty in No. 2 Tunnel when an incident occurred, namely: the affected individual stepped on a nail, which penetrated his waterproof shoe and injured his ankle. The company doctor treated the wound. Due to the degree of	In order to investigate the cause of the accident, a commission consisting of an Occupational Safety Manager and an Occupational Safety Specialist was established. Based on the analysis of facts, interviews of eyewitnesses and study of the incident epicenter, the commission concluded that the cause of the incident was an insufficiently arranged work area and special shoes that did not match the specifics of the work. 1) To prevent similar incidents, the commission has issued an instruction stating that the supervisor (foreman) of the work facility must inform the working personnel of all potential risks associated with their work tasks.	The employee resigned from his position and left the job

N	DATE	DESCRIPTION	MEASURES TAKEN	FOLLOW UP
		injury, there was no need to hospitalize the injured personnel.	Additionally, the supervisor (foreman) is responsible for monitoring the work area, equipment, and tools. 2) The work space should be regularly cleaned from construction waste. 3) The PPE should be inspected on a regular basis and replaced if damaged 4) In order to raise awareness among working personnel, instruction/training on relevant issues should be provided.	
3	03/10/2023	An employee was unloading cargo when an incident occurred, in particular, a dump truck with license plate number HB693HB overturned and injured the driver. The victim was taken to the "Medina" clinic.	In order to investigate the cause of the accident, a commission consisting of a labor safety manager and a labor safety specialist was established. Based on the analysis of facts, eyewitness interviews and the study of the incident center, the commission concluded that the incident was caused by the fact that the surface of the area was newly arranged and there were heavy rains, due to which the ground was soaked with water. The pressure of the lifted load increased the load on the rear tires, which caused the ground to sag, causing the vehicle to roll to the side. Due to the uneven distribution of the mass, the lifting mechanism broke which overturned the truck on the left side 1) In order to avoid similar incidents, the Commission has issued an instruction to check the stability of the ground before carrying out the unloading operation after heavy rains. 2) To carry out cargo unloading operations under the supervision of flagman. 3) Before starting work, drivers should check the technical condition of the vehicles based on the checklist and report to the supervisor if any technical defects are found. 4) In order to raise the awareness of employed persons, instruction/training should be conducted on relevant issues.	Continues to work
4	12/11/2023	On 21 Nomvember 2023, at 11:30 am, the Loader with the state	In order to investigate the cause of the accident, a commission consisting of a labor safety manager and a labor safety specialist was established. Based on the analysis	Continues to work

N	DATE	DESCRIPTION	MEASURES TAKEN	FOLLOW UP
		number TN-688-NT, which was operated by a representative of the subcontractor company "Magistral", was carrying out the rebar loading procedure, during which an incident occurred, in particular: the lifting mechanism of the crane boom and the supports broke. Nobody was injured during the incident	of facts, eyewitness interviews and the study of the incident center, the commission concluded that the incident was caused by the fault of operator,in particular he lifted load that was heavier than allowed,wich caused the boom lifting mechanism and supports to break. Working environment condition during the accident was normal. Additional information: 1) In order to avoid similar incidents, the Commission has issued an instruction that operators have to plan their actions according the factory instructions of vehicle. 2) Such works have to be done by supervising Foremant 3) In order to raise the awareness of employed persons, subcontractor company has to conduct instruction/training their employees.	
5	30/11/2023	On 30 November 2023 an incident occoured, In particular, the Contractor's concrete mixer with state plate number OU-693-0U, driven by an employee, left the roadway and turned over. Then the driver underwent a breathalyser test conducted by the patrol police, revealing no signs of alcohol influence. Nobody was injured during the incident. Working environment condition during the accident was normal.	In order to investigate the cause of the accident, a commission consisting of a Labors Safety Manager and an Labor Safety Specialist was established. Based on the analysis of facts and study of the incident epicenter, the commission concluded that the incident was caused by the fault of the driver, in particular: carelessness and wrong manouever. Additional information: 1) To prevent similar incidents, the commission has issued an instruction stating that drivers should show maximum attention while driving and follow the rules for operating heavy equipment at the construction site. In order to raise awareness among working personnel, instruction/training on relevant issues should be provided.	Continues to work
6	08/12/2023	On 08 December 2023,14:25 pm, an incident occurred near the Tunnel No.1 Entrance (End of the Bridge No.2), in particular, the driver of	The causes of the incident was being investigated by the patrol police. Working process was ongoing during daylight. The workplace complied with safety norms. The mentioned person underwent treatment successfully and was discharged from the clinic. The final expertise report of the incident report has not yet been	He continues treatment at home

N	DATE	DESCRIPTION	MEASURES TAKEN	FOLLOW UP
		the Company (Kobuleti Branch), was transporting asphalt from the plant of Kobuleti in the direction of Makhvilauri (area adjacent to Bridge No. 12) in a dump truck (state plate number XX-789-PX),during which the driver arbitrarily changed the route, drove off the unfinished Bridge No.2 and crashed into a forklift located adjacent to the Tunnel No.1 with a passengercabin. The driver of the truck was transported to the BAU clinic by the emergency crew. The aforementioned person underwent a medical treatment. The rescue service, the investigative service and the state examination were called to the scene	provided by the State authorities. The Contractor is not competent to investigate this particular incident and cannot submit an investigation report without an expertise report. Once this is received, the Contractor will complete its assessment.	

74. Trends related to the incidents and accidents are outlined in **Table 17.**

Table 17. Health and Safety Trends

Incident	Reporting Period (July – December 2023)	Total (since start of Project)
Near Miss	0	7
Accident Minor	3	20
Accident Major	1	5
Incident Minor	1	11
Incident Major	1	7

4.6 Contractor's Training

75. In accordance with the SSEMP, quarterly training for AIDS and Hepatitis for employees was held on September 12, 2023 and November 3, 2023.

76. HSE trainings were carried out on Introductory instruction (21/07/2023); Purposeful use of CPE and PPE (21/07/2023); Safety regulations during the preparation works of excavation (21/07/2023); General regulations of labor safety behavior at the construction site (21/07/2023); Safety regulations for working at height (21/07/2023); Safety regulations for using ladders (21/07/2023); Assessment of the risks of tunnel works and training of the working personnel (10/08/2023); Inspection of heavy equipment operating in Tunnels by a qualified person;(11/08/2023); Safety regulations for working with Tunnel Boring Machine (10/08/2023); Safety regulations for personnel conducting blasting operations (18/08/2023); Familiarization with electrical safety regulations for electrical tools and equipment (22/08/2023); Introduction to fire safety regulations for employees (23/08/2023); Instructions for working at height (24/08/2023); Safety regulations for working with cranes (24/08/2023); Guidelines for the correct use, installation/storage of oxygen cylinders (24/08/2023); Safety regulations for working at height near the edges of bridges (18/09/2023); Continued training in the identification of risks for workers (16/09/2023); Use of PPE and CPE (16/09/2023); Safety regulations for working with heavy equipment (14/09/2023); Familiarization of working personnel with electrical safety regulations (16/09/2023); Regulations for working with air cylinders and additional dangers (15/09/2023); Maintaining cleanliness in the workplace (26/09/2023).

4.7 Community Consultation

77. In accordance with the requirements of the SSEMP and the Public Relations Plan (CLP), there was no need for a meeting with the public during the reporting period, therefore no public meeting was held.

4.8 Grievance Redress Mechanism and Complaints

78. A total of 226 persons have submitted grievances across 11 categories to the GRC. Out of these, 179 grievances have been resolved as of 31 December 2023. Most people (94) applied for damage to their assets caused by construction activities, out of which 61 have been closed. 42 APs requested inclusion of their residential structures or land plots in the acquisition list, out of which 40 cases are closed. 28 APs expressed dissatisfaction due disturbance by

noise/vibration and dust, out of which 17 cases closed. Left cases are indicated below in **Table 18**.

79. Cases from Tunnel blasting zones will be finalized upon completion of tunnel construction activities till the end of the Project.

80. For other details refer to **Table 18** below.

Table 18. Summary of Grievances by Category

Number of Complaints by Category	Closed	Technical Hold	Open	Total
Damage to Infrastructure / Assets	61	33	0	94
Crop Compensation	7	0	0	7
Other	16	1	0	17
Inclusion in LARP	40	2	0	42
Disturbance: Noise / Vibration / Dust	17	11	0	28
Restriction or loss of access	12	0	0	12
Recruitment / Employment	1	0	0	1
Loss of business	1	0	0	1
Compensation Rate	15	0	0	15
Registration / Ownership Status	7	0	0	7
HSE Concerns	0	0	0	0
Road Upgrading	2	0	0	2
Total	**179**	**47**	**0**	**226**

5 FUNCTIONING OF THE SSEMP

5.1 SSEMP Review

81. The original SSEMP was prepared by the Contractor and submitted to the Engineer on 30 May 2018 by letter GEO/BB/103-18 and was prepared in a good manner although with some inconsistencies. In March 2019 the Contractor submitted an updated SSEMP to the Engineer which considered ADB, RD and Engineer's comments. It included all aspects of project construction and construction sites, namely:

- Soil Management Plan
- Water Management Plan
- Dust Management Plan
- Noise & Vibration Management Plan
- Waste Management Plan
- Spoil Management Plan
- Spill Prevention Management Plan
- Borrow Pit Management Plan
- Flora and Fauna Management Plan
- Cultural and Archaeological Management Plan
- Grievance Redress Mechanism.

82. As per Engineer's request (Letter Ref. 5015001/2/1138 dated 15 November 2019), the Contractor updated the SSEMP on 18.04.2021 and additionally prepared EMPs for the Stone Column area, No.2 Concrete Batching Plant and for each tunnel and bridge.

6 GOOD PRACTICE

6.1 Good Practice

83. The Contractor's environmental monitoring system has been enhanced through the deployment of an additional environmental specialist. Furthermore, the collaborative efforts between the Engineer's environmental specialists and the Contractor's environmental specialists have played a pivotal role in mitigating non-compliances, showcasing a commendable and effective approach to environmental management.

7 SUMMARY AND RECOMMENDATIONS

7.1 Summary

85. Throughout the reporting period, the contractor diligently conducted the agreed-upon monitoring of air and water quality. The assessment included quarterly measurements of air quality, specifically focusing on particulate matter (PM 2.5 – PM 10), as well as regular monitoring of water quality. This proactive approach reflects the contractor's commitment to environmental stewardship and compliance with established monitoring protocols.

    Effectively managed and resolved the majority of Non-Conformance Reports (NCRs), resulting in their closure. This proactive approach demonstrates the Contractor's commitment to rectifying identified issues and maintaining compliance with established standards.

7.2 Recommendations

1. Enhance the overall level of environmental management at construction sites to ensure adherence to environmental standards and regulations.

2. Implement proactive measures to augment staff training programs, particularly focusing on increasing environmental awareness. Topics should encompass waste management, optimal use and re-use of materials, and biodiversity protection through site rehabilitation and tree planting initiatives.

3. Enforce strict prohibitions and disciplinary measures against employees engaging in open-air burning of waste and improper pouring of concrete.

4. Update and submit the compensatory tree planting plan, incorporating the revised number and types of trees agreed upon with the Engineer in December 2022. Ensure the timely execution of the plan in alignment with the construction contract and Environmental Impact Assessment (EIA).

5. Develop and submit a noise barrier design/plan, along with costings, and implement noise protection measures to mitigate the impact of noise.

8 ANNEXES

8.1 Annex 1 PROJECT PHOTOS

Photo No.1- Construction camp site

Photo No.2 – Earth road

Photo No.3 – Near the No.2 Batching plant area

Photo No.4 – Construction camp site

Photo No.5– Near the Tunnel No.4 Exit Portal area

Photo No.6 – Bridge No.1

Photo No.7 - Near the Precast yard

Photo No.8 - No.2 Batching plant sedimentation trap

Photo No.9 – Bridge No.11 Beginning

Photo No.10 – Bridge No. 11 end

Photo No.11 - Precast yard area

Photo No.12- Hazardous waste storage area

8.2 Annex 2 RESULTS OF AIR QUALITY (PM 2.5 AND PM 10) MEASUREMENTS

The measurement was made on 05/09/2023.

N1 Point			
Index	Date Time	PM10 (µg/m3)	PM2,5 (µg/m3)
1	05 Sep 2023 12:12	109	96
2	05 Sep 2023 12:13	63	20
3	05 Sep 2023 12:14	13	10
4	05 Sep 2023 12:15	10	9
5	05 Sep 2023 12:16	20	10
6	05 Sep 2023 12:17	297	50
7	05 Sep 2023 12:18	12	9
8	05 Sep 2023 12:19	48	11
9	05 Sep 2023 12:20	18	9
10	05 Sep 2023 12:21	12	9
11	05 Sep 2023 12:22	20	11
12	05 Sep 2023 12:23	15	11
13	05 Sep 2023 12:24	38	11
14	05 Sep 2023 12:25	44	12
15	05 Sep 2023 12:26	14	11
16	05 Sep 2023 12:27	17	11
17	05 Sep 2023 12:28	13	10
18	05 Sep 2023 12:29	23	11
19	05 Sep 2023 12:30	22	15
20	05 Sep 2023 12:31	18	13
20 min. Average		41	17

N2 Point			
Index	Date Time	PM10 (µg/m3)	PM2,5 (µg/m3)
21	05 Sep 2023 12:56	10	10
22	05 Sep 2023 12:57	13	10
23	05 Sep 2023 12:58	10	10
24	05 Sep 2023 12:59	12	10
25	05 Sep 2023 13:00	15	11
26	05 Sep 2023 13:01	9	9
27	05 Sep 2023 13:02	16	11
28	05 Sep 2023 13:03	19	11
29	05 Sep 2023 13:04	20	11
30	05 Sep 2023 13:05	13	11
31	05 Sep 2023 13:06	22	10
32	05 Sep 2023 13:07	19	13
33	05 Sep 2023 13:08	18	9
34	05 Sep 2023 13:09	23	12
35	05 Sep 2023 13:10	15	10
36	05 Sep 2023 13:11	11	8
37	05 Sep 2023 13:12	14	9

N2 Point			
Index	Date Time	PM10 (µg/m3)	PM2,5 (µg/m3)
38	05 Sep 2023 13:13	18	11
39	05 Sep 2023 13:14	21	15
40	05 Sep 2023 13:15	19	13
20 min. Average		16	11

N3 Point			
Index	Date Time	PM10 (µg/m3)	PM2,5 (µg/m3)
41	05 Sep 2023 13:33	14	10
42	05 Sep 2023 13:34	13	10
43	05 Sep 2023 13:35	12	12
44	05 Sep 2023 13:36	55	15
45	05 Sep 2023 13:37	17	10
46	05 Sep 2023 13:38	38	11
47	05 Sep 2023 13:39	36	12
48	05 Sep 2023 13:40	26	11
49	05 Sep 2023 13:41	69	14
50	05 Sep 2023 13:42	12	9
51	05 Sep 2023 13:43	16	10
52	05 Sep 2023 13:44	44	12
53	05 Sep 2023 13:45	12	10
54	05 Sep 2023 13:46	22	11
55	05 Sep 2023 13:47	25	15
56	05 Sep 2023 13:48	28	18
57	05 Sep 2023 13:49	18	15
58	05 Sep 2023 13:50	19	15
59	05 Sep 2023 13:51	20	16
60	05 Sep 2023 13:52	15	11
20 min. Average		26	12

N4 Point			
Index	Date Time	PM10 (µg/m3)	PM2,5 (µg/m3)
61	05 Sep 2023 14:24	17	21
62	05 Sep 2023 14:25	13	8
63	05 Sep 2023 14:26	42	17
64	05 Sep 2023 14:27	8	9
65	05 Sep 2023 14:28	10	9
66	05 Sep 2023 14:29	11	10
67	05 Sep 2023 14:30	10	9
68	05 Sep 2023 14:31	11	8
69	05 Sep 2023 14:32	10	8
70	05 Sep 2023 14:33	11	9
71	05 Sep 2023 14:34	10	9

N4 Point			
Index	Date Time	PM10 (µg/m3)	PM2,5 (µg/m3)
72	05 Sep 2023 14:35	12	9
73	05 Sep 2023 14:36	13	9
74	05 Sep 2023 14:37	15	9
75	05 Sep 2023 14:38	18	10
76	05 Sep 2023 14:39	18	11
77	05 Sep 2023 14:40	16	10
78	05 Sep 2023 14:41	17	12
79	05 Sep 2023 14:42	12	8
80	05 Sep 2023 14:43	11	8
20 min. Average		14	10

N5 Point			
Index	Date Time	PM10 (µg/m3)	PM2,5 (µg/m3)
81	05 Sep 2023 15:16	166	66
82	05 Sep 2023 15:17	9	10
83	05 Sep 2023 15:18	11	11
84	05 Sep 2023 15:19	19	15
85	05 Sep 2023 15:20	11	11
86	05 Sep 2023 15:21	12	11
87	05 Sep 2023 15:22	12	10
88	05 Sep 2023 15:23	10	10
89	05 Sep 2023 15:24	10	10
90	05 Sep 2023 15:25	16	10
91	05 Sep 2023 15:26	18	10
92	05 Sep 2023 15:27	17	12
93	05 Sep 2023 15:28	16	11
94	05 Sep 2023 15:29	13	11
95	05 Sep 2023 15:30	12	11
96	05 Sep 2023 15:31	15	11
97	05 Sep 2023 15:32	15	11
98	05 Sep 2023 15:33	12	8
99	05 Sep 2023 15:34	14	9
100	05 Sep 2023 15:35	11	9
20 min. Average		21	13

The measurement was made on 01/12/2023.

N1 Point			
Index	Date Time	PM10 (µg/m3)	PM2,5 (µg/m3)
1	01 Dec 2023 16:27	74	52
2	01 Dec 2023 16:28	5	5
3	01 Dec 2023 16:29	5	5
4	01 Dec 2023 16:30	6	5
5	01 Dec 2023 16:31	9	8
6	01 Dec 2023 16:32	5	5
7	01 Dec 2023 16:33	6	5
8	01 Dec 2023 16:34	7	5
9	01 Dec 2023 16:35	5	5
10	01 Dec 2023 16:36	9	5
11	01 Dec 2023 16:37	5	5
12	01 Dec 2023 16:38	8	5
13	01 Dec 2023 16:39	5	4
14	01 Dec 2023 16:40	5	4
15	01 Dec 2023 16:41	6	4
16	01 Dec 2023 16:42	11	6
17	01 Dec 2023 16:43	8	6
18	01 Dec 2023 16:44	6	5
19	01 Dec 2023 16:45	7	5
20	01 Dec 2023 16:46	5	5
20 min. Average		10	7

N2 Point			
Index	Date Time	PM10 (µg/m3)	PM2,5 (µg/m3)
21	01 Dec 2023 15:27	7	3
22	01 Dec 2023 15:28	5	3
23	01 Dec 2023 15:29	6	3
24	01 Dec 2023 15:30	3	2
25	01 Dec 2023 15:31	4	3
26	01 Dec 2023 15:32	3	3
27	01 Dec 2023 15:33	3	3
28	01 Dec 2023 15:34	6	3
29	01 Dec 2023 15:35	4	3
30	01 Dec 2023 15:36	3	3
31	01 Dec 2023 15:37	5	3
32	01 Dec 2023 15:38	3	3
33	01 Dec 2023 15:39	3	3
34	01 Dec 2023 15:40	4	2
35	01 Dec 2023 15:41	8	3
36	01 Dec 2023 15:42	4	3
37	01 Dec 2023 15:43	3	3

N2 Point			
Index	Date Time	PM10 (µg/m3)	PM2,5 (µg/m3)
38	01 Dec 2023 15:44	3	3
39	01 Dec 2023 15:45	5	3
40	01 Dec 2023 15:46	4	3
20 min. Average		4	3

N3 Point			
Index	Date Time	PM10 (µg/m3)	PM2,5 (µg/m3)
41	01 Dec 2023 14:43	17	10
42	01 Dec 2023 14:44	11	6
43	01 Dec 2023 14:45	13	7
44	01 Dec 2023 14:46	11	6
45	01 Dec 2023 14:47	14	6
46	01 Dec 2023 14:48	10	7
47	01 Dec 2023 14:49	12	9
48	01 Dec 2023 14:50	15	8
49	01 Dec 2023 14:51	15	8
50	01 Dec 2023 14:52	11	7
51	01 Dec 2023 14:53	14	5
52	01 Dec 2023 14:54	12	7
53	01 Dec 2023 14:55	17	6
54	01 Dec 2023 14:56	15	6
55	01 Dec 2023 14:57	85	14
56	01 Dec 2023 14:58	15	5
57	01 Dec 2023 14:59	9	5
58	01 Dec 2023 15:00	8	6
59	01 Dec 2023 15:01	17	5
60	01 Dec 2023 15:02	7	4
20 min. Average		16	7

N4 Point			
Index	Date Time	PM10 (µg/m3)	PM2,5 (µg/m3)
61	01 Dec 2023 13:59	24	21
62	01 Dec 2023 14:00	14	10
63	01 Dec 2023 14:01	19	12
64	01 Dec 2023 14:02	11	10
65	01 Dec 2023 14:03	16	10
66	01 Dec 2023 14:04	17	9
67	01 Dec 2023 14:05	16	12
68	01 Dec 2023 14:06	12	10
69	01 Dec 2023 14:07	11	6
70	01 Dec 2023 14:08	11	6
71	01 Dec 2023 14:09	11	6

N4 Point			
Index	Date Time	PM10 (µg/m3)	PM2,5 (µg/m3)
72	01 Dec 2023 14:10	15	6
73	01 Dec 2023 14:11	14	6
74	01 Dec 2023 14:12	16	7
75	01 Dec 2023 14:13	14	6
76	01 Dec 2023 14:14	17	6
77	01 Dec 2023 14:15	15	6
78	01 Dec 2023 14:16	14	6
79	01 Dec 2023 14:17	14	7
80	01 Dec 2023 14:18	14	8
20 min. Average		15	9

N5 Point			
Index	Date Time	PM10 (µg/m3)	PM2,5 (µg/m3)
81	01 Dec 2023 13:28	14	6
82	01 Dec 2023 13:29	325	130
83	01 Dec 2023 13:30	10	5
84	01 Dec 2023 13:31	14	6
85	01 Dec 2023 13:32	4	4
86	01 Dec 2023 13:33	6	4
87	01 Dec 2023 13:34	4	4
88	01 Dec 2023 13:35	8	4
89	01 Dec 2023 13:36	6	4
90	01 Dec 2023 13:37	5	4
91	01 Dec 2023 13:38	6	3
92	01 Dec 2023 13:39	5	4
93	01 Dec 2023 13:40	4	3
94	01 Dec 2023 13:41	10	4
95	01 Dec 2023 13:42	4	3
96	01 Dec 2023 13:43	6	3
97	01 Dec 2023 13:44	12	3
98	01 Dec 2023 13:45	3	3
99	01 Dec 2023 13:46	4	3
100	01 Dec 2023 13:47	4	3
20 min. Average		23	10

8.3 Annex 3 RESULTS OF ATMOSPHERIC AIR MEASUREMENTS

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E-MAIL:

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The Protocol of the Test: №3624

Data: 06.09.2023

Name of the customer and contact information: Branch of foreign enterprise „JSC Polat Yol Yapi Sanayi Ve Ticaret" in Georgia.

Description of the samples, conditions: Atmospheric air

The place of sampling, date: Batumi, Makhinjauri 0-550 section 05.09.2023 14:40

Method of sampling and/or transportation: The sample is taken accordingly a specialist of LEPL – Laboratory Research Center, who is responsible for sampling and transportation.

Date of sample entry in the laboratory: 05.09.2023 17:10

Place and date of performance of laboratory activity: Batumi Makhinjauri 0-550 section 05.09.2023 and Lopi – Laboratory Research Center, Batumi 80/SHEVSKY STREET 9/80 05.09.2023-06.09.2023

Sample № (Identification)	Research parameter	Measurement result	Method of research
Registration: №3626 Appeal №361	Nitrogen dioxide (NO2)	Not detected	Tech. Reg 435-13
	Hydrogen sulfide (H2S)	Not detected	Tech. Reg 435-13
	Sulfur dioxide (SO2)	Not detected	Tech. Reg 435-13
	Carbon oxide (CO)	Not detected	Tech. Reg 435-13
	Dust	0.03 mg/m3	ISO 9096-2017
	Hydrocarbons (CnHm)	Not detected	Tech. Reg 435-13

Responsible performer specialist: S. Giorgelidze

Head of the Testing Laboratory: K.Kupatadze

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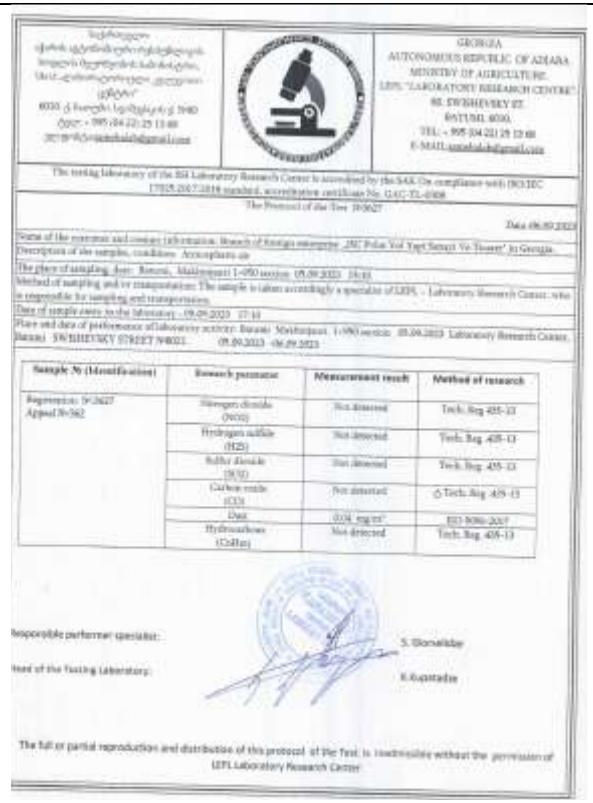

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The Protocol of the Test: №3627

Data: 06.09.2023

Name of the customer and contact information: Branch of foreign enterprise „JSC Polat Yol Yapi Sanayi Ve Ticaret" in Georgia.

Description of the samples, conditions: Atmospheric air

The place of sampling, date: Batumi, Makhinjauri 1-050 section 05.09.2023 15:10

Method of sampling and/or transportation: The sample is taken accordingly a specialist of LEPL – Laboratory Research Center, who is responsible for sampling and transportation.

Date of sample entry in the laboratory: 05.09.2023 17:10

Place and date of performance of laboratory activity: Batumi Makhinjauri 1-050 section 05.09.2023 Laboratory Research Center, Batumi 80/SHEVSKY STREET 9/80 05.09.2023 -06.09.2023

Sample № (Identification)	Research parameter	Measurement result	Method of research
Registration: №3627 Appeal №362	Nitrogen dioxide (NO2)	Not detected	Tech. Reg 435-13
	Hydrogen sulfide (H2S)	Not detected	Tech. Reg 435-13
	Sulfur dioxide (SO2)	Not detected	Tech. Reg 435-13
	Carbon oxide (CO)	Not detected	Tech. Reg 435-13
	Dust	0.04 mg/m3	ISO 9096-2017
	Hydrocarbons (CnHm)	Not detected	Tech. Reg 435-13

Responsible performer specialist: S. Giorgelidze

Head of the Testing Laboratory: K.Kupatadze

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The Protocol of the Test: №3628

Data: 06.09.2023

Name of the customer and contact information: Branch of foreign enterprise „JSC Polat Yol Yapi Sanayi Ve Ticaret" in Georgia.

Description of the samples, conditions: Atmospheric air

The place of sampling, date: Batumi, Makhinjauri 4-700 section 05.09.2023 15:10

Method of sampling and/or transportation: The sample is taken accordingly a specialist of LEPL – Laboratory Research Center, who is responsible for sampling and transportation.

Date of sample entry in the laboratory: 05.09.2023 17:10

Place and date of performance of laboratory activity: Batumi Batumi residential 4-700 section 05.09.2023 Laboratory Research Center, Batumi 80/SHEVSKY STREET 9/80 05.09.2023 -06.09.2023

Sample № (Identification)	Research parameter	Measurement result	Method of research
Registration: №3628 Appeal №363	Nitrogen dioxide (NO2)	Not detected	Tech. Reg 435-13
	Hydrogen sulfide (H2S)	Not detected	Tech. Reg 435-13
	Sulfur dioxide (SO2)	Not detected	Tech. Reg 435-13
	Carbon oxide (CO)	Not detected	Tech. Reg 435-13
	Dust	0.02 mg/m3	ISO 9096-2017
	Hydrocarbons (CnHm)	Not detected	Tech. Reg 435-13

Responsible performer specialist: S. Giorgelidze

Head of the Testing Laboratory: K.Kupatadze

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The Protocol of the Test №6173

Data :18.12.2023

Name of the customer and contact information: Branch of foreign enterprise „JSC Polat Yol Yapi Sanayi Ve Ticaret" in Georgia
Description of the samples, condition: Atmospheric air
The place of sampling, date: Batumi, Makhinjauri 1-950 section 15.12.2023 15:10
Method of sampling and/or transportation: The sample is taken accordingly a specialist of LEPL – Laboratory Research Center, who is responsible for sampling and transportation
Date of sample entry in the laboratory : 15.12.2023 17:30
Place and date of performance of laboratory activity: Batumi Makhinjauri 1-950 section 15.12.2023 Laboratory Research Center, Batumi SWISHEVSKY STREET №80/21, 15.12.2023 -18.12.2023

Sample № (Identification)	Research parameter	Measurement result	Method of research
Registration №6173 Appeal №622	Nitrogen dioxide (NO2)	Not detected	Tech. Reg 435-13
	Hydrogen sulfide (H2S)	Not detected	Tech. Reg 435-13
	Sulfur dioxide (SO2)	Not detected	Tech. Reg 435-13
	Carbon oxide (CO)	Not detected	Tech. Reg 435-13
	Dust	0,01 mg/m³	ISO 9096-2017
	Hydrocarbons (CnHm)	Not detected	Tech. Reg 435-13

Responsible performer specialist: S. Gloravidze

Head of the Testing Laboratory: K.Kupatadze

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The Protocol of the Test №6174

Data :18.12.2023

Name of the customer and contact information: Branch of foreign enterprise „JSC Polat Yol Yapi Sanayi Ve Ticaret" in Georgia
Description of the samples, condition: Atmospheric air
The place of sampling, date: Batumi, Benze settlement 4-700 section 15.12.2023 15:35
Method of sampling and/or transportation: The sample is taken accordingly a specialist of LEPL – Laboratory Research Center, who is responsible for sampling and transportation
Date of sample entry in the laboratory : 15.12.2023 17:00
Place and date of performance of laboratory activity: Batumi Benze settlement 4-700 section 15.12.2023 Laboratory Research Center, Batumi SWISHEVSKY STREET №80 15.12.2023 -18.12.2023

Sample № (Identification)	Research parameter	Measurement result	Method of research
Registration №6174 Appeal №623	Nitrogen dioxide (NO2)	Not detected	Tech. Reg 435-13
	Hydrogen sulfide (H2S)	Not detected	Tech. Reg 435-13
	Sulfur dioxide (SO2)	Not detected	Tech. Reg 435-13
	Carbon oxide (CO)	Not detected	Tech. Reg 435-13
	Dust	0,01 mg/m³	ISO 9096-2017
	Hydrocarbons (CnHm)	Not detected	Tech. Reg 435-13

Responsible performer specialist: S. Gloravidze

Head of the Testing Laboratory: K.Kupatadze

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The Protocol of the Test №6175

Date 18.12.2023

Name of the customer and contact information: Branch of foreign enterprise „JSC Polat Yol Yapi Sanayi Ve Ticaret" in Georgia
Description of the samples, condition: Atmospheric air
The place of sampling, date: Batumi, Batumi Gonio(?) settlement section 7-500 15.12.2023 16:15
Method of sampling and/or transportation: The sample is taken accordingly a specialist of LEPL – Laboratory Research Center, who is responsible for sampling and transportation
Date of sample entry in the laboratory: 15.12.2023 17:30
Place and date of performance of laboratory activity: Batumi Makhvilauri 11-500 section 15.12.2023 Laboratory Research Center, Batumi SWISHEVSKY STREET №80 15.12.2023-18.12.2023

Sample № (Identification)	Research parameter	Measurement result	Method of research
Registration №6175 Appeal №624	Nitrogen dioxide (NO2)	0,01 mg/m³	Tech. Reg 435-13
	Hydrogen sulfide (H2S)	Not detected	Tech. Reg 435-13
	Sulfur dioxide (SO2)	Not detected	Tech. Reg 435-13
	Carbon oxide (CO)	Not detected	Tech. Reg 435-13
	Dust	0,01 mg/m³	ISO 9096-2017
	Hydrocarbons (CnHm)	Not detected	Tech. Reg 435-13

Responsible performer specialist: S. Gloravidze

Head of the Testing Laboratory: K.Kupatadze

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The Protocol of the Test: 394176

Date 18.12.2023

Name of the customer and contact information: Branch of foreign enterprise „JSC Polat Yol Yapi Sanayi Ve Ticaret" in Georgia
Description of the samples, condition: atmospheric air
The place of sampling, date: Batumi, Makhinjauri 11-800 section 19.12.2023 17:00
Method of sampling and/or transportation: The sample is taken accordingly a specialist of LEPL – Laboratory Research Center, who is responsible for sampling and transportation.
Date of sample entry in the laboratory 19.12.2023 17:30
Place and date of performance of laboratory activity: Batumi, Makhinjauri 11-800 section 19.12.2023 Laboratory Research Centre, Batumi SWISHEVSKY STREET №80 19.12.2023 19-12.2023

Sample № (Identification)	Research parameter	Measurement result	Method of research
Registration 394176 Appeal 39-625	Nitrogen dioxide (NO_2)	Not detected	Tech. Reg 435-13
	Hydrogen sulfide (H_2S)	Not detected	Tech. Reg. 435-13
	Sulfur dioxide (SO_2)	Not detected	Tech. Reg. 435-13
	Carbon oxide (CO)	Not detected	Tech. Reg. 435-13
	Dust	0.02 mg/m³	ISO 9096:2017
	Hydrocarbons (C_xH_y)	Not detected	Tech. Reg. 435-13

Responsible performer specialist: S. Gionelidze

Head of the Testing Laboratory: K.Kupatadze

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The Protocol of the Test: 395625

Data:06.09.2023

Name of the customer and contact information: Branch of foreign enterprise „JSC Polat Yol Yapi Sanayi Ve Ticaret" in Georgia.
Determination of the research (measurement) object: noise level
Place of measurement (performance of laboratory activities), date: Batumi, Opizari Street No. 57 05.09.2023

Measurement area	Features	Test result (Sounds max. level LA max. db A	Test result
Makhvilauri near School 14:40 10m	non-constant, fluctuating in time, Intermittent noise	40.5 db	GOST 23337-14
Gorodoki near local citizens 15:10 15m	non-constant, fluctuating in time, Intermittent noise	43.2 db	GOST 23337-14
House settlement 15:40 20 m	non-constant, fluctuating in time, Intermittent noise	45.5 db	GOST 23337-14
Makhinjauri settlement 16:10 15m	non-constant, fluctuating in time, Intermittent noise	41.4 db	GOST 23337-14
Makhinjauri settlement 16:40 10m	non-constant, fluctuating in time, Intermittent noise	41.1 db	GOST 23337-14

Results are Applicable only to the sample(s) presented :
Responsible performer specialist: S.Gionelidze

Head of the Testing Laboratory: K.Kupatadze

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The Protocol of the Test: 394176

Date 18.12.2023

Name of the customer and contact information: Branch of foreign enterprise „JSC Polat Yol Yapi Sanayi Ve Ticaret" in Georgia
Determination of the research (measurement) object: noise level
Place of measurement (performance of laboratory activities), date: Batumi, Opizari Street No. 57 19.12.2023

Measurement area	Features	Test result (Sounds max. level LA max. db A	Test result
Makhinjauri settlement [illegible] 15m	non-constant, fluctuating in time, Intermittent noise	[illegible]	GOST 23337-14
Makhinjauri settlement [illegible] 20m	non-constant, fluctuating in time, Intermittent noise	[illegible]	GOST 23337-14
[illegible] settlement [illegible]	non-constant, fluctuating in time, Intermittent noise	[illegible]	GOST 23337-14
[illegible] settlement [illegible] 15m	non-constant, fluctuating in time, Intermittent noise	[illegible]	GOST 23337-14
Makhinjauri settlement 12+500 [illegible]	non-constant, fluctuating in time, Intermittent noise	[illegible]	GOST 23337-14

Results are Applicable only to the sample(s) presented :

Responsible performer specialist: S.Gionelidze

Head of the Testing Laboratory: K.Kupatadze

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8.4 Annex 4 Results of Noise Monitoring

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The Protocol of the Test №3625

Data:06.09.2023

Name of the customer and contact information: Branch of foreign enterprise „JSC Polat Yol Yapi Sanayi Ve Ticaret" in Georgia.

Determination of the research (measurement) object: noise level

Place of measurement (performance of laboratory activities), date: Batumi, Opizreb Street No. 97 05.09.2023

Measurement area	Features	Test result (Sounds max. level LA max. db A	Test result
Malevilauri near School 14:40 10m	non-constant, fluctuating in time,Intermittent noise	40.5 db	COST 23337-14
Gorodoki near local citizens 15:10 15m	non-constant, fluctuating in time,Intermittent noise	41.2 db	COST 23337-14
Benze settlement 15:40 20 m	non-constant, fluctuating in time,Intermittent noise	41.5 db	COST 23337-14
Makhinjauri settlement 16:10 15m	non-constant, fluctuating in time,Intermittent noise	41.4 db	COST 23337-14
Makhinjauri settelment 16:40 10m	non-constant, fluctuating in time,Intermittent noise	41.1 db	COST 23337-14

Results are Applicablee only to the sample(s) presented :

Responsible performer specialist: S Giorxelidze

Head of the Testing Laboratory: K.Kupatadze

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The Protocol of the Test №6176a

Data:18.12.2023

Name of the customer and contact information: Branch of foreign enterprise „JSC Polat Yol Yapi Sanayi Ve Ticaret" in Georgia.

Determination of the research (measurement) object: noise level

Place of measurement (performance of laboratory activities), date: Batumi, Opizreb Street No. 97 18.12.2023

Measurement area	Features	Test result (Sounds max. level LA max. db A	Test result
Makhinjauri settelment 0-550 15m	non-constant, fluctuating in time,Intermittent noise	42.3 db	COST 23337-14
Makhinjauri settelment 1-950 20m	non-constant, fluctuating in time,Intermittent noise	43.7 db	COST 23337-14
Benze settlement 4+700 10m	non-constant, fluctuating in time,Intermittent noise	41.1 db	COST 23337-14
Gorodoki settelment 7+800 15m	non-constant, fluctuating in time,Intermittent noise	39.7 db	COST 23337-14
Makhvilauri settelment 11+500 10m	non-constant, fluctuating in time,Intermittent noise	40.9 db	COST 23337-14

Results are Applicablee only to the sample(s) presented :

Responsible performer specialist: S Giorxelidze

Head of the Testing Laboratory: K.Kupatadze

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8.5 Annex 5. Water Quality Monitoring Results

The measurement was made on 08/09/2023 and on 18/12/2023

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The Protocol of the Test Nº3620

Date: 08.09.2023

Name of the customer and contact information: Branch of foreign enterprise „JSC Polat Yol Yapi Sanayi Ve Ticaret" in Georgia.

Description of the samples, condition : River water 3L in Plastic Bottle

Place of taking the examination sample (s), date: Batumi Makhinjauri 0+550 pk
05.09.2023 14:40-14:55

Method of taking and / or transporting the test sample (s): "Wastewater Sampling Procedure", Resolution of the Government of Georgia No. 26, January 3, 2014.

Date of taking the examination sample (s): 05.09.2023 17:10

Location and date of laboratory activity: LEPL Laboratory Research Center
Batumi 6010. Swishevski st No. 80 05.09.2023 08.09.2023

Sample № (Identification)	Research parameter	Measurement result	Method of research
Registration Nº3620 Protocol of the Test Nº3558	Chlorides	12.05 mg/l	ISO 9297-1989
	Sulfates	17.0 mg/l	S.D 52.24.468-2019
	Polyphosphate	< 0.01 mg/l	GOST 18309-2014
	Nitrates	0.5 mg/l	GOST 33045-2014
	Alkalinity	1.4 mmol/dm³	GOST 31957-2012
	The Lead	0.002 mg/l	GOST 31870-2012
	Zinc	0.07 mg/l	GOST 31870-2012

Results are given only for the sample (s) submitted.

Responsible Persons : T. Tavdgiridze
Q. Tsetsvadze

I Head of structural department : K.kapanadze

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The Protocol of the Test Nº3621

Name of the customer and contact information: Branch of foreign enterprise „JSC Polat Yol Ya
Georgia.

Description of the samples, condition : River water 3L in Plastic Bottle

Place of taking the examination sample (s), date: Batumi, Makhinjauri river 1+950 pk
05.09.2023 15:10-15:25

Method of taking and / or transporting the test sample (s): "Wastewater Sampling Procedure".
of Georgia No. 26, January 3, 2014.

Date of taking the examination sample (s): 05.09.2023 17:10

Location and date of laboratory activity: LEPL Laboratory Research Center
Batumi 6010. Swishevski st No. 80 05.09.2023-08.09.2023

Sample № (Identification)	Research parameter	Measurement result
Registration Nº3621 Protocol of the Test Nº3556	Chlorides	9.92 mg/l
	Sulfates	19.0 mg/l
	Polyphosphate	< 0.01 mg/l
	Nitrates	0.28 mg/l
	Alkalinity	1.2 mmol/dm³
	The Lead	0.001 mg/l
	Zinc	0.05 mg/l

Results are given only for the sample (s) submitted.

Responsible Persons :

I Head of structural department :

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TEL: + 995 (04 22
E-MAIL sanebalab

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On compliance with ISO/IEC 17025:2017/2018 standard, accreditation certificate No. GAC-TL

The Protocol of the Test Nº3622

Name of the customer and contact information: Branch of foreign enterprise „JSC Polat Yol Yapi Sanayi Ve
Georgia.

Description of the samples, condition : River water 3L in Plastic Bottle

Place of taking the examination sample (s), date: Batumi, Bartskhana River 4+700 pk.
05.09.2023 15:40 15:55

Method of taking and / or transporting the test sample (s): "Wastewater Sampling Procedure", Resolution of
of Georgia No. 26, January 3, 2014.

Date of taking the examination sample (s): 05.09.2023

Location and date of laboratory activity: LEPL Laboratory Research Center
Batumi 6010. Swishevski st No. 80 05.09.2023 08.09.2023

Sample № (Identification)	Research parameter	Measurement result	Met
Registration Nº3622 Protocol of the Test Nº3557	Chlorides	14.89 mg/l	[illegible]
	Sulfates	21.0 mg/l	S.D
	Polyphosphate	< 0.01 mg/l	GO
	Nitrates	0.35 mg/l	GO
	Alkalinity	1.7 მგ-ეკვ/დმ³	GO
	The Lead	0.001 mg/l	GO
	Zinc	0.06 mg/l	GO

Results are given only for the sample (s) submitted.

Responsible Persons :

I Head of structural department : K.kapanadze

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E-MAIL:sunebalab@gmail.com

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The Protocol of the Test 393623

Date: 08.09.2023

Name of the customer and contact information: Branch of foreign enterprise „JSC Polat Yol Yapi Sanayi Ve Ticaret" in Georgia.

Description of the samples, condition : River water 3L in Plastic Bottle

Place of taking the examination sample (s), date: Batumi, Gorodoki settlement km 7+500
05.09.2023 15:40-15:55

Method of taking and / or transporting the test sample (s): "Wastewater Sampling Procedure". Resolution of the Government of Georgia No. 26, January 3, 2014.

Date of taking the examination sample (s): 05.09.2023 17:10

Location and date of laboratory activity: LEPL Laboratory Research Center
Batumi 6010. Sviabevski st No. 80 05.09.2023 -08.09.2023

Sample Nr (identification)	Research parameter	Measurement result	Method of research
Registration 393623 Protocol of the Test 39356	Chlorides	13.11 mg/l	ISO 9297-1989
	Sulfates	18.0 mg/l	S.D 92.24.468-2019
	Polyphosphate	< 0,01 mg/l	COST 18309-2014
	Nitrates	0,48 mg/l	COST 33045-2014
	Alkalinity	1.8 mmol/dm³	COST 31957-2012
	The Lead	0,002 mg/l	COST 31870-2012
	Zinc	0,05 mg/l	COST 31870-2012

Results are given only for the sample (s) submitted.

Responsible Persons : T. Tavdgiridze
Q.tsereteli

I. Head of structural department : K.Kapanadze

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The Protocol of the Test 393624

Da

Name of the customer and contact information: Branch of foreign enterprise „JSC Polat Yol Yapi Sanayi Ve
Georgia.

Description of the samples, condition : River water 3L in Plastic Bottle

Place of taking the examination sample (s), date: Batumi Makhvilauri settlement , Makhvilauri the river 1
05.09.2023 16:40-16:55

Method of taking and / or transporting the test sample (s): "Wastewater Sampling Procedure". Resolution of
of Georgia No. 26, January 3, 2014.

Date of taking the examination sample (s): 03.07.2023 17:25

Location and date of laboratory activity: LEPL Laboratory Research Center
Batumi 6010. Sviabevski st No. 80 05.09.2023 17:10

Sample Nr (identification)	Research parameter	Measurement result	Met
Registration 393624 Protocol of the Test 39359	Chlorides	12.40 mg/l	
	Sulfates	16.0 mg/l	S.D
	Polyphosphate	< 0,01 mg/l	CO
	Nitrates	0,4 mg/l	CO
	Alkalinity	1.9 mmol/dm³	CO
	The Lead	0,003 mg/l	CO
	Zinc	0,06 mg/l	CO

Results are given only for the sample (s) submitted.

Responsible Persons : T.Tavdg
Q.Tsere

I. Head of structural department : K.Kapan

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The Protocol of the Test 394353

Date: 19.12.202

Name of the customer and contact information: Branch of foreign enterprise „JSC Polat Yol Yapi Sanayi Ve Ticaret" in Georgia.

Description of the samples, condition : River water 3L in Plastic Bottle

Place of taking the examination sample (s), date: Batumi, Gorodoki settlement km 7+500
19.12.2023 12:25-12:35

Method of taking and / or transporting the test sample (s): "Wastewater Sampling Procedure". Resolution of the Govern
of Georgia No. 26, January 3, 2014.

Date of taking the examination sample (s): 19.12.2023 14:00

Location and date of laboratory activity: LEPL Laboratory Research Center
Batumi 6010. Sviabevski st No. 80 19.12.2023 -18.12.2023

Sample Nr (identification)	Research parameter	Measurement result	Method of resea
Registration 394353 Protocol of the Test 39417	Chlorides	31.9 mg/l	ISO 9297-198
	Sulfates	17.5 mg/l	S.D 92.24.468-20
	Polyphosphate	< 0,01 mg/l	COST 18309-20
	Nitrates	< 0,1 mg/l	COST 33045-20
	Alkalinity	1.0 mmol/dm³	COST 31957-20
	The Lead	0,002 mg/l	COST 31870-20
	Zinc	0,07 mg/l	COST 31870-20

Results are given only for the sample (s) submitted.

Responsible Persons : T. Tavdgiridze
I. Vasilidze
Q.tsereteli

I. Head of structural department : K.Kapanadze

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The Protocol of the Test №6254

Data: 18.12.2023

Name of the customer and contact information: Branch of foreign enterprise „JSC Polat Yol Yapi Sanayi Ve Ticaret" in Georgia.

Description of the samples, condition : River water 2L in Plastic Bottle

Place of taking the examination sample (s), date: Batumi, Bereti ,Chaisubani River 4+700 pl.
15.12.2023 12:45-12:55

Method of taking and / or transporting the test sample (s): "Wastewater Sampling Procedure". Resolution of the Government of Georgia No. 26, January 3, 2014.

Date of taking the examination sample (s): 15.12.2023 14:30

Location and date of laboratory activity: LEPL Laboratory Research Center
Batumi 6010. Swishevski st No. 80 15.12.2023-18.12.2023

Sample № (identification)	Research parameter	Measurement result	Method of research
Registration №6154 Protocol of the Test №618	Chlorides	34.7 mg/l	ISO 9297-1989
	Sulfates	15.3 mg/l	SD 52.24.468-2019
	Polyphosphate	< 0.01 mg/l	GOST 18309-2014
	Nitrates	< 0.1 mg/l	GOST 33045-2014
	Alkalinity	1.1 mmol/dm³	GOST 31957-2012
	The Lead	0.002mg/l	GOST 31870-2012
	Zinc	0.07 mg/l	GOST 31870-2012

Results are given only for the sample (s) submitted.

Responsible Persons : T.Tavdgiridze, L.Vanidze, Q. Tsertsvadze

I. Head of structural department : K. Kupatadze

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The Protocol of the Test №6255

Date: 18.12.2023

Name of the customer and contact information: Branch of foreign enterprise „JSC Polat Yol Yapi Sanayi Ve Ticaret" in Georgia.

Description of the samples, condition : River water 3L in Plastic Bottle

Place of taking the examination sample (s), date: Batumi, Makhinjauri river 1+050 pl.
15.12.2023 13:15-13:25

Method of taking and / or transporting the test sample (s): "Wastewater Sampling Procedure". Resolution of the Government of Georgia No. 26, January 3, 2014.

Date of taking the examination sample (s): 15.12.2023 14:30

Location and date of laboratory activity: LEPL Laboratory Research Center
Batumi 6010. Swishevski st No. 80 15.12.2023 -18.12.2023

Sample № (identification)	Research parameter	Measurement result	Method of research
Registration №6255 Protocol of the Test №619	Chlorides	38.5 mg/l	ISO 9297-1989
	Sulfates	16.4 mg/l	SD 52.24.468-2019
	Polyphosphate	<0.01 mg/l	GOST 18309-2014
	Nitrates	<0.1 mg/l	GOST 33045-2014
	Alkalinity	1.25mmol/dm³	GOST 31957-2012
	The Lead	0.002mg/l	GOST 31870-2012
	Zinc	0.08 mg/l	GOST 31870-2012

Results are given only for the sample (s) submitted.

Responsible Persons : T.Tavdgiridze, Q. Tsertsvadze, L. Vanidze

I. Head of structural department : K.Kupatadze

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The Protocol of the Test №6256

Date: 18.12.2023

Name of the customer and contact information: Branch of foreign enterprise „JSC Polat Yol Yapi Sanayi Ve Ticaret" in Georgia.

Description of the samples, condition : River water 3L in Plastic Bottle

Place of taking the examination sample (s), date: Batumi, Makhinjauri 0+550 pl.
15.12.2023 13:35-13:45

Method of taking and / or transporting the test sample (s): "Wastewater Sampling Procedure". Resolution of the Government of Georgia No. 26, January 3, 2014.

Date of taking the examination sample (s): 15.12.2023 14:30

Location and date of laboratory activity: LEPL Laboratory Research Center
Batumi 6010. Swishevski st No. 15.12.2023-18.12.2023

Sample № (identification)	Research parameter	Measurement result	Method of research
Registration №6256 Protocol of the Test №620	Chlorides	56.8 mg/l	ISO 9297-1989
	Sulfates	16.5 mg/l	SD 52.24.468-2019
	Polyphosphate	<0.01 mg/l	GOST 18309-2014
	Nitrates	<0.1 mg/l	GOST 33045-2014
	Alkalinity	1.2 mmol/dm³	GOST 31957-2012
	The Lead	0.002 mg/l	GOST 31870-2012
	Zinc	0.07 mg/l	GOST 31870-2012

Results are given only for the sample (s) submitted.

Responsible Persons : V.Tavdgiridze, L.Vanidze, Q.Tsertsvadze

I. Head of structural department : K.Kupatadze

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8.6 Annex 6. Vibration Test Results

Project Batumi Bypass Road
Section km-1+000—km- 13+325

SEISMOGRAPH OPERATOR'S REPORT

Client: ROADS DEPARTMENT OF GEORGIA

Project: BATUMI BYPASS PROJECT

Data:01/06/2023 **Time of blast: 17:13 Blast Number:**T1-C17

Seismograph Make and Model: Instantel,Micromate **Serial Number:** UM13228

Trigger Source: GEO: 3.7 mm/sn

Range Selected: GEO: 254 mm/sn **Record Duration:** 3 seconds at 1024 sps **Sensor Test Result (at set-up):** passed

Geophone Location: Amiran Mamuchadze

Witness (If Any) : (House owner)

Additional comments Blasting location at KM 1+353,58 Tunnel №1 MIC=___

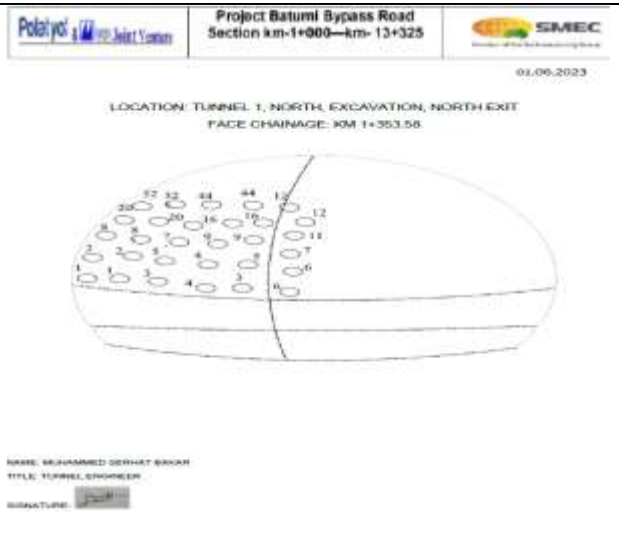
Seismograph was installed at predetermined distance of L= 40 meters from the blasting location.

The ground vibration was measured within the limits

I certify that the above listed monitoring equipment was properly set in place for the blast indicated

Signature of seismograph operater:

Printed name: Ayaz ABDURAHMANOV Company: POLATYOL & MAPA JV



Project Batumi Bypass Road
Section km-1+000—km- 13+325

01.06.2023

LOCATION: TUNNEL 1, NORTH, EXCAVATION, NORTH EXIT
FACE CHAINAGE: KM 1+353.58

NAME: MUHAMMED SERHAT BAKAR
TITLE: TUNNEL ENGINEER
SIGNATURE:

Project Batumi Bypass Road
Section km-1+000—km- 13+325

TUNNEL 1 NORTH EXIT BLASTING REPORT

Project Batumi Bypass Road
Section km-1+000—km- 13+325

LOCATION: TUNNEL 1, NORTH EXIT
DATE : 01/06/2023

FACE CHAINAGE: KM 1+353.58
TYPE – 3A BLASTING APPLICATION DETAILS EXPLOSIVE PROPERTIES:

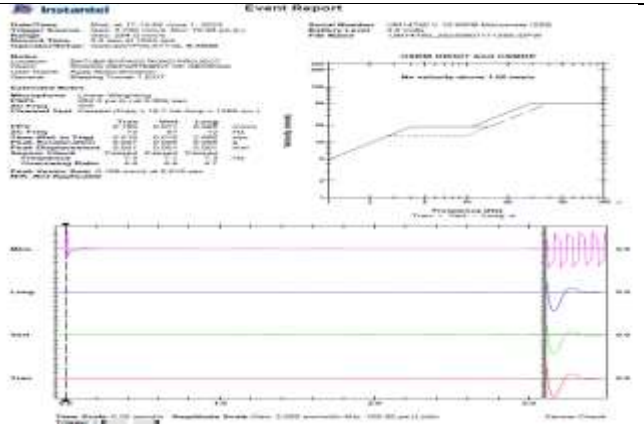
ORICA MAGNUM 365 (38 x 400 mm. 545 gr.)

FACE AREA:	30 M2
TARGETED CUBING:	50 M3
TOTAL NUMBER OF HOLES	30 NOS
TOTAL EXPLOSIVE	53.41 KG
SPECIFIC CHARGE	2.18 KG/M2

EXPLOSIVE DISTRIBUTION IN THE FACE

NO 1	2 units	2.18 kg	4,36
NO 2	2 units	2.18 kg	4,36
NO 3	2 units	2.18 kg	4,36
NO 4	2 units	2.18 kg	4,36
NO 5	2 units	2.18 kg	4,36
NO 6	2 units	2.18 kg	4,36
NO 7	2 units	2.18 kg	4,36
NO 8	2 units	1.09 kg	2,18
NO 9	2 units	1.09 kg	2,18
NO 11	2 units	1.09 kg	2,18
NO 12	2 units	2.18 kg	4,36
NO 16	2 units	2.18 kg	4,36
NO 20	2 units	2.18 kg	4,36
NO 32	2 units	2.18 kg	4,36
NO 44	2 units	2.18 kg	4,36
MIC: 4,36 kg	TOTAL:	53.41 Kg	

NAME: MUHAMMED SERHAT BAKAR
TITLE: TUNNEL ENGINEER
SIGNATURE:



Instantel Event Report

Polatyol & MAPA Joint Venture | Project Batumi Bypass Road Section km-1+000—km- 13+325 | SMEC

SEISMOGRAPH OPERATOR'S REPORT

Client: ROADS DEPARTMENT OF GEORGIA

Project: BATUMI BYPASS PROJECT

Date: 12/06/2023______ **Time of blast: 19:06 Blast Number:** T1-C23

Seismograph Make and Model: Instantel,Micromate **Serial Number:** UM13228

Trigger Source: ___GEO: 3.7 mm/sn

Range Selected: ___GEO: 254 mm/sn_______ **Record Duration:** 3 seconds at 1024 sps **Sensor Test Result (at set-up):** passed

Geophone Location: Suliko Samvelidze

Witness (If Any) : (House owner)

Additional comments Blasting location at KM 1+336.00 Tunnel No.1

MIC=___ Seismograph was installed at predetermined distance of L= 213 meters from the blasting location.

The ground vibration was measured within the limits

I certify that the above listed monitoring equipment was properly set in place for the blast indicated

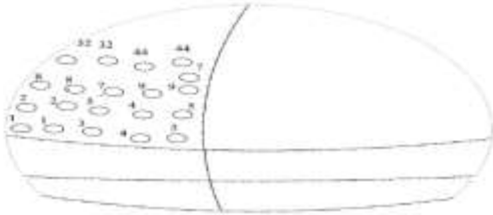
Signature of seismograph operator:

Printed name: Ayaz ABDURAHMANOV Company: POLATYOL & MAPA JV

Polatyol & MAPA Joint Venture | Project Batumi Bypass Road Section km-1+000—km- 13+325 | SMEC

12.06.2023

LOCATION: TUNNEL 1, NORTH, EXCAVATION, NORTH EXIT
FACE CHAINAGE: KM 1+336.00



NAME: MUHAMMED SERHAT BAKAR
TITLE: TUNNEL ENGINEER
SIGNATURE:

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TUNNEL 1 NORTH EXIT BLASTING REPORT

Blasting for tunnel excavation			
GENERAL			
Blast Date	12/06/2023 19:06 pm		Time: [illegible]
Portal	North		South
Tunnel	North		South
Rock Mass Class			
TUNNEL BENCH BLASTING	KM 1+336.00		
BLASTING AREA		[illegible]	m²
LENGTH		[illegible]	mm
WIDTH		[illegible]	mm
DEPTH		[illegible]	mm
DRILLING EQUIPMENT			
TYPE OF MACHINE	Atlas Copco [illegible]		
DRILL STEEL LENGTH		4.3	m
MAX HOLE LENGTH		3	m
NUMBER OF BOOMS		[illegible]	[illegible]
DRILLING DATA			
HOLE DIAMETER		51	mm
CUT TYPE	V - CUT		
[illegible]		[illegible]	[illegible]
NUMBER OF HOLES		[illegible]	[illegible]
HOLE LENGTH		[illegible]	mm
DRILLED METERS		[illegible]	[illegible]
ADVANCE		2000	mm
PULL LENGTH			%
ROCK VOLUME PER ROUND		[illegible]	m³
SPECIFIC DRILLING		[illegible]	[illegible]
DRILLING TIME			
TYPE OF ROCK	TUFF [illegible]		
PENETRATION		[illegible]	[illegible]
DRILLING RATE		[illegible]	[illegible]
REAMING PENETRATION		[illegible]	[illegible]
REAMING TIME		[illegible]	min
DRILLING TIME		[illegible]	min
SETUP,LOGMOUNT,UNMOVE		[illegible]	min
DRILLING CYCLE		[illegible]	min
CHARGING TIME			
CHARGE TOTAL		[illegible]	kg
SPECIFIC CHARGE		[illegible]	kg/m³
CHARGING CREW		[illegible]	man
SETUP TIME		[illegible]	min
CHARGING TIME		[illegible]	[illegible]
CHARGING CYCLE		[illegible]	[illegible]
BLASTING PATTERN			
Attached			

Polatyol & MAPA Joint Venture | Project Batumi Bypass Road Section km-1+000—km- 13+325 | SMEC

LOCATION: TUNNEL 1, NORTH EXIT **DATE : 12/06/2023**

FACE CHAINAGE: KM 1+336.00

TYPE – 2 BLASTING APPLICATION DETAILS EXPLOSIVE PROPERTIES:

ORICA MAGNUM 365 (38 x 400 mm. 545 gr.)

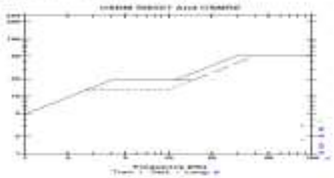
FACE AREA:	20 M2
TARGETED CUBING:	50 M3
TOTAL NUMBER OF HOLES	30 NOS
TOTAL EXPLOSIVE	23.58 KG
SPECIFIC CHARGE	2.18 KG/M2

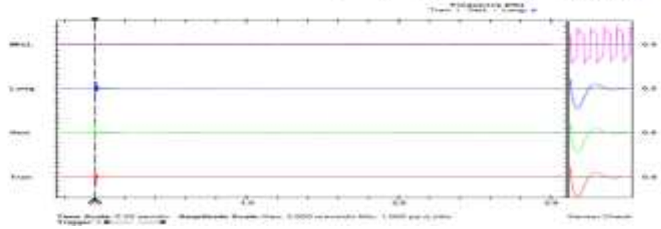
EXPLOSIVE DISTRIBUTION IN THE FACE

NO 1	2 units	1.09 kg	2,18
NO 2	2 units	1.09 kg	2,18
NO 3	2 units	1.09 kg	2,18
NO 4	2 units	1.09 kg	2,18
NO 5	2 units	1.09 kg	2,18
NO 7	2 units	1.09 kg	2,18
NO 8	2 units	1.09 kg	2,18
NO 9	2 units	1.09 kg	2,18
NO 11	2 units	1.09 kg	2,18
NO 44	2 units	2.18 kg	4,36
MIC: 4,36 kg	TOTAL:	23,88 Kg	

NAME: MUHAMMED SERHAT BAKAR
TITLE: TUNNEL ENGINEER
SIGNATURE:

Instantel Event Report





Project Batumi Bypass Road
Section km-1+000—km- 13+325

SEISMOGRAPH OPERATOR'S REPORT

Client: ROADS DEPARTMENT OF GEORGIA

Project: BATUMI BYPASS PROJECT

Date:13/06/2023_____ **Time of blast: 18:29 Blast Number:**T1-C24

Seismograph Make and Model: Instantel,Micromate **Serial Number:** UM13228

Trigger Source: ___GEO: 3.7 mm/sn

Range Selected: __GEO: 254 mm/sn_____**Record Duration:** 3 seconds at 1024 sps **Sensor Test Result (at set-up):** passed

Geophone Location: Naira Shevardnadze

Witness (If Any) : (House owner)

Additional comments Blasting location at KM 1+334.68 Tunnel №1

MIC=____ Seismograph was installed at predetermined distance of L= 340 meters from the blasting location.

The ground vibration was measured within the limits

I certify that the above listed monitoring equipment was properly set in place for the blast indicated

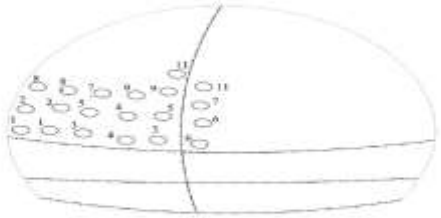
Signature of seismograph operator:

Printed name: Ayaz ABDURAHMANOV Company: POLATYOL & MAPA JV

Project Batumi Bypass Road
Section km-1+000—km- 13+325

13.06.2023

LOCATION: TUNNEL 1, NORTH, EXCAVATION, NORTH EXIT
FACE CHAINAGE: KM 1+334.68



NAME: MUHAMMED SERHAT BAKAR
TITLE: TUNNEL ENGINEER
SIGNATURE:

Project Batumi Bypass Road
Section km-1+000—km- 13+325

TUNNEL 1 NORTH EXIT BLASTING REPORT

GENERAL:		
Blast Date	13/06/2023 18:32 pm.	Time: 09:00 am. 20:45 pm.
Portal	North ☐	South
Tunnel	North ☒	South ☐
Rock Mass Class		
TUNNEL BENCH BLASTING:	KM 1+334.68	
BLASTING AREA	18	m²
LENGTH	5000	mm
WIDTH	2600	mm
DEPTH	1500	mm
DRILLING EQUIPMENT		
TYPE OF MACHINE	Atlas Copco simba	
DRILL STEEL LENGTH	4.3	m
MAX HOLE LENGTH	4	m
NUMBER OF BOOMS	1	no
DRILLING DATA		
HOLE DIAMETER	51	mm
CUT TYPE	V - CUT	
LARGE HOLE	75	mm
NUMBER OF HOLES	72	nos
HOLE LENGTH	3500	mm
DRILLED METERS	126	mm
ADVANCE	3000	mm
POLL LENGTH	3	%
ROCK VOLUME PER ROUND	150	m³
SPECIFIC DRILLING	1	m/m³
DRILLING TIME		
TYPE OF ROCK	TUFF BRECCIA	
PENETRATION	2.3	m/min
DRILLING RATE	2.53	m/min
REAMING PENETRATION	1	m/min
REAMING TIME	3	min
DRILLING TIME	57	min
SETUP+DISMOUNT+REMOVE	20	min
DRILLING CYCLE	80	min
CHARGING TIME		
CHARGE TOTAL	90.52	kg
SPECIFIC CHARGE	2.16	kg/m³
CHARGING CREW	4	man
SETUP TIME	35	min
CHARGING TIME	60	min+man/hole
CHARGING CYCLE	95	min/round
ELECTRIC PATTERN		
Attached		

Project Batumi Bypass Road
Section km-1+000—km- 13+325

LOCATION: TUNNEL 1, NORTH EXIT **DATE : 13/06/2023**

FACE CHAINAGE: KM 1+334.68

TYPE – 2 BLASTING APPLICATION DETAILS EXPLOSIVE PROPERTIES:

ORICA MAGNUM 365 (38 x 400 mm. 545 gr.)

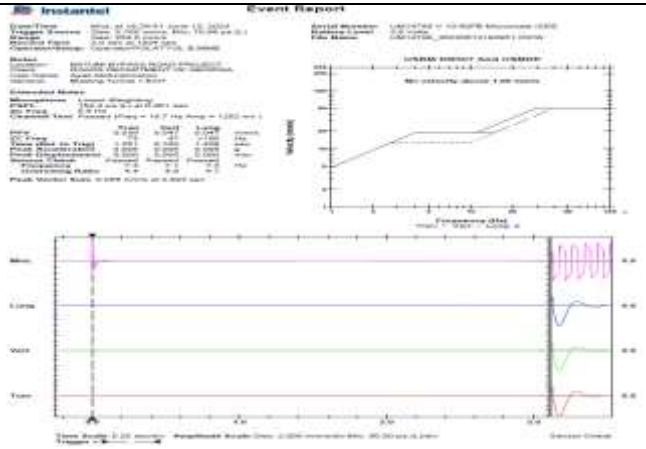
FACE AREA:	30 M2
TARGETED CUBING:	50 M3
TOTAL NUMBER OF HOLES	30 NOS
TOTAL EXPLOSIVE	90.52 KG
SPECIFIC CHARGE	2.16 KG/M2

EXPLOSIVE DISTRIBUTION IN THE FACE

NO 1	2 units	2.18 kg	4.36
NO 2	2 units	2.18 kg	4.36
NO 3	2 units	2.18 kg	4.36
NO 4	2 units	2.18 kg	4.36
NO 5	2 units	1.09 kg	2.18
NO 6	2 units	1.09 kg	2.18
NO 7	2 units	1.09 kg	2.18
NO 8	2 units	1.09 kg	2.18
NO 9	2 units	1.09 kg	2.18
NO 11	2 units	1.09 kg	2.18
MIC: 4.36 kg	TOTAL	30.52 Kg	

NAME: MUHAMMED SERHAT BAKAR
TITLE: TUNNEL ENGINEER
SIGNATURE:

Instantel Event Report



Project Batumi Bypass Road
Section km-1+000—km- 13+325

SEISMOGRAPH OPERATOR'S REPORT

Client: ROADS DEPARTMENT OF GEORGIA

Project: BATUMI BYPASS PROJECT

Date: 14/07/2023______ **Time of blast: 12:25 Blast Number:** T1-C37

Seismograph Make and Model: Instantel,Micromate **Serial Number:** UM13228

Trigger Source: ___GEO: 3.7 mm/sn

Range Selected: __GEO: 254 mm/sn_______ **Record Duration:** 3 seconds at 1024 sps **Sensor Test Result (at set-up):** passed

Geophone Location: Makvala Makharadze

Witness (If Any) : (House owner)

Additional comments Blasting location at 1+300.68 Tunnel №1

MIC=___ Seismograph was installed at predetermined distance of L=187 meters from the blasting location.

The ground vibration was measured within the limits

I certify that the above listed monitoring equipment was properly set in place for the blast indicated

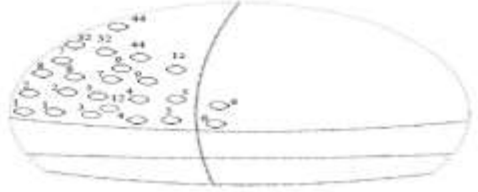
Signature of seismograph operator:

Printed name: Ayaz ABDURAHMANOV **Company:** POLATYOL & MAPA JV

Project Batumi Bypass Road
Section km-1+000—km- 13+325

14.07.2023

LOCATION: TUNNEL 1, NORTH, EXCAVATION, NORTH EXIT
FACE CHAINAGE: KM 1+300.68



NAME: MUHAMMED SERHAT BAKAR
TITLE: TUNNEL ENGINEER
SIGNATURE:

Project Batumi Bypass Road
Section km-1+000—km- 13+325

TUNNEL 1 NORTH EXIT BLASTING REPORT

Project Batumi Bypass Road
Section km-1+000—km- 13+325

LOCATION: TUNNEL 1, NORTH EXIT **DATE : 14/07/2023**

FACE CHAINAGE: KM 1+300.68

TYPE – 2 BLASTING APPLICATION DETAILS EXPLOSIVE PROPERTIES:

ORICA MAGNUM 365 (38 x 400 mm. 545 gr.)

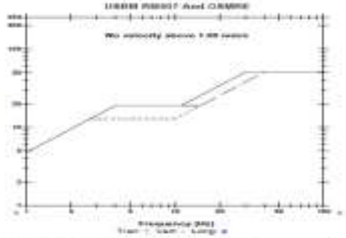
FACE AREA:	20 M2
TARGETED CUBING:	50 M3
TOTAL NUMBER OF HOLES	**24** NOS
TOTAL EXPLOSIVE	32,7 KG
SPECIFIC CHARGE	2.18 KG/M2

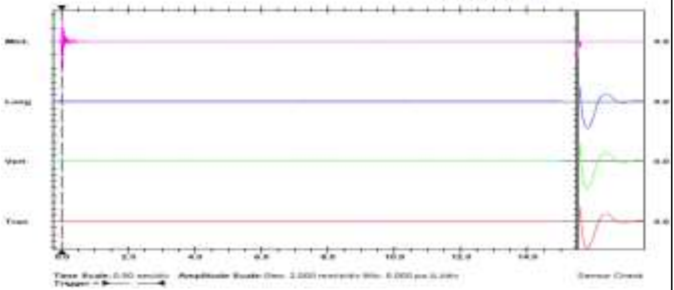
EXPLOSIVE DISTRIBUTION IN THE FACE

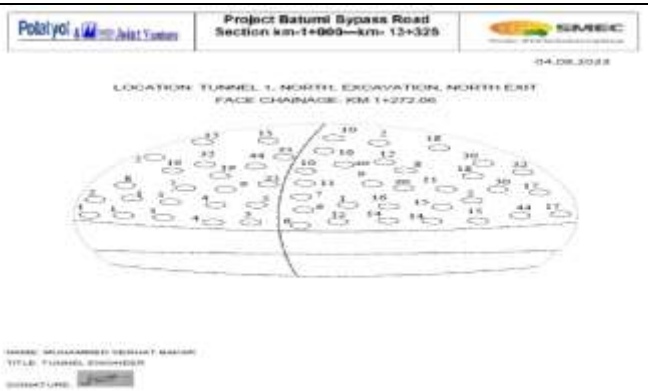
NO 1	2 units	2.18 kg	4,36
NO 2	2 units	2.18 kg	4,36
NO 3	2 units	2.18 kg	4,36
NO 4	2 units	1.09 kg	2,18
NO 5	2 units	1.09 kg	2,18
NO 6	2 units	1.09 kg	2,18
NO 7	2 units	1.09 kg	2,18
NO 8	2 units	1.09 kg	2,18
NO 9	2 units	1.09 kg	2,18
NO 12	2 units	1.09 kg	2,18
NO 32	2 units	1.09 kg	2,18
NO 44	2 units	1.09 kg	2,18
MIC 2,18 kg	TOTAL	32.7 Kg	

NAME: MUHAMMED SERHAT BAKAR
TITLE: TUNNEL ENGINEER
SIGNATURE:

Instantel **Event Report**






Project Batumi Bypass Road
Section km-1+000—km- 13+325

04.06.2023

LOCATION: TUNNEL 1, NORTH EXCAVATION, NORTH EXIT
FACE CHAINAGE: KM 1+272.06

NAME: MUHAMMED SERHAT BAKIR
TITLE: TUNNEL ENGINEER
SIGNATURE:


Project Batumi Bypass Road
Section km-1+000—km- 13+325

TUNNEL 1 NORTH EXIT BLASTING REPORT


Project Batumi Bypass Road
Section km-1+000—km- 13+325

LOCATION: TUNNEL 1, NORTH EXIT
FACE CHAINAGE: KM 1+272.06
TYPE – 1 : BLASTING APPLICATION DETAILS EXPLOSIVE PROPERTIES:

ORICA MAGNUM 365 (38 x 400 mm, 545 gr.)

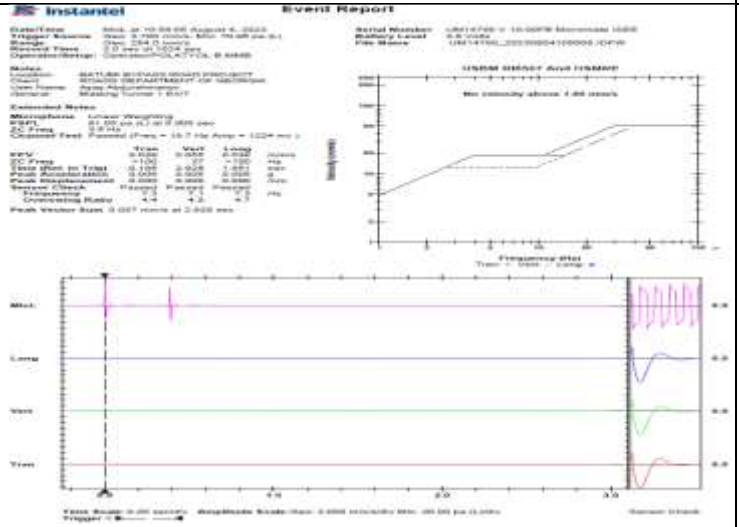
FACE AREA:	20 M2
TARGETED CUBING:	50 M3
TOTAL NUMBER OF HOLES	52 NOS
TOTAL EXPLOSIVE	156.96 KG
SPECIFIC CHARGE	3.14 KG/M3

DATE: 04/06/2023

EXPLOSIVE DISTRIBUTION IN THE FACE

NO.1	4 units	2.18 kg	8.72
NO.2	4 units	2.18 kg	8.72
NO.3	4 units	2.18 kg	8.72
NO.4	4 units	2.18 kg	8.72
NO.5	4 units	2.18 kg	8.72
NO.6	4 units	2.18 kg	8.72
NO.7	4 units	2.18 kg	8.72
NO.8	4 units	2.18 kg	8.72
NO.9	4 units	2.18 kg	8.72
NO.10	4 units	2.18 kg	8.72
NO.11	4 units	2.18 kg	8.72
NO.12	4 units	2.18 kg	8.72
NO.13	2 units	2.18 kg	4.36
NO.14	2 units	2.18 kg	4.36
NO.15	2 units	2.18 kg	4.36
NO.16	2 units	2.18 kg	4.36
NO.17	2 units	2.18 kg	4.36
NO.18	2 units	2.18 kg	4.36
NO.19	2 units	2.18 kg	4.36
NO.20	2 units	2.18 kg	4.36
NO.21	2 units	2.18 kg	4.36
NO.22	2 units	2.18 kg	4.36
NO.23	2 units	2.18 kg	4.36
NO.24	2 units	2.18 kg	4.36
NO.25	2 units	2.18 kg	4.36
NO.26	2 units	2.18 kg	4.36
NO.27	2 units	2.18 kg	4.36
NO.28	2 units	2.18 kg	4.36
MV: 4.36 kg	TOTAL:	156.96 kg	

NAME: MUHAMMED SERHAT BAKIR
TITLE: TUNNEL ENGINEER
SIGNATURE:


Instantel
Event Report

USBM Direct Axial Overlay

Mic.
Long
Vert
Tran

8.7 Annex 7 ENCRs

Polatyol	Environmental Non-Conformance Report (ENCR)	SMEC

Part 1 – Non-Conformance Description:

Reference Number:	ENCR_151		
Project Name:	Batumi Bypass Road Project	Date raised:	26.07.2023
Contractor Name:	POLATYOL & MAPA JOINT VENTURE		
Location:	Precast yard		

Non-Conformance details:

Poor housekeeping.

Failure to empty full rubbish container resulting in pollution of surrounding area.

Engineer's Representative: Michael Holics — Signature:

Part 2 – Corrective Actions (attach any supporting information)

The area has been cleaned

Agreed Close-out Date: Date: 29.07.2023

Contractor's Representative: Davit Metreveli — Signature:

Part 3 – Inspection (evidence to support corrective action implementation)

Done.

Engineer's Representative: Michael Holics — Signature:

Closure Date: 01 August 2023

Polatyol	Environmental Non-Conformance Report (ENCR)	SMEC

ENCR 151

Photo No. 1

Polatyol & MAPA Joint Venture

Photo No.1

Photo No.2

Polatyol	Environmental Non-Conformance Report (ENCR)	SMEC

Part 1 – Non-Conformance Description:

Reference Number:	ENCR_152		
Project Name:	Batumi Bypass Road Project	Date raised:	26.07.2023
Contractor Name:	POLATYOL & MAPA JOINT VENTURE		
Location:	Construction Camp		

Non-Conformance details:

Oil spill from vehicle maintenance.

Required to clean up and use drip tray to prevent further spillage.

Waste oil stored outside bunded area.

Required to clean up spillage and move waste oil to proper storage area.

Engineer's Representative: Michael Holics	Signature:

Part 2 – Corrective Actions (attach any supporting information)

Oil spills were cleaned.
Waste oil container moved to the storage area.

	Agreed Close-out Date
	Date: 02.08.2023
Contractor's Representative: Davit Metreveli	Signature:

Part 3 – Inspection (evidence to support corrective action implementation)

Done.

Engineer's Representative:	Michael Holics	Signature:	
Closure Date:	03 August 2023		

Polatyol & MAPA Joint Venture

Photo No 1

Photo No 2

Polatyol	Environmental Non-Conformance Report (ENCR)	SMEC

Part 1 – Non-Conformance Description:

Reference Number:	ENCR_153		
Project Name:	Batumi Bypass Road Project	Date raised:	26.07.2023
Contractor Name:	POLATYOL & MAPA JOINT VENTURE		
Location:	Tunnel No. 2 Entrance Portal		

Non-Conformance details:

Fuel leakage from fuel tank and generator.

Requires clean-up and installation of a tray underneath the tank and generator to contain any spillage.

Oil and other hazardous liquid spillage at vehicle/plant maintenance area.

Spillage needs to be cleaned up and the area requires a perimeter bund to prevent off site pollution.

Engineer's Representative: Michael Holics	Signature:

Part 2 – Corrective Actions (attach any supporting information)

Fuel and oil spills were cleaned. Generator placed on concrete foundation for preventing watercourse contamination by fuel/oil spills.

	Agreed Close-out Date:
	Date: 02.08.2023
Contractor's Representative: Davit Matsevik	Signature:

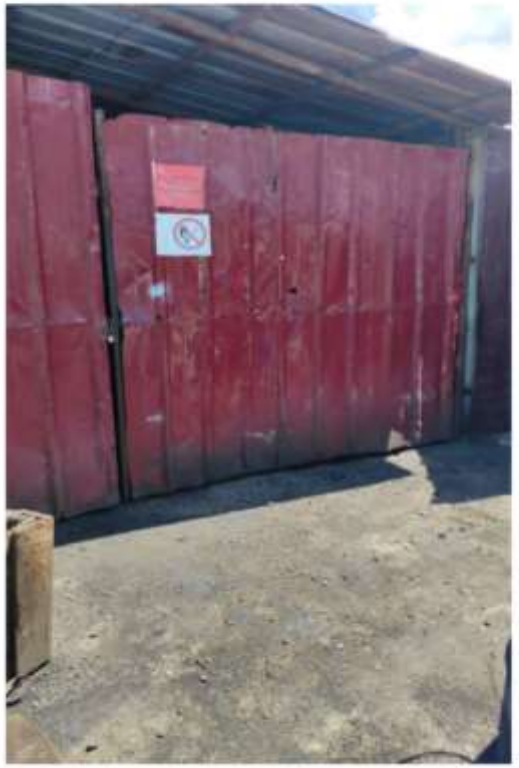
Part 3 – Inspection (evidence to support corrective action implementation)

Done.

Engineer's Representative: Michael Holics	Signature:
Closure Date:	03 August 2023

Polatyol & MAPA Joint Venture

Photo No. 1



Polatyol	Environmental Non-Conformance Report (ENCR)	SMEC

Part 1 – Non-Conformance Description:

Reference Number:	ENCR_154		
Project Name:	Batumi Bypass Road Project	Date raised:	02.08.2023
Contractor Name:	POLATYOL & MAPA JOINT VENTURE		
Location:	Tunnel No. 1 Entrance Portal		

Non-Conformance details:

Significant oil contamination from construction vehicle. Requires soil clean-up and installation of a tray underneath the vehicle to prevent further spillage.

Fuel/oil contamination from generator and fuel tank. Contaminated soil to be removed and disposed in accordance with hazardous waste management plan. Waste collection tray to be installed underneath fuel tank and generator.

Overflowing waste bin and burning of rubbish on site. Waste bin to be emptied on a regular basis and site workers to be reminded during toolbox talks that it is illegal to burn waste on site and that disciplinary measures will be implemented for repeated offences.

Engineer's Representative: Michael Holics	Signature:

Part 2 – Corrective Actions (attach any supporting information)

Area was cleaned.
Generator was fixed.Vehicles will be repiered only in special designated area for preventing further oil spills.
Waste bin was emptied and cleaned.The toolbox tolk was conducted to employees about environmental safety.

Agreed Close-out Date:
Date: 07.08.2023

Contractor's Representative: Jaba Mshvenadze	Signature:

Part 3 – Inspection (evidence to support corrective action implementation)

Done.

Engineer's Representative: Michael Holics	Signature:
Closure Date:	07.12.2023

Polatyol & MAPA Joint Venture

Photo No.1

Photo No.2

Polatyol & mapa Joint Venture

Polatyol & mapa Joint Venture

Polatyol & mapa Joint Venture

Photo No.1

Photo No.2

Polatyol	Environmental Non-Conformance Report (ENCR)	SMEC

Part 1 – Non-Conformance Description:

Reference Number:	ENCR_156		
Project Name:	Batumi Bypass Road Project	Date raised:	31/10/2023
Contractor Name:	POLATYOL & MAPA JOINT VENTURE		
Location:	Tunnel No. 2 Entrance Portal		

Non-Conformance details:

Accumulated household waste (disposable plastic containers used for food transportation) is not transferred to the relevant company and is not removed from construction sites.

In the vicinity of the Entrance of Tunnel No. 2, the fact of burning of collected disposable plastic containers was observed (Ref. the photos No. 1, No. 2)

Oil spills directly onto the ground from the generator installed at the Entrance of Tunnel No. 2 (Ref. the photos No. 3, No. 4)

Proposed Corrective Action:
Conduct waste management and pollution prevention training for personnel.

The household waste must be collected.

Collected household waste must be transferred to the relevant company.

The facts confirming the transfer of household waste to the relevant company must be present to the supervisor company.

Remove contaminated soil and transport to a hazardous waste disposal site.

In order for prevent oil spillage and soil contamination, install an iron protective structure below the generator, from which oil will no longer spill onto the soil.

Engineer's Representative: Davit Tevzadze — Signature:

Part 2 – Corrective Actions (attach any supporting information)

The vicinity of the Entrance of Tunnel No. 2 was cleaned.
Oil contaminated soil was removed and the area was cleaned.
Environmental training was conducted.

Agreed Close-out Date: Date: 10/11/2023

Contractor's Representative: Davit Mesxevili — Signature:

Part 3 – Inspection (evidence to support corrective action implementation)

Photo No. 2

Polatyol & MAPA Joint Venture

Photo No.1

Photo No.2

Polatyol & Joint Venture

Polatyol & Joint Venture

Polatyol & mapa Joint Venture

Photo No.1

Photo No.2

Polatyol

Environmental Non-Conformance Report (ENCR)

SMEC

Part 1 – Non-Conformance Description:

Reference Number:	ENCR_158		
Project Name:	Batumi Bypass Road Project	Date raised:	24.11.2023
Contractor Name:	POLATYOL & MAPA JOINT VENTURE		
Location:	Bridge No. 11/ხიდი No. 11		

Non-Conformance details:

Concrete and concrete-mixed water have been spilled from the concrete mixer trucks on the embankment slope adjacent to the start point of Bridge No. 11 and there is a small river flowing below the indicated area. Therefore, there is a danger of river pollution (see the photos No. 1, 2, 3.)

Suggested Corrective Action:

It is necessary to clean the mentioned area from concrete waste. Moreover, it is also necessary to remove the concrete waste and place it in the disposal area for the concrete waste.

Truck drivers and their Supervisors should be instructed and trained regarding the Waste Management Plan, so that the drivers know where to place concrete waste in order to prevent repeated spills of concrete.

Engineer's Representative: Davit Tevzadze	Signature:

Part 2 – Corrective Action (attach any supporting information)

Start point of bridge No.11 was cleaned from concrete waste.
Necessary toolbox was conducted.

Agreed Close-out Date
Date: 29.11.2023

Contractor's Representative: Juba Mzhavanadze	Signature:

Photo No. 2

Polatyol & mapa Joint Venture

Photo No.3

Photo No.4

Polatyol & mapa Joint Venture

Polatyol & mapa Joint Venture

Photo No.1

Polatyol	Environmental Non-Conformance Report (ENCR)	SMEC

Part 1 – Non Conformance Description

Reference Number:	ENCR_160		
Project Name:	Batumi Bypass Road Project	Date raised:	01.12.2023
Contractor Name:	POLATYOL & MAPA JOINT VENTURE		
Location:	Bridge No. 5/ხიდი No. 5		

Non-Conformance details:

Burning of household waste at worksite, throwing plastic lunch boxes on the ground and polluting the nearby watercourse.

There were no waste bins on site.

[illegible]

[illegible]

Suggested Corrective Action:

[illegible]

Clean up all the rubbish from site, provide waste bins: hold regular toolbox talks to remind staff of the correct disposal of household waste; implement staff disciplinary measures by issuing a warning letter to the site supervisor for failing to manage waste on site as this is not the first-time waste management has been a problem at this site.

[illegible]

Engineer's Representative: Michael Holics	Signature:

Part 2 – Corrective Actions (attach any supporting information)

Area was cleaned.
Waste bin was arranged.
Environmental safety traning was conducted.
[illegible]

Agreed Close-out Date
Date: 07.12.2023

Contractor's Representative: Jaba Mzhavanadze	Signature:

Polatyol & Joint Venture

Polatyol & mapa Joint Venture

Polatyol & mapa Joint Venture

Polatyol & mapa Joint Venture

Photo No.1

Photo No.2

Polatyol

Environmental Non-Conformance Report (ENCR)

SMEC

Part 1 – Non-Conformance Description:

Reference Number:	ENCR_161
Project Name:	Batumi Bypass Road Project — Date raised: 23/12/2023
Contractor Name:	POLATYOL & MAPA JOINT VENTURE
Location:	Construction Campsite Area

Non-Conformance details:

Spillage of oil hazardous waste was recorded at the construction campsite.

Suggested Corrective Action:

Removal of soil contaminated with oil/hazardous waste is essential.

The removed soil contaminated with oil/hazardous waste should be transported into the hazardous waste storage and temporary placement area.

Oil absorber should be arranged for unforeseen situations.

Engineer's Representative: Davit Tevzadze — Signature:

Part 2 – Corrective Action: (attach any supporting information)

Oil contaminated soil was removed and placed in Hazardous waste storage.

Agreed Close-out Date — Date: 27/12/2023

Contractor's Representative: Jaba Mchavenadze — Signature:

Part 3 – Inspection (evidence to support corrective action implementation)

Polatyol & mapa Joint Venture

Photo №1

Photo№2

Polatyol | **Environmental Non-Conformance Report (ENCR)** | SMEC

Part 1 – Non-Conformance Description:

Reference Number:	ENCR_162
Project Name:	Batumi Bypass Road Project — Date raised: 23/12/2023
Contractor Name:	POLATYOL & MAPA JOINT VENTURE
Location:	No. 3 ხიდის ბოლო და No. 2 გვირაბის შესასვლელი პორტალი Bridge No. 3 End & Tunnel No. 2 Entrance Portal

Non-Conformance details:

Following was recorded:

[illegible]:

1) Spillage of used oil hazardous waste at concrete surface, the contamination is observed on surrounding soil as well. Furthermore, rainwater can wash down the hazardous waste into the drainage channel.
2) Spillage of concrete waste and concrete mixed water at the mentioned location, on the embankment slope, from where the concrete mixed water flows into the nearby drainage channel.
3) Contamination of the aforementioned area with household waste/plastic containers.

1) [illegible]
2) [illegible]
3) [illegible]

Suggested Corrective Actions:

[illegible]

1) Removal of the concrete surface contaminated with hazardous waste from the construction site is essential. The soil contaminated with oil hazardous waste should also be removed. The removed soil must be transported to the hazardous waste temporary storage and placement area. Additionally, an oil absorber should be arranged for unforeseen situations.
2) It is necessary to clean the construction site from concrete waste. Also, it is necessary to remove the concrete waste and place it in the pre-defined disposal area for the concrete waste.
3) Household waste should be removed from the construction site.

Providing instructions and trainings (Toolbox Talk) on proper waste management to the drivers of self-propelled concrete mixers, the working personnel at the construction site and the foreman is essential. Staff disciplinary measures (in the form of a warning letter) should be taken due to the lack of proper waste management, focusing on the foreman.

1) [illegible]

Polatyol | **Environmental Non-Conformance Report (ENCR)** | SMEC

2) [illegible]
3) [illegible]

[illegible]

Engineer's Representative: Davit Tevzadze	Signature:

Part 2 – Corrective Actions (attach any supporting information):

	Agreed Close-out Date Date: 29/12/2023
Contractor's Representative:	Signature:

Part 3 – Inspection (evidence to support corrective action implementation):

Engineer's Representative:	Signature:
Closure Date:	

Photo No. 1

8.8 Annex 8. Training

Training regarding AIDS and Hepatitis held on 04.09.2023 and 03.11.2023

Attendance List

No	Name, Surname	Company	Signature
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			
21			
22			
23			
24			
25			
26			
27			
28			

Contractor Camp

04.09.2023

Attendance List

No	Name, Surname	Company	Signature
1		Polatyol	
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			
21			
22			
23			
24			
25			
26			
27			
28			

Contractor Camp

03.11.2023

8.9 Annex 9. information regarding the location and number of trees cut,

No	Location (from km – to km)	Description	Cut Trees nos.
1	km 00+000 ~ km 00+650	Tree cutting and removal of trees	57 nos
2	km 00+650 ~ km 00+780	Tree cutting and removal of trees	7 nos
3	km 00+780 ~ km 00+970	Tree cutting and removal of trees	141 nos
4	km 01+440 ~ km 01+800	Tree cutting and removal of trees	160 nos
5	km 01+800 ~ km 02+050	Tree cutting and removal of trees	94 nos
6	km 02+050 ~ km 02+250	Tree cutting and removal of trees	105 nos
7	km 02+250 ~ km 02+266	Tree cutting and removal of trees	39 nos
8	km 02+990 ~ km 03+500	Tree cutting and removal of trees	199 nos
9	km 03+500 ~ km 04+000	Tree cutting and removal of trees	323 nos
10	km 04+000 ~ km 04+500	Tree cutting and removal of trees	120 nos
11	km 04+500 ~ km 05+000	Tree cutting and removal of trees	19 nos
12	km 05+000 ~ km 05+500	Tree cutting and removal of trees	25 nos
13	km 05+500 ~ km 06+030	Tree cutting and removal of trees	65 nos
14	km 06+700 ~ km 07+700	Tree cutting and removal of trees	742 nos
15	km 08+500 ~ km 08+800	Tree cutting and removal of trees	860 nos
16	km 08+800 ~ km 09+220	Tree cutting and removal of trees	430 nos
17	km 09+220 ~ km 09+560	Tree cutting and removal of trees	666 nos
18	km 10+060 ~ km 10+500	Tree cutting and removal of trees	640 nos
19	km 10+500 ~ km 11+000	Tree cutting and removal of trees	268 nos
20	km 11+000 ~ km 11+500	Tree cutting and removal of trees	267 nos
21	km 11+500 ~ km 12+000	Tree cutting and removal of trees	84 nos
22	km 12+000 ~ km 12+400	Tree cutting and removal of trees	311 nos
23	km 12+400 ~ km 12+640	Tree cutting and removal of trees	324 nos
24	km 12+640 ~ km 12+830	Tree cutting and removal of trees	563 nos
		Total Cut Trees:	**6,509.00 nos**