Supplementary IEE

Project Number: 43405-025

GEO: Urban Services Improvement Investment Program (USIIP/T3)

CONSTRUCTION OF ABASHA WATER SUPPLY SYSTEM SUB-PROJECT (ABA-01)

(VARIATION ORDER #03)

2021

ABBREVIATIONS

ADB	Asian Development Bank
DEPP	Department of Environmental protection and Permits
EA	Executing Agency
EARF	Environmental Assessment and Review Framework
EHS	Environmental Health & Safety
EIA	Environmental Impact Assessment
EIP	Environmental Impact Permit
EMP/ SSEMP	Environmental Management Plan/ Site-Specific Environmental Management Plan
ES/ SES	Environmental Specialist/ Senior Environmental Specialist
GoG	Government of Georgia
GRC	Grievance Redress Committee
GRM	Grievance Redress Mechanism
IPMO	Investment Program Management Office
USIIP	Urban Sector Improvement Investment Program
IA	Implementing Agency
IEE	Initial Environmental Examination
MFF	Multi-tranche Financing Facility
MoERA	Ministry of Environment Protection and Agriculture
MoRDI	Ministry of Regional Development & Infrastructure
NEA	National Environmental Agency
PMD	Projects Management Department
SC	Supervision Consultant
UWSCG	United Water Supply Company of Georgia
WSS	Water Supply & Sewerage

Content

EXECUTIVE SUMMARY

Introduction

1. This Supplementary Initial Environmental Examination (SIEE) has been prepared as part of the Asian Development Bank funded, Urban Services Improvement Investment Program (USIIP), Tranche 3, ABA-01 Sub-project: Construction of Water Supply System in Abasha, due to changes (VO#3) under the sub-project and is considered together with existing IEE[1].

2. SIEE considered the possible environmental impacts of the construction of an additional water pipeline and a local Service Center building in Abasha. The objective of the study is to review potential environmental and develop relevant mitigation measures as well as to ensure the implementation of the project in accordance with relevant EARF, IEE/EMP, SEMP, etc.

3. The Urban Services Improvement Investment Program was developed as the Government's response to the lack of adequate and/or safe water supply, sewerage and sanitation in urban areas of Georgia. This is intended to optimize social and economic development in selected urban areas through improved urban water and sanitation services, and is financed by the ADB through its Multi-tranche Financing Facility. The Ministry of Regional Development and Infrastructure is the Executing Agency and the "United Water Supply Company of Georgia", LLC is the Implementing Agency of the Investment Program. UWSCG is a 100% state-owned company.

4. The Investment Program will improve infrastructure through the development, design and implementation of a series of subprojects, each providing improvements in a particular sector (water supply and/or sewerage) in one town. Sub-projects will rehabilitate existing infrastructure and/or create new and expanded infrastructure to meet the present and future demand. Water supply improvements will include source augmentation and head works, pumping systems, treatment facilities, transmission and distribution network; and, sewerage improvement works will include sewer network, pumping stations, main collectors and waste water treatment plants.

5. It is proposed to improve the water supply system in Abasha under the Asian Development Bank (ADB) funded Urban Services Improvement Investment Program (USIIP).

6. The following measures are suggested so that roads and inhabitants are not subject to repeated disturbance by work in the same area for different purposes: (i) scheduling construction in consultation with the other implementing agencies, and (ii) conducting the road work, where the transmission line is proposed, after the pipeline work.

7. The sub-projects are likely to have several positive benefits during operation. The citizens will be provided with a constant supply of better quality water, which will improve the quality of life.

8. All environmental impacts associated with the project have been assessed and classified as environmental assessment category B "Projects with adverse environmental impacts that are less significant than those of Category A projects, are site-specific, generally not irreversible, and in most cases, can be mitigated more readily than for Category A projects. An Initial Environmental Examination (IEE) is required."

9. The Site Specific EMP (SSEMP) was prepared for the construction of the Abasha Service Center under the ABA-01 sub-project on 1 February 2020 and was updated twice, first to meet COVID-19 H&S requirements in March 2020 and then due to the changes under VO

[1] https://www.adb.org/projects/documents/geo-usiip-t1-poti-and-abasha-water-supply-subprojects-jul-2016-iee

3 before starting construction works under VO#3.

Description of the Project

10. The implementation of the present project, ABA-01 “Construction of Water Supply Systems in Abasha” is necessary with the aim to improve water supply system in Abasha for the population of the city, the proposed project originally envisaged construction of approximately 15 km long 500 mm diameter transmission pipeline was installed from headworks to the town of Abasha, part of existing water supply systems were rehabilitated and the water meter was installed at the headwork.

11. The City Abasha, it is a town in western Georgia with a population of approximately 6,000 people. It is located between the rivers of Abasha and Noghela, at 23m above sea level (Latitude 42.1941667º, Longitude 42.2241667º) and is located 283 km to the west of Tbilisi, capital of Georgia. The settlement of Abasha acquired the status of a town in 1964 and currently functions as an administrative center of the Abasha District within the Samegrelo-Zemo Svaneti region. The headquarters of the Georgian Orthodox Eparchy of Chkondidi is also located in Abasha.

12. This Due Diligence Report refers to the additional activities covered by the variation order N. 03 and progress of the work that includes following: Construction of UWSCG's Service Center; Provide and installation SCADA system; Repairing of Well №11 Building; Repairing of Well №1 to №10; Rehabilitation of Well Access road; Fence for Well Field; Earthworks for Pipes; Installation of water supply pipes; Additional house & apartment block connection; Installation of AMR water meter in village reconnection; Installation of AMR water meter on existing system; Pressure testing of new installed pipelines; Crossing of Roads; Pressure Testing, Cleaning, flushing and disinfection and fixing damages on existing system; Fixing damages on existing system.

13. The sub-project activities are mainly located on the road from head works and crosses several villages. Execution of works will be less in the town itself.

Objectives of Supplementary IEE Report (VO#03)

14. This supplementary IEE is prepared due to changes (VO#3) under the USIIP Tranche 3/ABA-01 (construction of water supply system in Abasha). The primary objective of this Supplementary IEE is to:

- Review potential impacts in environment and develop relevant mitigation measures.
- Ensure the implementation of the project in accordance with relevant ERAF, IEE/EMP, SEMP, etc.
- Provide the GRM, Institutional framework and next steps along with monitoring and reporting requirements.
- Provide the summary of conducted public consultation and information disclosure measures at this stage of the project.

Description of the Environment

15. During the initial stage of the Supplementary IEE process, several potential environmental and social impacts of the project were identified. In this chapter, the potential environmental and social impacts are evaluated. The impacts have been identified based on consideration of the information presented in previously prepared documents.

16. Present Supplementary IEE document includes environmental, social, and cultural impacts at the construction phase. It is based on the background information, design documents.

17. **Atmospheric air quality.** The operation of heavy machinery, vehicles and other construction equipment result in fugitive emissions of carbon monoxide, NOx, SO2, hydrocarbons, and particulate matter. The vehicle and equipment emissions and dust are typical for any construction activities. This impact is temporary and is estimated to be medium scale if not properly mitigated.

18. **Noise and Vibration.**. The main noise generating sources in the town are transport vehicles and local construction activities; there are no major noise generating activities like industries.

19. Construction activities are likely to generate noise and vibration from usage of equipment and haulage of construction materials/waste. This project however does not involve high noise/vibration generating activities like pile-driving or rock cutting.

20. As the construction vibration is considered, none of the activities in the sub-project has a potential to generate significant vibration.

21. **Soil.** The soils are structured by quaternary deposits; their thickness is more than 100 m. Holocene deposits genetically represent marine deposits, but lithologically – sands and silty sands. The natural soils (especially within the city boundaries) are covered with 0.15 - 1.3 m thick technigenic soils (tQIV) – GE 1 (cobbles, gravel, sand, construction residuals and others). In the upper part of lithological section, firm clays are rarely observed. Their thickness changes within 0.6 - 2.5 m. Clays are characterized by local distribution. Be- sides the soils mentioned above, several types of sand of various density and grains are observed.

22. Impacts on soil are mainly to due to excavation activities. When pipe laying material will be stored temporary alongside the trench and build in again after pipe laying. Because existing transmission mains are used only small amounts of excavated soil will result. Surplus soil needs to be disposed properly without causing further physical impacts on soil at the point of disposal.

23. **Water sources**. Georgia is rich in water resources; there are in all 26,060 rivers with a total length of ~ 59,000 km. Besides, there are many thermal and mineral water springs, lakes and man-made water reservoirs. These however are distributed unequally, with major concentration in the western part of the country. Nearly all rivers of East Georgia flow into the Caspian Sea while and the rivers in the west join the Black Sea. These two basins are separated by Likhi Ridge.

24. During implementation of the project the risk of surface water contamination is of minimum level.

25. Construction of water network has no impact on ground water when considered over the long term. Short term it will be necessary to pump groundwater from all pipelines and structures. Care will have to be taken not to affect nearby structures, though this is less of a problem with water supply than sewerage projects.

26. **Flora and Fauna.**

27. The impacts on flora and fauna during implementation will be minor. There are no sensitive areas in the study area, as the number of animals spread here is very low. There is no Protected Area in the proximity of the construction site.

28. **Traffic.** Even as the transport of material is not significant, considering the large roads, it could disrupt traffic in the Town. Dust generated during the transport may also impede the commercial and trade activities. The transportation of material/waste shall be implemented by the Contractor in liaison with the town authorities, and the following additional precautions should be adopted to avoid effects on traffic.

29. **Archaeology.** In the case of the proposed Project no archaeological monuments are expected to be touched during construction phase since pipes will run along and inside existing roads as far as technically feasible. There is no evidence for chance finds of archaeological objects.

30. **Waste Management.** Municipal waste can be generated in deferent facilities including Storage area. Mainly this is rubbish, plastic or glass bottles, glasses, waste food, etc. and a stationary waste. Waste should be collected both by the specially assigned personnel and the workshop workers on the area. Medical waste is generated in the Medical Care and Control Point and belongs to hazardous waste category. Non-hazardous construction waste can be generated on the storage and construction area and will be collected by contractors' workers. No large amounts of hazardous waste are expected to originate in the project construction phase.

31. **Social Related Activities.** The local population will be employed in the construction phase. Worker's safety during construction is important. Health and safety at workplace and during execution of work should be among the Contractor's work policy. Community safety has to be maintained during construction and traffic safety needs to be continued during its operations.

32. **Anticipated Environmental impacts and mitigation measures.** Most of the predicted impacts are associated with the construction process. Impacts mainly arise from the generation of dust from soil excavation and refilling; disturbance of residents, traffic and activities in the town. These are common impacts of construction, and following methods are suggested for their mitigation: (i) Utilizing surplus soil for beneficial purposes; (ii) Measures to reduce/control dust generation (cover/damp down by water spray; consolidation of top soil, cover during transport etc); (iv) restoring the top soil after construction, (vi) avoiding tree cutting, and (vii) to avoid safety hazards construction site will be secured at critical segments.

33. As it was mentioned above, potential impacts will occur during the construction phase and will be satisfactorily addressed through appropriate mitigation measures. There will be no potential environmental or social impacts during the operation phase.

34. **Conclusions and recommendations**. The overall conclusion of Supplementary IEE is that provided the mitigation and enhancement measures are implemented in full, there should be no significant negative environmental or social impacts as a result of location, design, construction or operation of the water supply system in Abasha project. There should in fact be positive benefits through major improvements in quality of life and individual and public health once the scheme is in operation.

35. The recommendation is that all mitigation, enhancement and monitoring activities proposed here shall be implemented in full. This to ensure that the environmental impacts are successfully mitigated.

1. POLICY, LEGAL AND ADMINISTRATIVE FRAMEWORK

36. This chapter reviews the provisions for environmental protection and social safeguards in the laws of Georgia that are relevant to the project. It also discusses Environmental and Social Regulations of Georgia and the potential implications of the international treaties to which Georgia is a party.

37. All existing clearances/permits under ABA-01 sub-project are applicable for VO#3, USIIP Tranche 3/ABA-01. No additional permits/clearance are required.

38. Superseding the previous safeguard policies (the Involuntary Resettlement Policy, 1995, the Policy on Indigenous Peoples, 1998, and the Environment Policy 2002), ADB, has adopted a comprehensive Safeguard Policy Statement in 2009 (SPS, 2009). This Statement describes common objectives of ADB's safeguards, lays out policy principles, and outlines the delivery process for ADB's safeguard policy. It applies to all ADB - financed and administered projects, and their components including investment projects funded by a loan, grant or other means.

39. Aiming on promotion and sustainability of project outcomes by protecting the environment and people from projects' potential adverse impacts, the objectives of ADB's safeguards are to:

- avoid adverse impacts of projects on the environment and affected people, where possible;
- minimize, mitigate, and/or compensate for adverse project impacts on the environment and affected people when avoidance is not possible; and
- help borrowers/clients to strengthen their safeguard systems and develop the capacity to manage environmental and social risks.

1.1. ADB Environmental Safeguard Policy

40. The objective of environmental safeguards is to ensure the environmental sound- ness and sustainability of projects and to support the integration of environmental considerations into the project decision-making process. All ADB funded projects are screened at initial stages of preparation and categorized according to significance of the project's potential environmental impacts. Projects are assigned to one of the following three categories:

Category A - Projects likely to have significant adverse environmental impacts, which are irreversible, diverse or unprecedented and may affect an area larger than the location subject to physical works. An Environmental Impact Assessment is required.

Category B – Projects with adverse environmental impacts that are less significant than those of Category A projects, are site-specific, generally not irreversible, and in most cases can be mitigated more readily than for Category A projects. An Initial Environmental Examination (IEE) is required.

Category C - likely to have minimal or no adverse environmental impacts; EIA is not required.

41. The Abasha project has been classified as environmental assessment category B (some negative impacts but less significant than category A) according to the criteria laid down in the checklist for water supply projects of the ADB's Environmental Assessment and Review

Framework (November 2010) that was especially prepared for the environmental assessment of the Georgia Urban Services Improvement Investment Program.

42. ADB Review and Approval. For Category B projects the Draft IEE report is re- viewed by ADB's Operational Department (in this case Central & West Asia Department) and after addressing their comments, if any, the EA then officially submits the IEE reports to ADB. Completed reports are made available on the ADB website.

1.2. Georgian Law of Environmental protection

43. Environmental legislation of Georgia comprises the Constitution, environmental laws, international agreements, by-laws, presidential decrees, ministerial orders, instructions, and regulations. Along with the national regulations, Georgia is signatory to a number of international conventions, including those related to environmental protection.

44. A table 1 below presents a list of Georgia's environmental legislation as it pertains to the proposed project.

Table 1. List of laws relevant to environmental protection

Framework Legislation	
1995	Constitution Law of Georgia (as amended 29.06.2020) Reg. No - 010.010.000.01.001.000.116
1996	Law of Goergia on Environmental Protection (as amended 28.07.2020) Reg. No - 360.000.000.05.001.000.184
Permitting Legislation	
2005	Law of Georgia on Licensing and Permitting (as amended 17.07.2020)
Specific Environmental Laws	
1994	Law of Georgia on Soil Protection (as amended 15.07.2020) Reg. No - 370.010.000.05.001.000.080
1996	Low of Georgia on System of Protected Ares (as amended 16.09.2020) Reg. No - 360.050.000.05.001.000.127
2007	Low of Georgia on Status of the Protected Areas (as amended 15.07.2020) Reg. No - 360.050.000.05.001.003.060
2014	Waste Management Code of Georgia (as amended 15.07.2020) Reg. No -360160000.05.001.017608
2017	Environmental Assessment Code of Georgia Reg. No - 360160000.05.001.018492
1996	Law of Georgia on Subsoil (as amended 15.07.2020) Reg. No - 380.000.000.05.001.000.140
1997	Low of Georgia on Wildlife (as amended 15.07.2020) Reg. No - 410.000.000.05.001.000.186
1997	Law of Georgia on Water (as amended 15.07.2020) Reg. No - 400.000.000.05.001.000.253
1997	Law on Transit and Import of Waste into and out of the Territory of Georgia (as amended 14.12.2017) Reg. No - 300230000.05.001.016218

Framework Legislation	
1999	Law of Georgia on Ambient Air Protection (as amended 15.07.2020) Reg. No - 420.000.000.05.001.000.595
2020	Forest Code of Georgia Reg. No - 390000000.05.001.019838
2003	Law of Georgia on Red List and Red Data Book of Georgia (as amended 15.07.2020) Reg. No - 360.060.000.05.001.001.297
Relevant Laws	
2007	Law of Georgia on Public Health (as amended 29.12.2020) Reg. No - 470.000.000.05.001.002.920
2005	Law of Georgia on Fire Protection and Safety (as amended 23.03.2017) Reg. No - 140.060.000.05.001.000.355
2002	Regulation and Engineering Protection of Coasts of Sea, Water Reservoirs and Rivers of Georgia (as amended 11.03.2011) Reg. No - 330.130.000.11.116.005.130
2014	Technical Regulationson Drinking Water standard. Approved by the Government decree № 58 Reg. No- 300160070.10.003.017676

45. Brief summaries of the listed documents are given below.

46. The basic legal document is **"The Constitution of Georgia",** which was adopted in 1995. While the Constitution of Georgia does not directly address environmental matters, it does lay down the legal framework that guarantees environmental protection and public access to information with regard to environmental conditions.

47. **Article 37,** Part 3 states that "any person has the right to live in a healthy environment, use the natural and cultural environment. Any person is obliged to take care of the natural and cultural environment." Article 37, Part 5 states that: "an individual has the right to obtain full, unbiased and timely information regarding his working and living environment."

48. **Article 41,** Part 1 states that "a citizen of Georgia is entitled to access information on such citizen as well as official documents available in State Institutions provided it does not contain confidential information of state, professional or commercial importance, in accordance with the applicable legal rules.

49. **Environmental Assessment Code (EAC)** was adopted in June 2017 and entered into force from January 2018. The new code replaced law on Environmental Impact Permit and Ecological Expertise. Environmental Assessment Code sets up regulations and procedures for Environmental Impact Assessment, Strategic Environmental Assessment, Trans-boundary Environmental Assessment, Public Participation and Expertise in the Decision-Making Process. The EIA shall be subject to the activities envisaged by the Annex I of this Code and the activities envisaged by the Annex II of the same Code, which will be subject to EIA on the basis of screening procedure set out in Article 7 of this Code (Article 5 of Chapter 2).

50. **The Law of Georgia on Environment Protection (1996)** regulates the legal relations

between the state establishments and physical or legal entities in the field related to the use of territorial waters, air space, including continental shelf and special economic zones, environmental protection and natural resources on the territory of Georgia. The Law regulates the standards of the environmental protection and issues of environmental management; it describes the economic sanctions, standards and issues of environmental impact, different issues of protection of the natural eco-systems and biodiversity, and global and regional management issues. In addition to the above- mentioned, the Law considers the major principles of waste management. The law defines the ecological requirements for the waste (Article 34). According to the provision of the given Article, an entrepreneur is obliged to reduce the origination of industrial, domestic and other types of waste, ensure their treatment, utilization, placement or burying by considering the environmental, sanitary-hygienic and epidemiological standards and rules. The Law defines the requirements for the placement of toxic, radioactive and other hazardous waste and prohibits their discharge in the surface water sources.

51. **The Law of Georgia on Licenses and Permits (2005)** defines the list of activities needing licenses or permits, including so called "Environmental Decision". It also defines the requirements for the license or permit issue. The Law, together with the normative by-laws, regulates such organized activity or action, which relates to an indefinite circle of entities is characterized by increased hazard to the human life or health, affects particularly important state or public interests or is related to the use of a state resource. The given Law regulates the field regulated by a license or permit; it gives a thorough list of licenses and permits, and establishes the rules to issue the licenses and permits, 28 makes amendments to them or abolish them. Under the Law, a state regulation of the activity or action through a license or permit is undertaken only when the given activity or action is directly associated with the increased hazard to the human life or health or fields of state or public interests. The state regulation is undertaken only when the issuance of a license or permit is a real means to reduce the hazard in question or consider state or public interests. The aim and major principles of regulating the activity or action via licenses or permits are as follows:

    - Provision and protection of human life and health
    - Safety and protection of a human's residential and cultural environment
    - Protection of state and public interests

52. The state ensures protection of the environment and, correspondingly, protection of water as its main component in the Law of Georgia on Water (1997). All residents of Georgia are liable to ensure the rational and sustainable use and protection of water. They have to prevent its contamination, pollution and depletion. The dumping of industrial, household and other garbage and wastes in water bodies is prohibited according to this act. The disposal of industrial, household and other effluents into water bodies is permitted on the basis of a license by the Ministry. With the objective of protecting the Black Sea and preserving its ecological system, all natural and legal persons (including foreigners) are obliged to take measures for preventing pollution of the sea with wastewater from the sources of pollution located on the land. The use of a surface water body for discharging industrial, communal-household, drainage and other wastewater is allowed only under a water use license issued on the basis of the Ministry-approved multipurpose water utilization plans and water management balance- sheet.

53. Under the law, purification of the waste water discharged in a water body is required up to the fixed standard. In order to protect the quality of water resources, the law requests creation of sanitary protection zone that consists of three belts, each having a special regime. The procedure fixing the water quality standards, the maximum permissible rates of emission of harmful substances (including microorganisms) into ambience, the water

abstraction quotas, and the temporary rates (limits) of emission of harmful substances (including microorganisms) into water is defined by the Law of Georgia on the Environmental Protection.

54. Georgian legislation may provide liability for other violations of law in the water protection use sphere. Water users shall compensate for damages caused by violation of the law on Water in the amount and under procedure established by legislation of Georgia. Under Article 17 (Protection of natural resources of the Black Sea), anadromous fish species (fish species seasonally migrating upstream of a river against the current) within the rivers of Georgia shall be protected by creation of conditions necessary for their reproduction, through conservation of the habitat, determination of procedures for regulating the fishing industry, determination of a total permissible amount of catching these species within the territorial waters, and within and outside special economic zones of Georgia, also through implementation of other measures defined by the legislation of Georgia. Article 20 (River water protection zone) defines protection zone of a river shall be its adjacent territory, where a special regime is established to protect water resources from pollution, littering, fouling, and depletion. This zone may include its dry bed, adjacent terraces, natural elevated and steep riversides, as well as gullies directly adjacent to riversides. The width of a river water protection zone shall be measured in meters from the edge of a riverbed to both sides under the following procedure:

    - 10 meters - in the case of a river up to 25 kilometers long,
    - 20 meters - in the case of a river up to 50 kilometers long,
    - 30 meters - in the case of a river up to 75 kilometers long,
    - 50 meters - in the case of a river over 75 kilometers long.

55. Within this zone, it is prohibited to: (i) construct, expand or reconstruct functioning enterprises, except for cases directly determined by law; (ii) spray, by air atomization, perennial plants, sown crops, and forest lands with toxic chemicals; and (iv) keep, collect or place toxic chemicals and mineral fertilizers, as well as any other wastes as defined in the legislation of Georgia. It is requested that hydraulic structures located within a water protection zone shall be normally equipped with appropriate technical facilities to completely exclude the possibility of river pollution and littering.

56. The aim of new law on **Waste Management – Waste Management Code (January 2015)** – is to provide for the legal conditions for implementation of measures aiming at prevention of generation of waste and increased re-use, environmentally-sound treatment of waste (including recycling and extraction of secondary raw materials, energy recovery from waste, as well as safe disposal). The objective of this Law is to protect the environment and human health: by preventing and reducing the adverse impacts of the generation of waste; by introducing effective mechanisms of management of waste; by reducing damage caused by resource use and improving the efficiency of such use. In accordance with the new Waste Management Code in Georgia, any individual and legal entity that produces more than 200 tons of non- hazardous and/or more than 1,000 tons of inert waste or 120 kilograms of hazardous waste is required to prepare a waste management plan that must be submitted to Ministry of Environmental Protection and Agriculture of Georgia for approval. It is also necessary to identify an environmental manager and provide information to MEPA. The rule for collecting and processing municipal waste is determined by the Code, as well as the prohibitions related to the management of hazardous waste. The Code obliges to develop a system of segmentation and collection of hazardous waste in the case of the production of more than 2 tons of hazardous waste during the year.

57. The following summarizes the key points of the code.

58. **Article 7** - General waste management requirements:

- Waste, depending on its type, properties and composition, shall be collected, transported and treated in a manner not impeding its further recovery
- Waste shall be collected, transported and treated in a manner which excludes, to the maximum extent possible, pollution of the environment and risks for human health
- In case of waste pollution caused by waste transport activities, the waste transporter shall be responsible for taking clean up measures.
- The producer and holder of waste is obliged to treat their waste
- on their own or hand it over for collection, transport and treatment to persons entitled to carry out such operations in accordance with this Law and legislation of Georgia.
- Where waste has been submitted for recovery or disposal, the original producer's and/or holder's responsibility shall remain until recovery or disposal is completed
- Persons who collect and transport waste shall hand it over for treatment to appropriate facilities, holding the relevant permit or registration.

59. The burning of waste outside permitted incinerators shall be prohibited.

60. **Article 14** - Company waste management plan

- Legal and natural persons that produce more than 200 tons of non- hazardous waste or 1000 tons of inert waste or any amount of hazardous waste annually, shall prepare a company waste management plan.

61. **Article 15** – Environmental Manager

- The persons under Article 14 of this Law shall nominate a suitable person as a company environmental manager.

62. **Article 17** - General obligations for hazardous waste management

- The production, collection and transportation of hazardous waste, as well as its storage and treatment, shall be carried out in conditions providing protection for the environment and human health. It shall be prohibited to:
  a) discard hazardous waste outside waste collection containers;
  b) discharge it into the sewerage systems or underground or surface waters, including the sea;
  c) burn it outside waste incinerators permitted for that purpose;
  d) treat it outside waste treatment facilities permitted to treat such type of waste

63. **Article 18** - Special obligations for hazardous waste management

- Waste producers that produce more than 2 tons of hazardous waste per year shall:
  a) create and implement a suitable separation and collection system for such waste;
  b) designate an environmental manager, pursuant to Article 15 of this Law, responsible to make arrangements for the safe management of said waste;
  c) make arrangements for briefing and training for staff handling hazardous waste.
- Until the exact content of waste is unknown, the waste shall be regarded as hazardous

- Hazardous waste for which no appropriate treatment techniques and/or technologies are available in accordance with the requirements of this Law within the territory of Georgia shall be exported for treatment. Until the export is carried out, the waste shall be safely stored at temporary storage facilities
- The Ministry may exceptionally once allow for an extended storage period of up to one year if this is justified and does not harm human health or the environment

64. Hazardous waste may only be collected and transported by a natural or legal person after its registration pursuant to this Law

65. **Article 29 -** Obligations for keeping records and reporting on waste

- Records on waste shall be kept and waste reports shall be submitted to the Ministry by natural and legal persons:
  a) dealing professionally with collection, transport and/or treatment of waste;
  b) which produced more than more than 2 tones non-hazardous (excluding municipal waste) waste or any amount of hazardous waste per year.

66. **The Law of Georgia on Cultural Heritage (2007).** Article 14 of the Law specifies the requirements for 'large-scale' construction works. According to this Article, a decision on career treatment and or extraction on the whole territory of Georgia, as well as on construction of an object of a special importance as it may be defined under the legislation of Georgia, is made by a body designated by the legislation of Georgia based on the positive decision of the Ministry of Culture and Monument Protection of Georgia. The basis for the conclusion is the archaeological research of the proper territory to be carried out by the entity wishing to accomplish the ground works. The entity wishing to do the ground works is obliged to submit to the Ministry the documentation about the archaeological research of the territory in question. The preliminary research should include field-research and laboratory works. In case of identifying an archaeological object on the territory to study, the conclusion of the archaeological research should contain the following information: (a) a thorough field study of the archaeological layers and objects identified on the study territory by using modern methodologies, (b) recommendations about the problem of conservation of the identified objects and planning of the building activity on the design territory, on the basis of the archaeological research.

67. **The Law of Georgia "On the Red List and Red Book" (2003)** regulates the legal relations in the field of developing the Red List and Red Book, protecting and using the endangered species, except the legal issues of the international trade with endangered wild animals and wild plants, which within the limits of the jurisdiction of Georgia are regulated by virtue of the Convention 'On the international trade with the endangered species of wild fauna and flora' concluded on March 3 of 1973 in the city of Washington. According to Article 10 of the Law, any activity, including hunting, fishing, extraction, cutting down and hay-mowing, except particular cases envisaged by the present Law, Law of Georgia 'On animal life' and legislation of Georgia, which may result in the reduction in number of the end. Endangered species, deterioration of the breeding area or living conditions, is prohibited. The Red List of Georgia was approved by the Presidential Decree No. 303 'On approving the Red List of Georgia' (May 2, 2006). The law defines special cases when removal of individuals of the Georgian Red List species from their habitats is allowed. Decisions are made by the Government of Georgia.

68. **The Forest Code (1999)** regulates the legal relations to the maintenance, protection, restoration and use of forest resources of Georgia. The Forest Code of Georgia aims to: maintenance, protection and restoration of forests for the maintenance and improvement of climate, water regulation, protective, cultural, recreational and other useful natural

properties; It allows only those activities, which are related to forest resource protection or use such as timber logging, collection of non-timber resources, use of area for agriculture or recreation, establishment of hunting farms, etc. State forestry fund may be used for a special purpose in urgent cases. Decisions are made by the Government of Georgia.

69. **Law on Atmospheric Air Protection (1999)** regulates the protection of atmospheric air from the harmful anthropogenic influence on the entire territory of Georgia. The objective of the law is to ensure the safe environment for the atmospheric air of human health and the natural environment. Four types of pollution are considered (Part II, Chapter IV, Article II.2): (i) Pollution of environment with hazardous matter; (ii) Radiation pollution of atmospheric air; (iii) Pollution with microorganisms and biologically active matter of microbial origin; and (iv) Noise, vibration, electromagnetic fields, and other physical impact. Maximum permitted limits for concentration of hazardous substances into the atmospheric air are defined for each contaminant and represent maximum concentration of hazardous pollutants, in averaged time span, recurring action of which has not have negative impact on human health and environment. Maximum permitted levels of emission of hazardous matters into the atmospheric air are defined with allowance of prospective of development of the enterprise, physical, geographical and climatic conditions, dispersion of emitted substances, background concentration of pollutants emitted from other neighboring enterprises, taking into account inter-location of existing or planned dwellings, sanatoria and recreation zones. In compliance with the law (Clause 28), in order to restrict pollution from the stationary sources of hazardous emissions the limits of emissions are to be set. The limit of pollution from the stationary source of emission is permitted quantity (mass) of emitted hazardous matters (Clause 29). Maximum annual emission level means the maximum permitted limit of discharge. This is annual permitted quantity of emission predetermined by technology in conditions of standard permitted capacity of discharge. Annual maximum capacity is defined for each hazardous substance and is calculated so that for each stationary source of emission cumulative emission from all registered sources of discharge does not exceed relevant maximum permitted value. Discharge of hazardous emissions from the stationary sources of emission without approved limits of discharge is forbidden. The standards of emissions (Clause 30) are to be worked out by the enterprise itself. According to the law (Clause 38) the enterprise is responsible for conducting self-monitoring which includes measurement of emission (evaluation), recording/registration and accounting. Emission which has not been recorded in self-monitoring record is considered illegal. As mentioned in the Clause 51 results of the monitoring and information on pollution of the air with hazardous substances is transparent and accessible for the public.

70. **The aim of the Law of Georgia on Public Health (2007)** is as follows: Promotion of the introduction of a good health and healthy lifestyle of the population; Creation of the environment, which is safe for a human health; Promotion of the protection of the reproductive health of a family; Prevention of infectious and non-infectious diseases. The Law defines the rights and obligations of the population and legal entities in the field of public health. Aiming at establishing the environment safe to the public health, the Ministry sets the qualitative standards for the environment safe for a human health (atmospheric air, water, soil, noise, vibration, electromagnetic radiation), including maximum permissible concentrations and rates of harmful impact. The standards are mandatory. Every person on the territory of Georgia is obliged not to carry out the activity, which causes a hazard of the infectious and non-infectious diseases to spread and helps the origination of the risks to human health; protect the sanitary and epidemiological standards; to supply the information to the public health department about all emergencies caused by the violation of the sanitary norms in the production or technological process, etc. The observance of the standards is controlled by appropriate state structures. The responsibility for the internal

and external audits rests with a certified, independent laboratory.

71. **Law on Soil Protection:** The law provides the policy requirements and principles of the protection and preservation of fertility soil resources against negative impacts. Soil protection is the state problem since correct and rational use of all types of soil, including barren soil, saline soils, swamped soil, alkali soil, and aqueous soil are the main reserve of dynamic development of agriculture and of the national economy as a whole. The purpose of the present Law is to establish the rights and the duties of landholders, landowners, and the state in the field of soil protect. The law defines soil protection measures and methods and prohibits certain activities, e.g. use of fertile soil for non-agricultural purposes; implementation of non-agricultural activity without topsoil removal and conservation; any activity, which results in deterioration of soil properties, etc. In addition to this law soil protection issues are regulated by order #2-277 (25.11.2005) of the Minister of Agriculture on approving Recommendations for Complex Measures for Soil Protection from the Erosion.

72. Laws and regulations related to social aspects and land ownership applicable to the project are presented below.

73. **Law on Public Health** regulates legal relations for ensuring a safe environment for human health. It indicates quality norms of for air, soil and water pollution and restrictions related to ionized radiation, noise, and vibration. The limits must be complied with. Section 7 of the law is dedicated to safety of technological processes.

74. **Labor Code** regulates employment relations, unless such relations are otherwise regulated by international treaties that have been implemented in Georgia. Employers are obliged to comply with requirements and clauses of the document for the purpose of ensuring that the rights of employees are protected.

75. **Law of Georgia on Labor Safety** define basic requirements and preventive measures in terms of workplace safety for the employers. The Law applies to jobs considered to be of increased danger, hard, harmful and hazardous. The employer's compliance with the labor safety regulations in Georgia are overseen by the Ministry of Health, Laborand Social Affairs of Georgia through its respective departments.

76. Environmental Assessment and Review Framework (November 2010, updated in November 2013 due to changes in the scope of the USIIP, ERAF) was established for the Asian Development Bank funded Georgia Urban Services Improvement Investment Program (or the Investment Program). This is prepared to adequately address the ADB Safeguard Policy Statement (2009) requirements and is to be endorsed by the Georgian government. Projects have to be assigned to Categories A, B, and C. General Mitigation measures are listed for anticipated impacts.

1.3. Environmental Regulations and Standards

77. Project will be implemented in compliance with the national regulations and also in line with the ABD SPS 2009 requirements. Therefore, more stringent requirements of the two are applicable. Georgia has a large set of specific standards that refer to emission, effluent, and noise standards, as well as standard to handle and dispose specific wastes ranging from sewage to hazardous wastes. The following summarizes these laws and standards along with IFC and EU standards.

Ambient Air Quality Standards

78. In accordance with the Law of Georgia on Public Health, the environmental qualitative norms are approved by Decrees of the Minister of Labor, Health and Social Affairs of

Georgia (Decrees Nos. 297/N of 16.08.2001, including the changes made to it by further decrees of the Ministry Nos. 38/N of 02.24.2003, 251/N of 09.15.1006, N of 12.17.2007). The quality of atmospheric air (pollution with hazardous matter) is also defined by the order of the Minister of Environment Protection and Natural Resources (#89, 23 October 2001) on approval of the rule for calculation of index of pollution of atmospheric air with hazardous pollution.

79. Georgian and IFC guidelines for ambient air quality guidelines are presented in Table 2 and Table 3.

Table 2. Georgian Standards for Ambient Air Quality

Parameter	**Maximum Permissible Concentration (MAC) mg/m^3 average time**
Nitrogen Dioxide	0.085/30 minutes
	0.04/24 hours
Sulphur Dioxide	0.5/30 minutes
	0.05/24 hours
Carbon oxide	5.0/30 minutes
	3.0/24 hours
Inorganic Dust	0.5

Table 3. IFC Ambient Air Quality Guidelines

Parameter	**Averaging Period**	**Guideline value in µmg/m^3**
Sulphur dioxide (SO_2)	24-hour	125 (Interim target-1) 50 (Interim target-2) 20 (guideline)
	10 minute	500 (guideline)
Nitrogen dioxide (NO_2)	1-year	40 (guideline)
	1-hour	200 (guideline)
Particulate Matter PM10	1-year	70 (Interim target-1) 50 (Interim target-2) 30 (Interim target-3) 20 (guideline)
	24-hour	150 (Interim target-1) 100 (Interim target-2) 75 (Interim target-3) 50 (guideline)
Particulate Matter PM2.5	1-year	35 (Interim target-1) 25 (Interim target-2) 15 (Interim target-3) 10 (guideline)

	24-hour	75 (Interim target-1 50 (Interim target-2) 37.5 (Interim target-3) 25 (guideline)
Ozone	8-hour daily maximum	160 (Interim target-1) 100 (guideline)

Note: World Health Organization (WHO) Air Quality Guidelines Global Update, 2005. PM 24-hour value is the 99th percentile. Interim targets are provided in recognition of the need for a staged approach to achieving the recommended guidelines.

80. In general, Georgian standards for ambient air correspond to international IFC/WB standards, however in relation with particular substances there can be minor differences and in that case more stringent standards are applicable.

Noise Standards

81. Admissible noise standards of the IFC and Georgian national standards for residential areas are similar. The national standards for noise are set according to the Technical regulation – Acoustic noise limits for rooms/premises in residential houses and public establishments (Document #300160070.10.003.020107, Date 15/08/2017) see Table 4.

82. For IFC noise impacts should not exceed the levels presented in Table 4 or result in a maximum increase in background levels of 3 decibels (dB) at the nearest receptor location off site. This project will comply with both IFC Guidelines and Georgian Standards. Note that Georgian standards refer to the allowable limits indoors, not at the building façade.

Table 4. Georgian Standards for Noise Levels

Purpose/use of area and premises	**Allowable limits (A-Weighted Decibels (dBA))**		
	Lday		**23:00 – 08:00 Lnight, Night**
	08:00 - 19:00, Day	**Evening 19:00-23:00**	
Educational facilities and library halls	35	35	35
Medical facilities/chambers of medical institutions	40	40	40
Living quarters and dormitories	35	30	30
Hospital chambers	35	30	30
Hotel/motel rooms	40	35	35
Trading halls and reception facilities	55	55	55
Restaurant, bar, cafe halls	50	50	50
Theatre/concert halls and sacred premises	30	30	30
Sport halls and pools	55	55	55
Small offices (≤100m^3) – working rooms and premises without office equipment	40	40	40

Small offices (≤100m3) – working rooms and premises without office equipment	40	40	40
Conference halls /meeting rooms	35	35	35
Areas bordering with houses residential, medical establishments, social service and children facilities (<6 story buildings)	50	45	40
Areas bordering with houses residential, medical establishments, social service, and children facilities (>6 story buildings)	55	50	45
The areas bordering with hotels, trade, service, sport, and public organizations	60	55	50

Note: 1. in case noise generated by indoor or outdoor sources is impulse or tonal, the limit must be 5dBA les than indicated in the table.
2. Acoustic noise limits given above are set for routine operation conditions of the 'space', i.e. windows and door are closed (exception – built-in ventilation canals), ventilation, air conditioning, lighting (in case available) are on; functional (baseline) noise (such as music, speech) not considered.

Table 5. IFC Noise Level Guidelines

Receptor	**One-hour L_{aeq} (dBA)**	
	Daytime 07.00-22.00	**Night-time 22.00 – 07.00**
Residential; institutional; educational	55	45
Industrial; commercial	70	70

83. For workplace noise the following IFC standards are applicable.

Table 6. IFC Environment Noise limits

Type of Work, workplace	**IFC General EHS Guidelines**
Heavy Industry (no demand for oral communication)	85 Equivalent level Laeq,8h
Light industry (decreasing demand for oral communication)	50-65 Equivalent level Laeq,8h

84. For baseline monitoring, and construction and operational phase noise assessment, IFC guideline limits will be followed. For workplace noise, IFC guidelines shall be followed.

Vibration Standards

85. The Georgian Standards for vibration are designed for human comfort. These are shown in table 7. Note that no Georgian standards for building damage exist.

Table 7. Georgian General Admissible Vibration Values in Residential Houses, Hospitals and Rest Houses, Sanitary Norms 2001

Average Geometric Frequencies of Octave	**Allowable Values X0, Y0, Z0**	
	Vibro-acceleration	Vibro-speed

Zones (Hz)	m/sec^2	dB	$m/sec\ 10^{-4}$	dB
2	4.0	72	3.2	76
4	4.5	73	1.8	71
8	5.6	75	1.1	67
16	11.0	81	1.1	67
31.5	22.0	87	1.1	67
63	45.0	93	1.1	67
Corrected and equivalent corrected values and their levels	4.0	72	1.1	67

Note: It is allowable to exceed vibration normative values during daytime by 5 dB during daytime In this table of inconstant vibrations, a correction for the allowable level values is 10dB, while the absolute values are multiplied by 0.32. The allowable levels of vibration for hospitals and rest houses have to be reduced by 3dB.

86. The American Association of State Highway and Transportation Officials (AASHTO) (1990) identifies maximum vibration levels for preventing damage to structures. Table 8 summarizes the maximum levels.

Table 8. AASHTO Maximum Vibration Levels for Preventing Damage

Type of Situation	Limiting Velocity (in/sec)
Historic sites or other critical locations	0.1
Residential buildings, plastered walls	0.2-0.3
Residential buildings in good repair with gypsum board walls	0.4-0.5
Engineered structures, without plaster	1.0-1.5

87. German Standard DIN 4150-3 will be followed during the construction phase.

Soil Quality

88. In Georgia, soil quality evaluation criteria are determined by instructions on “Level of Chemical Contamination of Soil” (MM 2.1.7. 004-02). Information on maximum admissible concentrations of various substances and elements in soils are given in the Table 9.

Table 9. Maximum admissible concentrations of various substances and elements in soils

Component	Unit	Level	IFC
Arsenic	mg/kg	2-10	There are no detailed numerical requirements to soil quality established by IFC’s guidance documents
Copper	mg/kg	3	
Mercury	mg/kg	2.1	
Nickel	mg/kg	4	
Lead	mg/kg	32	
Zinc	mg/kg	23	

Compound	mg/kg	0.1	
Hydrocarbons			
Phenol (Compound)	mg/kg	-	
Cyanide	mg/kg	-	
Sulphate	mg/kg	-	
Chloride	mg/kg	-	
Ammonium Nitrogen	mg/kg	-	
Evaporable Organic Compounds			
Benzoyl	mg/kg	0.3	
Toluol	mg/kg	0.3	
Ethylbenzene	mg/kg	-	
Compound Xylene (ortho,meta, para)	mg/kg	0.3	
Semi-Evaporable Compounds			
Benzoapiren	mg/kg	0.02	
Izopropilen-benzol	mg/kg	0.5	
Pesticides			
Atrazin	mg/kg	0.5	
Linden	mg/kg	0.1	
DDT (and its metabolite)	mg/kg	0.1	

Water Quality Standards

89. Groundwater quality standards: Georgian legislation does not regulate quality standards for groundwater. Quality of groundwater is regulated by norms set for potable water.

90. Potable water quality criteria are determined by technical regulations on potable water (Government Regulation N 58 from January 15, 2014 Potable water quality criteria are given in Table 10.

Table 10. Potable Water Criteria

Index	Measuring unit	Standard not more than:	WHO[1]
Common characteristics			
Hydrogen index	PH	6-9	6.5-8.5
Permanganate oxidation	mg O_2 /L	3,0	
Nonorganic substance			
Barium (Ba	mg/L	0.7	0.7
Boron (B,total)	mg/L	0.5	2.4
Arsenic (As,total)	mg/L	0.01	0.01

Quicksilver (Hg, nonorganic),	mg/L	0.006	-
Cadmium (Cd, total)	mg/L	0.003	0.003
Mangan (Mn, total)	mg/L	0.4	-
Molibden (Mo, total)	mg/L	0.07	-
Nickel(Ni, total)	mg/L	0.07	0.07
Nitrate(short impact by NO 3)	mg/L	50	-
Nitrite (long impact by NO 2)	mg/L	0.2	-
Selenium(Se, total)	mg/L	0.01	0.04
Copper(Cu, total)	mg/L	2.0	2.0
Lead (Pb, total)	mg/L	0.01	0.01
Flourine (F^-)	mg/L	0.7	-
Chromium (Cr^{6+})	mg/L	0.05	0.05
Antimony(Sb)	mg/L	0.02	0.02
Cyanide(CN^-)	mg/L	0.07	0
Organic substance			
Total content of pesticides	mg/L	O,05	

[1] WHO, Guideline for drinking-water quality, Fourth Edition, 2017

Surface Water Quality Standards

91. The values of Maximum Admissible Concentrations of the harmful substances in surface are provided in the Environmental Quality Norms approved by the Order #297N (16.08.2001) of the Ministry of Labor, Health and Social Protection (as amended by the Order No 38/n of the same Ministry of 24.02.2003). The categories are: (a) For centralized or decentralized drinking water supply, as well as for food industry enterprises; (b) for swimming, sports and recreation purposes. However certain parameters are not specified in the national standards for these IFC Guidelines are being used as shown in the Table 11 below.

Table 11. Applicable Standards for Surface Water Quality

Parameter	Maximum Permissible concentration	Source
pH	6.5-8.5	National
Diluted Oxygen, mg/l	4-6	National
BOD5, mg/l	30	IFC
COD, mg/l	125	IFC

Total Nitrogen, N, mg/l	10	IFC
Total Phosphate, mg/l	2	IFC
Chlorides, mg/l	350	National
Oil Products, mg/l	0.3	National
Zinc (Zn^{2+})	1g/kg	National
Lead (Pb total)	23.0	National
Chrome (Cr^{6+})	32.0	National
Cadmium (Cd, total)	6.0	National
Total Suspended Solids, mg/l	50	IFC

1.4. Licenses & Approvals Required

92. Environmental Assessment Code was adopted in June 2017 and entered into force from January 2018. The new code replaced law on Environmental Impact Permit and Ecological Expertise. Environmental Assessment Code sets up regulations and procedures for Environmental Impact Assessment, Strategic Environmental Assessment, Trans-boundary Environmental Assessment Public Participation and Expertise in the Decision-Making Process. The EIA shall be subject to the activities envisaged by the Annex I of this Code and the activities envisaged by the Annex II of the same Code, which will be subject to EIA on the basis of screening procedure set out in Article 7 of this Code (Article 5 of Chapter 2).

93. Some of the International Treaties and Conventions Ratified or Signed by Georgia are provided in the list below.

94. Short List of the Ratified or Signed Conventions:

- Ramseur Convention on Wetlands (1996);
- United Nations Framework Convention on Climate Change (UNFCC) (1994);
- Kyoto Protocol (1994);
- Kyoto Protocol (1999);
- Basel Convention on the Control of Transboundary Movement of Hazardous Waste and Their Disposal (1999);
- Convention on Access to Information, Public Participation in Decision- making and Access to Justice in Environmental Matters (Aarhus Convention) (1999);
- Convention on Biological Diversity (1994);
- Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) (1996);
- Convention on Long-range Trans boundary Air Pollutants (1999);
-

1.5. Comparison of the National legislation and ADB Requirements

95. The above accounts of national environmental low and ADB policy indicate that the two

systems are similar but then there are some aspects in which ADB policy is more specified than the Georgian procedure. The main differences are as follows.

96. Considering ecological risk, cultural heritage, resettlement and other factors, the Bank classifies projects supported by them under categories A, B, C and FI. In the Georgian legislation, EIA is carried out within the scope of the activities provided for by Annex I to the New Environmental Assessment Code, and of the activities provided for by the Annex II to the same Code, according to a screening decision. Asian Development Bank guidelines requires EIA for category A projects, IEE for the B category projects, and an environmental review of projects that are not expected to produce environmental impacts (category C), while According to the Georgian legislation IEE is not required.

97. Georgian legislation does not specify the format of environmental management plans as well (EMPs) and the stage of their provision for projects requiring EIA and does not require EMPs for projects not requiring EIAs. The Asian Development Banks guidelines requires EMPs for all categories of projects and provides detailed instructions on the content.

98. According to Georgian legislation MEPA is responsible for monitoring of project implementation and compliance with the standards and commitments provided in the EIA, and the role of the EMP is less clearly is defined. The IPMO or "Project Proponent" is responsible for implementing "self-monitoring" programs for projects requiring EIA. In contrast ADB guidelines stress the role of EMPs, which are important for all categories of projects, and the Project Proponent (in our case – UWSCG) is required to ensure inclusion of a monitoring scheme and plans into EMPs. Monitoring of performance compliance against EMPs is important element of ADB requirements.

99. The national legislation also does not take into account the issue of involuntary resettlement at any stage of environmental permit issuance. The Georgian legislation considers social factors only in regard to life and health safety (e.g. if a project contains a risk of triggering landslide, or emission/discharge of harmful substances or any other anthropogenic impact). While the Bank's document establishes the responsibility of a Borrower for conducting an environmental assessment, the national legislation provides for the responsibility of a project implementing unit to prepare EIA and ensure public consultation.

100. Ministry is participating in public consultation required for the adoption of a decision on issuing an EIA permit as established under the new Code of Georgia. ADB carry out project screening and categorization at the earliest stage of project preparation when sufficient information is available for this purpose, also according ADB's Public Communications Policy, ADB is committed to working with the borrower/client to ensure that relevant information (whether positive or negative) about social and environmental safeguard issues is made available in a timely manner.

101. In regard with consultation: The Bank provides for consultations for A and B Category projects (at least two consultations for Category A projects) and requires a timetable of consultations from the Borrower. The national legislation until recently contained only a brief reference to this issue without providing real tools of its fulfillment.

102. The Bank's guidelines provide a detailed description of procedures for screening, scoping and conducting EIA and explain a complete list of stages, which are not specified under the national legislation.

103. The Environmental Assessment Code, which was adopted in June 2017 and entered into force in January 2018 includes screening, scoping, preparing an EIA report, public participation, carrying out consultations and preparing an expert opinion on the basis of the evaluation of the results obtained, and taking account of the expert opinion in issuing an environmental decision under this Code and/or a respective enabling administrative act as

provided for by the legislation of Georgia.

104. Environmental impact assessment falls within the scope of the activities provided for by Annex I to this Code, and of the activities provided for by the Annex II to the same Code, according to a screening decision.

105. Screening Stage: A person carrying out activities shall, as early as possible at the stage of planning an activity, submit to the Ministry an application for the screening of the planned activity and obtain from the Ministry a decision on whether the planned activity is subject to an EIA

106. Within three days after a screening application has been registered, the Ministry shall have the application placed on its official website and on the notice board of the executive body and/or representative body of a respective municipality, and upon request, shall make a printed copy available under a procedure established by the legislation of Georgia. The public may, within seven days after the screening application has been placed on the website and the notice board, submit to the Ministry opinions and comments with respect to the application under the procedure established by Article 34(1) of this Code. The Ministry shall review the opinions and comments submitted by the public and, if there are appropriate grounds, shall take them into account when making a decision on the screening.

107. Scoping Stage: A person carrying out activities shall, as early as possible at the stage of planning an activity, file with the Ministry a scoping application along with a scoping report.

108. Within three days after a scoping application has been registered, the Ministry shall have the scoping application and the scoping report placed on its official website and on the notice board of the executive body and/or representative body of a respective municipality, and upon request, shall make printed or electronic copies available under a procedure established by the legislation of Georgia.

109. The public may, within 15 days after the placement of the scoping application submit to the Ministry opinions and comments with respect to the scoping report. When issuing the scoping opinion, the Ministry shall ensure a review of the opinions and comments submitted by the public and, if there are appropriate grounds, take them into account.

110. Not earlier than the 10th day and not later than the 15th day after the placement of the scoping application under the procedure established by Article 8(2) of this Code, the Ministry shall ensure the holding of a public review of the scoping report. The Ministry shall be responsible for organizing and holding public reviews. Public reviews shall be led, and the minutes of public reviews shall be drafted, by a representative of the Ministry. Information on the public review shall be published not later than 10 days before the public review is held, in accordance with Article 32 of this Code. Public reviews shall be open and any member of the public may participate in them.

111. After the Ministry approves the scoping opinion, the person carrying out activities and/or an adviser shall ensure the preparation of an EIA report. The person carrying out activities shall ensure the reimbursement of the costs necessary for preparing an EIA report. the Ministry shall have EIA information on its official website and on the notice board of the executive body and/or representative body of a respective municipality.

112. The public may, within 40 days after the placement of the application, submit to the Ministry opinions and comments under the procedure established by Article 34(1) of this Code with respect to the EIA report, the planned activity and the conditions to be included in the environmental decision. When making an environmental decision or a legal act refusing the carrying out of the activity, the Ministry shall ensure the review of the opinions and comments submitted and, if there are appropriate grounds, take them into account.

113. Not earlier than the 25th day and not later than the 30th day after the placement of the application under the procedure established by Article 11(3) of this Code, the Ministry shall hold a public review of the EIA report. The Ministry shall be responsible for organizing and holding reviews. Public reviews shall be led, and the minutes of public reviews shall be drafted, by a representative of the Ministry. The Ministry shall be responsible for the accuracy of the minutes. Information on the public review shall be published not later than 20 days before the public review is held, in accordance with Article 32 of this Code.

114. Not earlier than the 51st day and not later than the 55th day after the registration of an application for obtaining an environmental decision, the Minister shall issue an individual administrative act on the issuance of an environmental decision or, if there exist grounds provided for by Article 14 of this Code, on the refusal of the carrying out of the activity. When making environmental decisions, the guideline document on Environmental Impact Assessment may be used.

Table 12. Activities and responsibilities in IEE/EIA for national law and ADB policy

#	Action	Georgian Legislation	ADB Requirements
1.	Screening	Consultant hired by Project Proponent	Bank and Consultant hired by Project Proponent
2.	Scoping	Consultant hired by Project Proponent.	Obligatory. Bank and Consultant hired by Project Proponent
3.	Draft IEE/EIA	To be prepared by Environmental Consultant.	To be prepared by Environmental Consultant.
4.	Public Consultations	Not earlier than the 25th day and not later than the 30th day after the placement of the application under the procedure established by Article 11(3) of this Code, the Ministry shall hold a public review of the EIA report. Public reviews shall be led, and the minutes of public reviews shall be drafted, by a representative of the Ministry. Information on the public review shall be published not later than 20 days before the public review is held, in accordance with Article 32 of this Code.	At least two consultations for Category A projects – one at the scoping stage and one for the draft EIA. The borrower/client will carry out meaningful consultations for Category A and B projects with affected people and other concerned stakeholders, including civil society, and facilitate their informed participation.
5.	Final IEE/EIA	Consider all comments received during public consultations, incorporate accepted remarks and explain rational when the comments are disregarded.	Consider all comments from Bank and public. Agree with the Bank on each raised point. Incorporate accepted public comments and explain rational when the comments are disregarded.

6.	Management Plans	clear guidelines on format, content and timing	Incorporate Monitoring
7.	Review and Approval	MEPA	Bank and separately – MEPA (if the EIA is required by Georgian legislation).
8.	Disclosure O f the final IEE/EIA	Not requested	Publication (mainly electronic) of the final IEE/EIA.

1.6. Harmonization of the ADB and Georgian Legislation Requirements

115. In order to comply with the both regulations – the ADB and Georgian legislation – the content of the IEE/EIA should comprise issues required in both regulations, thus complementing each other. The EMPs should therefore be elaborated in details as required by the ADB regulations. The assessment of the stationary sources of emission (e.g. diesel generators) should be executed according to Georgian regulations: "Inventory of the Stationary Sources of Emission" and "Approval of the Emission Limits". For the category a projects the first public consultation (requested by ADB guidelines but not by Georgian regulations) will be held at the Scoping stage. The second one will be executed according to Georgian requirements. Disclosure will be conducted as required by ADB.

1.7. Administrative Framework

116. **Ministry of Environment Protection and Agriculture (MoEPA)** - In December 2017, the Ministry of Environment and Natural Resources Protection had its responsibilities split between the ministries of agriculture and economy, with the latter also taking over the Ministry of Energy.

117. MoEPA is responsible for all environmental protection issues and agriculture in Georgia. The responsibilities of the Ministry as the competent authority are: a) to intermit, limit, or stop any activity having or likely to have adverse impact on the environment, b) to carry our screening of planned development, c) to implement scoping, d) to issue environmental decision for project subject to EIA procedure (ref. Environmental Assessment Code), c) to control the execution of mitigation measures by the developer, d) to organize public meetings and discussion of an estimation of influence on environment and prepares the documentation (the project of the order of the minister) to let out the permission to influence to environment.

118. **Ministry of Economy and Sustainable Development (MoESD)** - MoESD is responsible for carrying out the review of technical documentation (including conclusion of independent experts) and issuing Permits on Construction for projects, as well as for supervision over constructing activities and for arranging Acceptance Commission after completion of construction. State supervision of construction and compliance monitoring is provided by the Main Architecture and Construction Inspection (MACI), which is operating under the Ministry of Economy and Sustainable Development of Georgia. Following to reorganization of the Ministry of Environment and Natural Resources Protection and the Ministry of Energy the MoESD took over the functions of the latter, as well as part of the main functions of Ministry of Environment and Natural Resources Protection (viz. licensing activity).

119. **United Water Supply Company of Georgia (UWSCG),** LLC is a state-owned company,

where 100% of shares is owned by the state. The Company was established on January 14, 2010. UWSCG provides water supply and sanitation services to urban-type settlements throughout the country, except for Tbilisi, Mtskheta, Rustavi, Gardabani Municipality, and Adjara Autonomous Republic.

120. The organization of the Company is comprised of Tbilisi Head Office, 7 Regional Branches, and 50 Service Centers. The objectives of the company are as follows: rehabilitation and construction of water infrastructure; maintenance and improvement of water quality; eradication of water losses; modernization of parking lot and base for special machinery; perfecting the charging and recovery processes; complete metering of company customers; creation of economic and technical rationale; introduction of accurate system of human resources management; rendering the activities of Company compliant with environment protection norms; energy-efficiency; enhancement of financial situation, and improvement of financial management system.

121. Investment Program Management Office (IPMO) established within UWSCG is responsible for the day to day management of the project including implementation of the EMP.

122. Department of Environmental Protection and Permits of UWSCG work together with IPMO on addressing the Environmental Safeguard issues of USIIP. More detailed description of implementation arrangements; responsibilities and staffing are provided in para 214-219 and the Table 18 below.

123. **The Ministry of Science, Education, Culture and Sports of Georgia.** The ministry is responsible on supervision of the construction activities in order to protect archaeological heritage. In case if construction is to be carried out in a historic sites or zones of cultural heritage, consent of the Ministry of Culture is also required for issuing construction permit (If such is necessary).

124. **The "National Service for the Foodstuffs Safety, Veterinary and Plant Protection"** of the Ministry of Environmental Protection and Agriculture - responsible for implementation of complex sanitary protection measures in case of identification burial sites during earthworks. Information about suspicious burial sites should be delivered to the "National Service for the Foodstuffs Safety, Veterinary and Plant Protection" of MoEPA by the Construction Contactor (field environmental officer) and RD field officer.

125. **Local Government of Abasha** – Local government of Abasha municipality is responsible authorizing certain construction works within the city, as well as issuing acceptance acts for the new buildings. For project implementation, construction permit from local authority is required. Relevant permission for tree cutting (not included in Red List species), if required, should be issued also by Abasha Municipality city hall.

2. DESCRIPTION OF THE CONSTRUCTION ACTIVITIES

2.1. Project Description

126. The Urban Services Improvement Investment Program was developed as the Government's response to the lack of adequate and/or safe water supply, sewerage and sanitation in urban areas of Georgia. This is intended to optimize social and economic development in selected urban areas through improved urban water and sanitation services, and is financed by the ADB through its Multi-tranche Financing Facility. The Ministry of Regional Development and Infrastructure is the Executing Agency and the "United Water Supply Company of Georgia", LLC is the Implementing Agency of the Investment Program. UWSCG is a 100% state-owned company.

127. The Investment Program will improve infrastructure through the development, design and implementation of a series of subprojects, each providing improvements in a particular sector (water supply and/or sewerage) in one town. Subprojects will rehabilitate existing infrastructure and/or create new and expanded infrastructure to meet the present and future demand. Water supply improvements will include source augmentation and head works, pumping systems, treatment facilities, transmission and distribution network; and, sewerage improvement works will include sewer network, pumping stations, main collectors and waste water treatment plants.

128. The implementation of the present project, ABA-01 "Construction of Water Supply Systems in Abasha" is necessary with the aim to improve water supply system in Abasha for the population of the city, the proposed project originally envisaged construction of approximately 15 km long 500 mm diameter transmission pipeline was installed from headworks to the town of Abasha, part of existing water supply systems were rehabilitated and the water meter was installed at the headwork.

2.2. Additional activities covered by the variation order N. 03

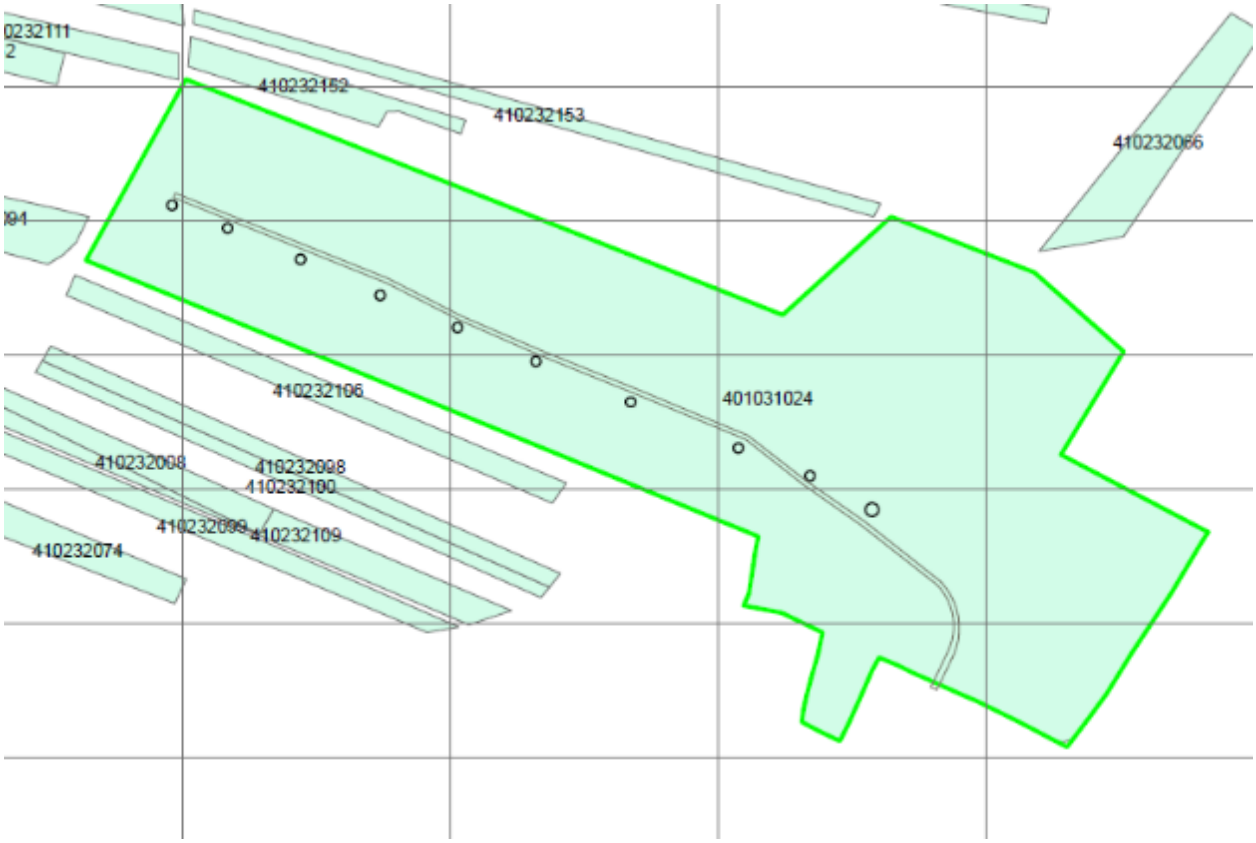
129. **Construction of UWSCG's Service Center.** This is completely new item within the VO-03 due to a new Design demanded by the Employer. The civil work includes demolition works, earthworks, concrete works, masonry walls, roof wood construction, finishes, mechanical and electrical installations.

130. Construction of the Abasha Service-Center is envisaged on the territory owned by UWSCG (cadastral code 40.01.32.523), which is not used by local population formally or informally. The extract from LEPL NAPR evidencing the property right on land and the photos are given in Annex 1.

Figure 7. Situational drawing of Abasha Service-Center construction Site

131. **Provide and installation SCADA system**. Installation of SCADA system data from water flow meter chamber to Chlorination Room.
132. **Repairing of Well №11 Building.** Works for Rehabilitation of well #11 within the VO-03 include civil works of the existing Building; new Roof, Metal works (platform, crane, Handrail), Electrical installation and ventilation, new concreting of the bottom chamber, installation of valves, fittings, finishes. Connection of OD500 to the well #11.
133. **Repairing of Well №1 to №10.** Civil works for Reconstruction of well head for well 9 and 10 and Replacing existing R/C Roof for wells N.1 to N. 8 including DI 600 Cover and air exchange box.
134. **Rehabilitation of Well Access road.** Civil works for access road to the wells within the VO-03.
135. **Fence for Well Field.** Change in quantity covered by VO-03 for barbed wire for fence type 2 (from 4 layers to 8 layers as demanded by the Employer) and adjustment in quantities for poles, RC foundation and wire mesh for fence type 1.
136. Since all the above mentioned works are envisaged within the registered red lines of the existing wellfield, land owned and used by UWSCG no LAR/LARP issues are involved.

Figure 8. Situational drawings of the wellfield



137. **Earthworks for Pipes.** Change in quantity for Earthworks for pipes due to change in quantity for pipes.

138. **Installation of water supply pipes.** Additional quantity for pipes and saddles OD63 and OD90 in villages and the Abasha City as demanded by the Employer. Adjustment in quantity for pipeline OD500 and OD110. Additional works for pipes OD63 and OD90 in Abasha are included in the VO#03 of ABA-01 Sub-Project. The arrangement of the pipelines are envisaged on the public roads of the city. The photos of the pipeline construction territories are given in Annex 3.

139. **Additional house & apartment block connection. Additional connection for 5 residential buildings: N14 and N30 Rustaveli str, N3 Mshvidoba str; former public school in vil. Abashispiri and building adjacent to administrative center of vil. Gezat.** Additional house connection in villages: Maidan, Samikao, Gezat-Gulukheti, Ontopo and Old Abasha.

140. **Installation of AMR water meter in village reconnection.** Additional quantity within the VO-03 for installation of new water meter chamber in Abasha Villages and make direct connection to house pipeline.

141. **Installation of AMR water meter on existing system.** Additional works within the VO-03 for installation of new water meter on existing system in Abasha city and Villages. To raise elevation of existing water meter box from the ground level of 20 cm to avoid filling of box with water during rain. Additional quantities for Switching of inlets from an old network to a new polyethylene network.

142. **Pressure testing of new installed pipelines.** Additional quantity added in VO-03 for pressure testing cleaning and flushing according to change in quantity for pipes.

143. **Crossing of Roads.** Additional works within the VO-03 for Crossings of Roads.

144. **Pressure Testing, Cleaning, flushing and disinfection and fixing damages on existing system.** Additional quantity for Pressure Testing, Cleaning, flushing and disinfection on existing system.

145. **Fixing damages on existing system.** Additional quantity for fixing damages in existing system (pipeline; valve & hydrants) according to the Survey works & AS-Built.

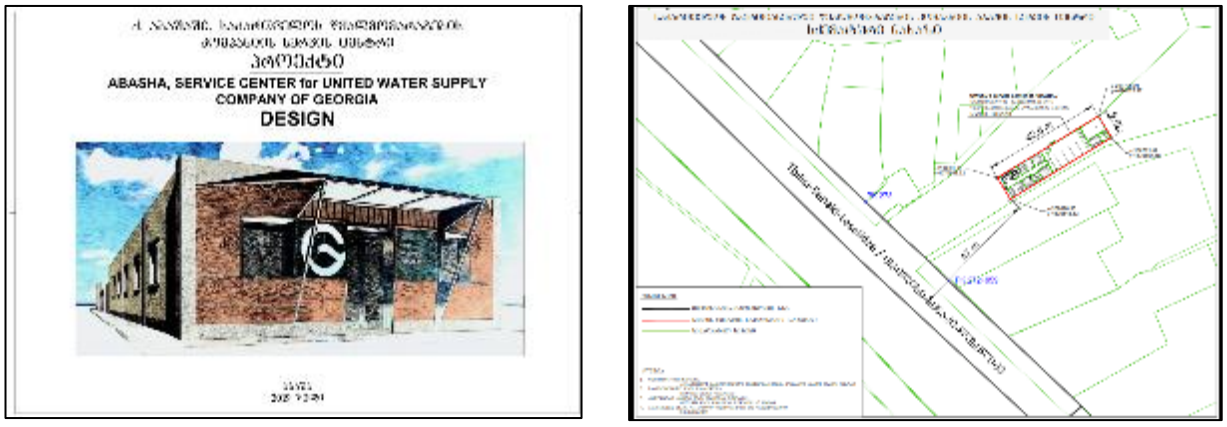


Figure 1. Abasha Service Centre for Unite Water Supply Company of Georgia Design

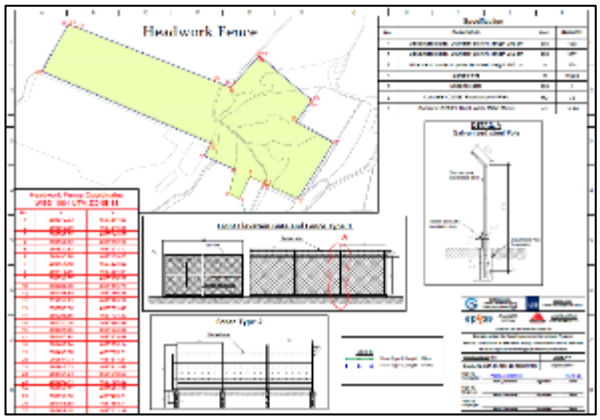


Figure 2. Headwork Fence

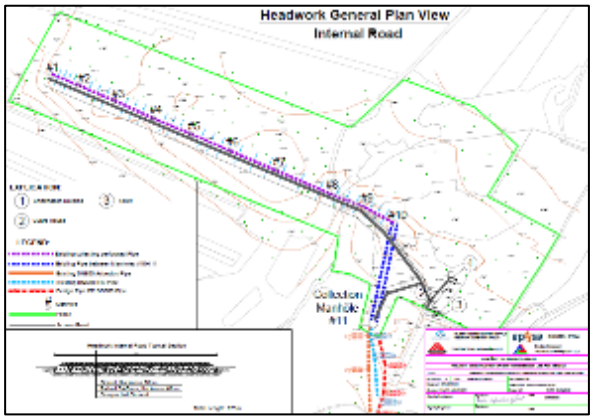


Figure 3. Headwork Internal Road

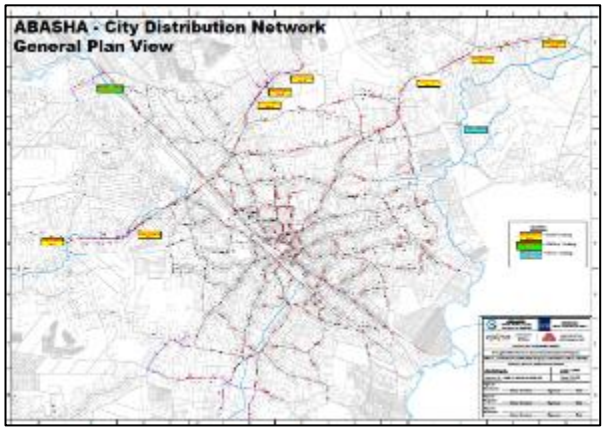


Figure 4. Abasha – City Distribution Network

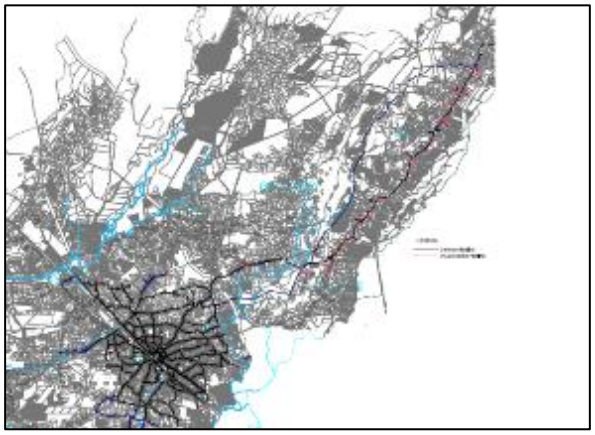


Figure 5. Additional pipeline VO-03

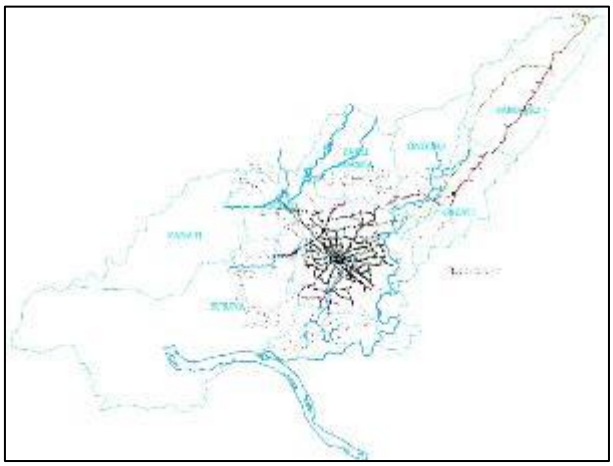


Figure 6. Abasha Network - Water Meters for Private Houses

3. ANTICIPATED ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

146. According to the proposed variations under the VO#3 there is no envisaged to go beyond the scope of the existing project and therefore particular activities will not have severe impact on the environment, impact will be only site-specific.

147. Most of the predicted impacts are associated with the construction process. Impacts mainly arise from the generation of dust from soil excavation and refilling; disturbance of residents, traffic and activities in the town; loss of top soil, removal of trees and from the disturbance to wildlife due to trenches.

148. These are common impacts of construction, and following methods are suggested for their mitigation: (i) Utilizing surplus soil for beneficial purposes; (ii) Measures to reduce/control dust generation (cover/damp down by water spray; consolidation of top soil, cover during transport etc.); (iii) Providing prior public information; (iv) Conducting no construction in the river bed in fish breeding season; (v) Restoring the top soil after construction; (vi) Avoiding tree cutting through location alignment changes; (vii) Avoid safety hazards construction site will be secured at critical segments.

149. The following measures are suggested so that roads and inhabitants are not subject to repeated disturbance by work in the same area for different purposes: scheduling construction in consultation with the other implementing agencies, and conducting the road work where the transmission line is proposed.

3.1. Impact on the atmospheric air quality

150. Construction activities involves the use of heavy machinery, bulldozers, excavators, graders needed for land clearance and other earthworks, vehicles and equipment to transport construction materials, workers, remove debris from the work area. The operation of heavy machinery, vehicles and other construction equipment result in fugitive emissions of carbon monoxide, NOx, SO2, hydrocarbons, and particulate matter.

151. Dust generation during the construction works is associated with:

- Earthworks, including topsoil stripping, excavations in cuts;
- Transportation and storage of excavated ground (topsoil and subsoil to the storage locations; spoil to the disposal sites);
- Transportation of fine materials (sand, gravel, cement etc.) from supplier sites, borrow pits and quarries;
- Storage of construction materials.

152. Exhaust emissions are associated with the operations of vehicles and heavy equipment, like bulldozers, excavators, cranes etc.

153. Emissions and dust generation may affect buildings located close to the construction sites and residential areas along the material transportation routes. The vehicle and equipment emissions and dust are typical for any construction activities. The main receptors are SME representatives' offices, shops residential houses located near the project site. A distance of 10-20 m from the border of construction site. This impact is temporary and is estimated to be medium scale if not properly mitigated. In case of application of good construction practices the impacts could be minimized to minor and acceptable level.

Mitigation measures

154. Emissions of heavy machinery involved in the construction should be managed by proper engine

maintenance practice and usage of good quality fuel. The work of engines in a no-operation mode should be excluded.

155. Relatively high impact is connected with the dust emissions, which hardly can be quantified. However, it is obvious that the earth works and transportation of gravel and other inert materials from borrow-pits will impose nuisance related with dust. This is temporary impact, and should be mitigated by periodical watering of the work sites.

156. Vehicle refueling will be undertaken to avoid fugitive emissions of volatile organic compounds through use of fuel nozzles and pumps and enclosed tanks (no open containers should be used to stored fuel).

157. If deemed necessary in dry conditions or where significant quantities of dust are being or are likely to be produced mitigation measures should be arranged.

158. Specific mitigation measures are following:

- Damping down using water bowsers with spray bars or other technical means. Bowser will be required for that purpose. If required additional bowsers should be engaged;
- Materials transported to site will be covered/wetted down to reduce dust. The construction site will be watered as appropriate. Protective equipment will be provided to workers as necessary. All vehicles will be checked and repaired in case of need to eliminate increased emission due to damaged parts;
- Sheeting of construction materials and storage piles;
- Use of defined haulage routes and reductions in vehicle speed where required. Materials will be transported to site in off peak hours;
- The construction works are to be prohibited from 8:00 pm to 8:00 am

159. The vehicle emission will be reduced as a result of the realized structural changes. The traffic light will be abolished in the project zone, which was one of the causes of traffic jams. The vehicles will be able to travel at speeds helping to avoid vehicle concentration in the project zone. As a result of the above-mentioned, the vehicle emission in the project zone will be less following the implementation of the project.

3.2. Noise and Vibration

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

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

162. Vibration sources such as construction activities and road traffic, are among the sources considered potentially dangerous to buildings and structures. In general, structural damages to buildings are extremely rare and are in general caused by other sources. Structural damages

occur when the permissive levels of vibration are exceeded. Degrees of damage are methodologically defined and vary from those that do not affect the structural safety of the buildings but affect the value of assets – e.g. formation of cracks in the plaster, increase in existing cracks, damage of architectural elements etc.

163. Noise and vibration level will increase due to the construction works and operation of heavy machinery, bulldozers, excavators, graders, vehicles and equipment for transportation. Engineering machinery and vehicles are featured by their intermittent nature with mobility and high noise level (which is 80~90 dB from a distance of 5 meters).

164. The noise and vibration will cause nuisance of the local residents, employees of nearby institutions and services recipients Noise and vibration generation may affect residential areas along the material transportation routes. Noise generated due to the vehicle and equipment operations are typical for any construction activities. The main receptors are residents of the nearest houses to the project site. This impact is temporary and is estimated to be medium scale if not properly mitigated. In case of application of good construction practices the impacts could be minimized to minor and acceptable level.

Mitigation measures

165. Source control is, in general, the most effective form of noise mitigation and involves controlling a noise source before it is able to emit potentially offensive noise levels. Construction noise is typically generated by two source types: (i) Stationary equipment; and (ii) Mobile equipment.

166. *Less noisy equipment:* One of the most effective methods of diminishing the noise impacts caused by individual equipment is to use less noisy machinery. By specifying and/or using less noisy equipment, the impacts produced can be reduced or, in some cases, eliminated. Source control requirements may have the added benefits of promoting technological advances in the development of quieter equipment.

167. *Mufflers:* Most construction noise originates from internal combustion engines. A large part of the noise emitted is due to the air intake and exhaust cycle. Specifying the use of adequate muffler systems can control much of this engine noise.

168. *Shields:* Employing shields that are physically attached to the particular piece of equipment is effective, particularly for stationary equipment and where considerable noise reduction is required.

169. *Aprons:* Sound aprons generally take the form of sound absorptive mats hung from the equipment or on frames attached to the equipment. The aprons can be constructed of rubber, lead-filled fabric, or PVC layers with possibly sound absorptive material covering the side facing the machine. Sound aprons are useful when the shielding must be frequently removed or if only partial covering is possible.

170. *Enclosures:* Enclosures for stationary work may be constructed of wood or any other suitable material and typically surround the specific operation area and equipment. The walls could be lined with sound absorptive material to prevent an increase of sound levels within the structure. They should be designed for ease of erection and dismantling.

171. In some situations, such as in urban areas or on isolated sections of a project it may be beneficial and necessary to construct barriers adjacent to the work area or at the right-of-way. These can take the form of natural shielding, temporary shielding, and/or permanent shielding.

172. Temporary abatement techniques include the use of temporary and/or movable shielding for both specific and nonspecific operations. Some mobile shielding is capable of being moved intact or being repeatedly erected and dismantled to shield a moving operation. An example of such a barrier utilizes noise curtains in conjunction with trailers to create an easily movable, temporary noise barrier system.

173. The working time and construction schedule must be arranged rationally, and all engineering entities shall make reasonable arrangements for working time, and engineering activities after 22:00 hours through 8:00 hours the next day shall be strictly prohibited, except as required by the proposed project.

174. As for implementation of the works nearby sensitive receptors including residential, educational and medical facilities, if the noise, vibration and dust level exceeds the permissible level, the construction works must be stopped and additional mitigation actions must be executed. The construction works will not be resumed unless the noise level reaches the norms.

3.3. Impact on Soil

175. Soil pollution may occur as a result of spills, improper waste management, oil leakages from the old outdated techniques or other actions.

176. Soil pollution may occur due to the relocation or replacement of the underground infrastructure in the project zone, as a result of an accidental damage of the pipe(s) or improper management of the polluted soil.

Mitigation measures

177. The following mitigation measures shall be implemented:

- Topsoil must be transported with closed vehicles;
- Cutting the topsoil and piling it in isolation from the lower soil layer and other materials.
- In order to avoid the topsoil erosion, the height of fill must not exceed 2 m and the inclination of the fill slope must not exceed 45^{o};
- Water-diversion channels will be made along the perimeter of the topsoil fill and will be protected against the scattering by the wind blow;
- In case of storing the topsoil for long, measures must be taken to maintain its qualitative properties. Periodic loosening or grass sowing is meant;
- Use of non-faulty construction techniques and vehicles;
- In case of spills of oil/lubricants, the spilled product will be localized/cleaned in the shortest possible time.
- The appliances creating the risk of ground water pollution when in operation will be equipped with drip pans;
- The vehicles must be preferably washed at private car washing areas;
- Using temporal water diversion channels;
- Filling the holes in a timely manner.

3.4. Impact of water sources

178. During implementation of the project the risk of surface water contamination is of minimum level.

179. The surface water may be contaminated due to improper placement of the excavated soil, poor management of construction camps, and improper storage of construction materials and leakage of fuel and lubricates from construction machinery.

180. Inadequate assessment of the hydrological conditions in the Project Area and poor design could result in damage to Project structures. This in turn would result in several impacts including cost to rebuild the structures, potential flooding of construction site and property and impacts to surface water quality.

Mitigation Measures

181. The following mitigation measures shall be implemented:

- Where works are in progress, erosion control and sedimentation facilities including sediment traps and straw bale barriers or combinations thereof will remain in place;
- Lubricants, fuels and other hydrocarbons will be stored at least 50m away from water bodies.
- Topsoil stripped material shall not be stored where natural drainage will be disrupted.
- Solid wastes will be disposed of properly (not dumped in streams).
- Guidelines will be established to minimize the wastage of water during construction operations and at campsites;
- hazardous waste shall have special preventive measures implemented, containers shall have secondary containment and no mixing of hazardous waste with any other waste;
- During construction, machinery and transport will be used by the contractor, both have potential of causing contamination to underground and above ground water assets. There is need to compile temporary drainage management plan before commencement of works;
- Proper installation of temporary drainage and erosion control before works within 50m of water bodies should be done

182. During the construction phase the Contractor will be required to construct, maintain, remove and reinstate as necessary temporary drainage works and take all other precautions necessary for the avoidance of damage to properties and land by flooding and silt washed down from the works. Should any operation being performed by the Contractor interrupt existing irrigation systems, the Contractor will restore the irrigation appurtenances to their original working conditions within 24 hours of being notified of the interruption. The Contractor will also be responsible for ensuring that no construction materials or construction waste block existing drainage channels within the Project corridor.

3.5. Impact on Biological Environment

Flora and Fauna

183. The impacts on flora and fauna during implementation will be minor.

184. If it is necessary to cut down the trees in the project zone, the Contractor will tax the trees to cut down before starting the construction and MoEPA and if necessary Abasha municipality will charge the compensation fee based on the presented taxation. The compensation fee will be paid within the scope of the project by the construction contractor. Then, the compensation planting will be done by the MoEPA or local government. The territory for the compensation planting will be selected by MoEPA if necessary with coordination of Abasha municipality.

185. There are no sensitive areas in the study area, as the number of animals spread here is very low.

186. Despite this, some hazards are to be considered:

- During the construction works, the noise and vibration levels will increase impact and the plants will be covered with dust what will also have an impact on the feeding base and reproduction of the vertebrate and invertebrate animals (Yablokov, Ostroumov, 1985).
- The disturbing factor for the birds and bats nesting near the construction site will increase.
- In case the harmful substances get on the soil, the animals spread nearby will be harmed. The soil and water poisoning may last for many years what will result in an extreme reduction of the numbers of most animal species, which are rare even so (Yablokov, Ostroumov, 1985).

Mitigation measures

187. The following measures need to be implemented to avoid any impacts on flora and fauna:

- Obtaining the permit from Abasha Municipality;
- Cutting down the trees and plants under the supervision of the specialists an authorized agency;
- The expected impact is partly compensated at the expense of re-cultivation and landscaping works;
- Protecting the project perimeter to prevent excess harm to the plants;
- Avoid unplanned tree cutting;
- The trench shall not be kept open in the night/after working hours. This will avoid any safety risk to wild animals;
- The measures to reduce dust emissions during the works;
- The measures to reduce the noise and vibration levels during the works;
- Prohibition of any spills of oil products and other poisoning substances on the ground and in the water.

3.6. Impact on Traffic

188. *Traffic management.* A traffic control and operation plan will be prepared together with the local traffic management authority prior to any construction. The plan shall include provisions for diverting or scheduling construction traffic to avoid morning and afternoon peak traffic hours, regulating traffic at road crossings with an emphasis on ensuring public safety through clear signs, controls and planning in advance;

189. *Information disclosure.* Residents and businesses will be informed in advance through media of the road improvement activities, given the dates and duration of expected disruption. The relevant information leaflets must also be distributed to the transit vehicle drivers crossing the border of the country.

Mitigation measures

190. Clear signs will be placed at construction sites in view of the public, warning people of potential dangers such as moving vehicles, hazardous materials, excavations etc. and raising awareness on safety issues. Heavy machinery will not be used after daylight and all such equipment will be returned to its overnight storage area/position before night. All sites will be made secure, discouraging access by members of the public through appropriate fencing whenever appropriate.

3.7. Impacts on Archaeological Sites

191. Land clearance works, grading and excavations are associated with the risks of damaging underground archaeological remnants. However, in the case of the proposed Project no archaeological monuments are expected to be touched during construction phase. There is a low probability for chance finds of archaeological objects. However, during construction, possibility of appearance of the new archaeological findings still should be taken into account and, therefore, special care should be taken not only at the new construction sites, but also at construction camps and storage areas.

Mitigation Measures

192. In case of necessity preliminary preventive studies and archaeological supervision during the earth-works might be needed. Supervisory procedures and all other necessary measures should

be agreed with the Authority of Culture when obtaining the construction permit, in accordance with the rules of the permit issuance. According to the article 14 of the Law on Cultural Heritage, Permit on conducting quarrying activities in Georgia, as well as construction of an object of a special importance as it may be defined under the legislation of Georgia, is issued by a competent authority based on the positive decision of the National Authority of Culture, Monument Protection. The basis for the conclusion is the archaeological research of the proper territory to be carried out by the entity wishing to accomplish the ground works. The entity wishing to do the earth-works is obliged to submit the Authority the documentation about the archaeological research of the territory in question.

193. Therefore, steps should be taken minimize the risk. This should involve:

- Contractor should put in place a protocol for conducting any excavation work, to ensure that any chance finds are recognized and measures are taken to ensure they are protected and conserved;
- To comply with the previous condition, having excavation observed by a person with archaeological field training. Supervisory procedures and any other necessary measures shall be agreed with the National Authority;
- Stopping work immediately to allow further investigation if any finds are suspected;
- Calling in the state archaeological authority if a find is suspected, and taking any action they require ensuring its removal or protection in situ.

3.8. Waste Management

Municipal Waste

194. Municipal waste can be generated in deferent facilities including Storage area. Mainly this is rubbish, plastic or glass bottles, glasses, waste food, etc. and a stationary waste. Waste should be collected both by the specially assigned personnel and the workshop workers on the area. The waste is placed into special containers and further a local Sanitary Service takes it to landfills. The following should be taken into account:

- Generation of dust, smell and littering should be avoided;
- Waste containers should be closed to prevent spread of the smell and also to avoid contact of rodents and insects with the waste.

195. The personnel involved in the handling of hazardous and non-hazardous waste will undergo specific training in:

- Waste handling
- Waste treatment; and
- Waste storage.

196. Burning of waste on any construction site is forbidden.

Medical Waste

197. Medical waste is generated in the Medical Care and Control Point and belongs to hazardous waste category. This waste is collected in special plastic boxes and is transferred to a contractor for farther incineration. It is recommended that the medical waste is directly transferred to a contractor from the place of its consolidation. While disposal of the medical waste the following requirements are to be met:

- Medical waste must be disposed in special plastic boxes, which can be hermetically closed.
- Medical waste for farther incineration should be transferred to a certified contractor.

Non-Hazardous Construction Waste

198. Non-hazardous construction waste can be generated on the storage and construction area and will be collected by contractors' workers. Waste disposed first on the sites of origin, and then moved to construction waste temporary storage facility before transferred to a contractor.

199. Disposal construction wastes both on the sites and at the temporary storage facilities the following requirements are to meet:

- Place of disposal of the waste concerned must be enclosed;
- The waste must not have access to drainage water;
- Waste must be immediately removed from the working sites;
- Waste must be placed in secondary protective basins;
- Waste can be transferred only to a certified contractor.

200. Any amount of excess spoil produced during construction process is managed by the local municipality for its own purposes.

Hazardous waste

201. No large amounts of hazardous waste are expected to originate in the project construction phase. This waste must be handed over to the sub-contractor having the relevant license. The main area of origination of hazardous waste is the construction camp.

202. Poorly managed solid and/or liquid waste may affect water environment and soil leading to impact on vegetation and wildlife and creating nuisance to local residents. To prevent the impact on environment the waste must be collected and temporarily placed in the pre-selected, agreed area with consideration of requirements applicable to each waste type. All waste must be source-separated in order to ensure proper management and enable reuse. Until removal from the site, domestic waste (food waste, plastic bottles, packaging) must be collected in containers with fitted lid to avoid attraction of scavengers, emanation of odour and scattering by wind.

203. Since there are no landfills for hazardous waste available in Georgia, this category waste must be handed over to authorized contractor for utilization. For hazardous waste agreement with company authorized for treatment (deactivation, incineration) or re-use in other technological processes will be signed.

204. The area allocated for temporary storage of hazardous waste shall have special preventive measures implemented, in particular, containers shall have secondary containment and no mixing of hazardous waste with any other waste shall be allowed. Hazardous waste containers shall be checked for tightness. The staff involved in hazardous waste management shall be trained in waste management and safety issues. The waste shall be removed every 3 days. Treatment, utilization, disposal of waste shall be carried out by an authorized sub-contractor.

205. Soil polluted with petroleum hydrocarbons because of accidental small scale fuel/oil spills (leakages) can be remediated onsite (e.g. in situ bioremediation). Larger spills (less likely to be the case from experience with other similar projects) must be localized, contaminated soil removed by authorized contractor for remediation. New, clean soil must be introduced, followed by re-cultivation. It is recommended to involve an authorized company for this service.

Mitigation Measures

206. Contractor Company before start construction activities shall prepare a company waste management plan. The plan shall generally include:

- Information about waste generated (in particular about its origin, and types, composition and amount of waste defined in the List of Waste);
- Information on the measures to be taken for the prevention of waste generation and its recovery, especially in the case of hazardous waste;
- A description of the method for separation of waste generated, in particular of hazardous waste, from the other waste;
- Methods and conditions for the temporary storage of waste;
- Waste treatment methods applied and/or information on persons to whom waste is transferred for further treatment.

207. On the site allocated for temporary, short term keeping of hazardous wastes ensure compliance with the following safety measures:
    - Use containers suitable for each type of waste;
    - Prohibit use of damaged containers. Check integrity of containers - regularly;
    - Mark containers adequately;
    - Provide secondary containment;
    - Do not mix various waste streams;
    - Hire authorized contractor for hazardous waste removal;
    - In case of large scale spills (that is less likely to happen) – localize the spill, excavate contaminated material and removed by licensed contractor for remediation. New, clean soil will be introduced area cultivated;
    - Train staff in waste management issues.

3.9 Workers Safety during COVID-19 Pandemic Period

208. Construction sites are diverse and vary in complexity. It is recommended that employers apply a risk-based approach and implement reasonably practical controls based on the environment and specific hazards at each construction site.

209. The recommendations/mitigation measures apply to all personnel attending on a building and construction site or project, including management, staff, employees, contractors or service providers.

Table 123. Summary of COVID-19 recommendations and responsibility

Activity/Mitigation measures	Responsible for implementation
To provide employees with the information about the work safety procedures and prevention of virus spread (guided by the recommendations of the Ministry of Internally Displaced Persons from the Occupied Territories, Labor, Health and Social Affairs of Georgia and LEPL L. Sakvarelidze National Center for Disease Control and Public Health);	Employer
To place ads in the workspace about the COVID-19 and its preventive measures defined by the LEPL l. Sakvarelidze National Center for Disease Control and Public Health;	Employer

To ensure maximum use of remote work in relation to those employees who can perform work remotely (administrative personnel);	Employer
To put mattings at the entrance of the lounge room / dining room, with the relevant sign of indication;	Employer
To ensure hand washing at the workspace with appropriate soap and other hygiene products. In case of inability to wash hands, to provide with at least 70% alcohol-based hand cleaning liquids;	Employer
To place hand sanitizers and the instruction for their proper use in a prominent place;	Employer
To ensure that employees have access to hand sanitizers and know how to use them in accordance with the relevant instructions;	Employer
To provide information to all staff and contractors, as well as cleaning staff, on appropriate preventive measures to avoid the spread of coronavirus in the work environment;	Employer
To train the employees on the proper use of personal protective equipment and its subsequent storage / disposal;	Employer
To provide employees with the necessary personal protective equipment (overalls, special shoes, helmet, gloves, medical mask) based on the specifics of their job and establish control over their use;	Employer
Periodically, several times a day ensure natural ventilation of indoor spaces / closets;	Employer
Periodically ensure disinfection of workplaces and frequently used equipment;	Employer
To keep ergonomics in order at the construction site. To ensure the prompt cleaning of workspace and removal of construction waste.	Employer
To ensure placement of closed containers for the disposable napkins and other hygiene waste used by both employees and visitors.	Employer
Follow the rules of hygiene at your workplace;	Employee
Carry out the work process in accordance with the Emergency Action Plan defined by the employer / work safety manager;	Employee
Avoid shaking hands and direct contact with others (touch, etc.) while saluting;	Employee
Avoid gathering, the work of more than 10 people on one work platform at a safe distance (less than 2 m) is not recommended;	Employee
When performing the work, make full use of the personal protective equipment provided by the employer;	Employee
Clean the workplaces and the tools and equipment used during the work process with disinfectants;	Employee
Thoroughly wash your hands with soap and water before and after eating, as well as before and the bathroom. Dry your hands thoroughly after washing;	Employee

Use alcohol-based hand sanitizers in case if you are unable to wash and dry your hands;	Employee
Keep a safe distance (not less than 2 m);	Employee
Cover your mouth with clean napkin or elbow when coughing and sneezing and then throw the used disposable napkin in the trash;	Employee
Avoid touching your eyes, nose, or mouth with your hands.	Employee

3.10 Community Safety Aspect

210. Community safety has to be maintained during construction and a program for traffic safety needs to be continued during its operations. Below are the impacts and mitigation measures concerning over all community safety (Table 14).

Table 134. Project Potential Impacts on Community Safety

Project Potential Impacts on Community Safety	Recommended Mitigation Measures and Monitoring Activities
Pre-Construction Phase	
Community awareness for Safety – Local people's safety should be upheld and maintained	For community wealth and safety, it shall be made sure that: • drinking water demand will not compete with adjacent communities; • there shall be adequate protection to the general public, including safety barriers and marking of hazardous areas; • there shall be safe access across the construction site to people whose settlements and access are temporarily severed by road construction;
Safety to Motorist and pedestrians – Construction sites should be made safe for all passing vehicles	The traffic safety issues shall be accounted for during the design phase of the Project, they including incorporation of: • Safety barriers • Traffic signs • Road Crossings • Speed Bumps • Speed limits Contractor to prepare Traffic Management Plan (TMP) as part of the SSEMP.
Construction Phase	
Traffic Safety – To enable traffic to be unimpeded even during construction traffic safety is the responsibility of the Contractor.	It is important that truck drivers and equipment operators understand the importance of maintaining road safety especially at road junction points. Village access likewise should be accorded due focus for the safety of the general population, especially children, and farm

	animals. Proper coordination should be done to effect road safety. Checking of safety aspects should be done continuously with safety reminder meetings and done regularly. Safety traffic signs and warning lights should be installed at appropriate locations; and flagmen should be assigned at critical spots. Monitoring of this aspect can be conducted jointly by the Contractors' management and the Construction Supervision personnel. Truck drivers and equipment operators must be sensitized to the importance of maintaining road safety especially at road junction points and along roads for the safety of the general population, especially children, and farm animals. Proper coordination with the leaders should be done to effect road safety. Checking of safety aspects should be done continuously with safety reminder meetings conducted regularly. This can be a joint activity of the Contractors' management and the Construction Supervision personnel.
Electrical Systems – Safety in relocating them is important	During construction the Contractor shall ensure that all power lines be kept operational, this may include the provision of temporary transmission lines while existing poles and lines are moved. The only exception to this item will be during periods of blasting when HV power lines will be switched off for safety.

3.11 Occupational health and safety

211. Hazards to construction workers include sharp edges, falling objects, flying sparks, chemicals, noise and various potentially dangerous situations. It is contractors' duty to protect their employees from workplace hazards that can cause injury. A clean environment is also necessary to enable the workers to maintain good health and hygiene. Contractors will be required to:

- prepare and implement a health and safety plan (HSP) as part of their SEMP,
- ensure that a properly equipped and resourced first aid station is available at all times
- provide potable water and adequate sanitation facilities
- provide adequate and well-ventilated camps and clean eating areas
- provide separate sleeping quarters for male and female workers
- provide personal protective equipment (PPE) suitable to tasks and activities undertaken to minimize exposure to a variety of hazards
- provide fire-fighting equipment and fire extinguishers in workshops, fuel storage facilities, construction camps, and any sites where fire hazard and risk are present,
- ensure that all workers are aware of emergency response and medical evacuation procedures.

3.12 Community health and safety

212. Many of the measures to manage occupational health and safety will help mitigate the risk to the community. The movement of construction vehicles, trench excavations, and various activities

may pose hazards to the public, any deep excavations, may also pose hazards to the public. Contractors will be required to:

- implement the various plans to minimize health and safety risks to the public
- use barriers and install signage to keep the public away from constructions sites and excavation sites
- provide prior notification to the community on schedule of construction activities
- provide security personnel in hazardous areas to restrict public access
- operate construction night light in the vicinity of construction sites
- provide adequate safe passage for public, as necessary, across construction sites
- ensure that any access to properties or establishments that have been disrupted or blocked by the ongoing construction activities, are reinstated as quickly as possible or alternative access is provided.

4. ENVIRONMENTAL MANAGEMENT PLAN

213. The Environmental Management Plan (EMP) documents the impacts identified in the report, the actions required to mitigate those impacts to acceptable levels in accordance with the Georgian legal requirements and the ADB safeguard policy, and the monitoring activities that are to be undertaken as part of the project to confirm that the mitigation actions have been effective in achieving their objectives or to initiate corrective actions required.

214. The EMP also details the institutional arrangements and capacities that currently exist, or that will be put in place as part of the project implementation, to ensure that the environmental due diligence (including the EMP) has comprehensively considered both the national and ADB requirements for environmental protection, has identified all likely environmental impacts and proposed appropriate mitigation measures, and has the systems in place to ensure that effective procedures for environmental monitoring and control of the project impacts and mitigation measures are implemented throughout the life of the project.

215. An Environmental Management Plan is presented in Table 15, which outlines the activities and responsibilities associated with monitoring the effectiveness of the proposed mitigation plan and ensuring compliance with the recommendations of the Supplementary IEE.

Table 15. Environmental Management Plan (EMP)

Potential Negative Impacts	**Mitigation measures**	**Responsibility**	**Location**
Pre-construction			
IEE Preparation	Submit IEE for review and comments to ADB	UWSCG	
Grievance Redress Mechanism (GRM)	Prepare GRM Validate requirements with UWSCG	UWSCG, Supervision Consultant (SC)	
Establishing Project	Hire Environmental Specialist	UWSCG	UWSCG
	Training on ADB Environmental	UWSCG	UWSCG

Potential Negative Impacts	Mitigation measures	Responsibility	Location
Implementation Unit (UWSCG)	Safeguards		
Public consultations on detail design IEE/ EMP	Conduct public consultations on decisions made in regards to detail design, present updated IEE/ EMP, and get feedback to consider in final subproject design Explain established GRM, disseminate information and contacts	UWSCG	Abasha Local Service Centre; project area
Pre-construction arrangements	Contractor shall hire a full-time environmental specialist(-s) with relevant background and sufficient experience to ensure compliance with all applicable national laws and regulations; obtain all necessary environmental licenses and permits, and implement EMP requirements	Contractor	City Abasha
	Roles and responsibilities Assign roles and responsibilities related to subproject's Environmental Monitoring and Reporting System	UWSCG	UWSCG
	Environmental Protection Training Conduct environmental protection training on implementation and supervision of subproject's environmental mitigation measures for Supervision Consultant and Contractor	UWSCG	
Biological study of the project area	Prior to start construction activities, contractor should carry out additional biological study of the project area. Results of the work submitted for UWSCG consideration.	Contractor	City Abasha Network
Public Consultations	Consultation should be carried out prior to the start of works to inform residents of upcoming activities, including noise, dust vibration and to make them aware of the GRM System	PA Specialist of Contractor PA Specialist of SC with cooperation of UWSCG and PA department	City Abasha Network
A detailed pre-construction survey of building in the narrow streets of Abasha	Prior to start construction activities contractor should carry out Building survey in the streets of Abasha where there is potential for damage to houses from vibration	Contractor	City Abasha
Roads condition survey	Prior to start of construction, Contractor should conduct condition survey for the	Contractor	City Abasha Network

Potential Negative Impacts	Mitigation measures	Responsibility	Location
	roads likely to be heavily used and damaged by the project prior to the start of construction		
Social Issues	Contractor to hire local workers in case, with similar qualification, and give priority to local representatives	Contractor	Contract documents
Possible removal of Terrestrial habitat. Loss of the top soil	If at the stage of the detailed biological study, there are rare or red-listed species are fixed in the project area, the Contractor is obliged to: • Replant the rare or red-listed species found in the Project area and return them to their original site after the completion of the Project • Attempt to avoid cutting down the trees in the Project zone (by considering the Project alternatives) • Develop a compensatory planting plan and submit it to the relevant bodies for approval, if it is unavoidable to cut down the trees • Pay compensation sum identified by the MoENRP of Georgia	Contractor Environmental Specialist of Contractor	Construction; Construction yard; Storage area WS Pipe construction
A negative impact on soil, water and air may be caused because of an incorrect management of the generated inert waste. Also the generated noise, dust and vibration during demolition may cause a negative impact on the surrounding buildings and population	• Prohibited use of blasting equipment during the demolition process of reservoirs; • No use of heavy duty equipment is allowed; • Prior to the commencement of any activity, the Contractor shall identify whether any machinery or planned action will cause significant vibration. If is the answer is yes, the Contractor is to undertake a condition survey of all structures within the zone of influence; • The Contractor shall monitor vibration at the nearest vibration-sensitive receptors at the start of and during use of non-blasting equipment causing vibration. If vibration levels are monitored and found to exceed the vibration threshold according to relevant criteria, the Contractor shall modify the construction activities until compliance with the criteria has been achieved; • Restrict demolition activities during period of the high winds or under more stable conditions when winds could	Contractor	City Abasha Network Borehole sites

Potential Negative Impacts	Mitigation measures	Responsibility	Location
	nevertheless direct dust towards adjacent communities; • Using a water truck for dust suppression on all exposed areas as required; • Active areas adjacent to residents should be kept damp at all times; • Establish and enforcing vehicle speed limits to minimize dust generation; • Using tarpaulins to cover fugitive loads (for demolition concrete materials) on haul trucks moving off-site; • Select plant and equipment, design work practices, and limit hours of operation to minimize potential impacts as far as practicable; • Operators of noisy equipment or any other workers in the vicinity of excessive noisy equipment are to be provided with ear protection equipment; • Under noisy conditions, do not allow operators or other workers to be exceed the threshold that has been establish for exposure to noise; • Schedule construction so as to minimize the multiple use of the most noisy equipment near sensitive receivers; • Ensure that all equipment is in good repair and operated in the correct manner; • Consult with local residents and building owners the address community concerns		
Construction Stage			
Air quality	**Transportation of materials and vehicle movement:** • All dust generating roads should be watered to suppress dust formation during movement of vehicles, as frequent as necessary depending on circumstances. • During hot dry summer days and active construction works, it is a usual practice to water access roads every two hours. • Trucks carrying earth, sand or stone should be covered with tarpaulins or other suitable cover. **Stockpiles of materials and spoil:**	Contractor	Excavation areas for trenches at Abasha town

Potential Negative Impacts	Mitigation measures	Responsibility	Location
	• All stockpiles should be managed to reduce dust emissions Stockpiles should be located downwind of sensitive receptors, • Stockpiles emitting dust should be sprayed with water prior to moving • If a stockpile is within 300 m of sensitive receptors, precautions should be taken to avoid dust generation, including using of a reusable stockpile cover and fencing to form a high barrier to prevent wind lifting and dispersing **Construction sites:** • Water should be sprayed on construction sites and material handling routes, where fugitive dust is generated • No burning is allowed on any construction sites throughout the project implementation period • Construction vehicles and machinery should be maintained to a high standard to minimize emissions and should avoid unnecessary idling to save fuel and reduce emissions Manufacturing plants locations should be agreed with Supervision Consultant and should be downwind and at least 500 m from nearest residential area		

Potential Negative Impacts	Mitigation measures	Responsibility	Location
Noise	• Noise monitoring should be organized at sensitive receptors (residential buildings, schools, hospitals, religious places) • All exhaust systems should be maintained in good order • Noise generating equipment should be located at least 300 m from any sensitive areas • Noise generating equipment at construction sites should be isolated and, where possible, should be faced away from most sensitive directions • All construction workers should be provided with Personal Protective Equipment (PPE) and use them against high noise and/ or lengthy exposure • Noisy works and vehicle movement near sensitive receptors should be limited to daylight working hours Measures should be taken to reduce any noise disturbance to community, including advance warning on timing of noisy activities, seeking suggestions from community members to reduce noise annoyance, and dissemination of procedure on handling complaints through GRM	Contractor	All Project sites
Vibration	• Prior to the commencement of any activity, the Contractor shall identify whether any machinery or planned action will cause significant vibration. If is the answer is yes, the Contractor is to undertake a condition survey of all structures within the zone of influence; • The Contractor shall monitor vibration at the nearest vibration-sensitive receptors at the start of and during use of non-blasting equipment causing vibration. If vibration levels are monitored and found to exceed the vibration threshold according to relevant criteria, the Contractor shall modify the construction activities until compliance with the criteria has been achieved	Contractor	Project Area
Surface water contamination	• No equipment washing is allowed in any surface water bodies throughout the project implementation period	Contractor	Project Area

Potential Negative Impacts	Mitigation measures	Responsibility	Location
	• No wastewater shall be dumped into any water bodies • Wastewater from Construction yard and construction site should be canalized into septic tanks without contacting ground • Septic tanks should be timely emptied by a hired septic truck and transported to legally approved treatment facility or dumpsite • Fuel storage, equipment maintenance and repair workshops, and vehicle washing areas shall be stationed at least 300 m away from any water body		
Nuisance/ disturbance to sensitive areas Schools, hospitals and religious places due construction work in the proximity (within 250 m of such place)	• No material should be stocked in this area; material shall be brought to the site as and when required • Conduct work manually with small group of workers and less noise; minimize use of equipment and vehicles • Material transport to the site should be arranged considering school timings; material should be in place before school starts; Notify concerned schools, hospitals etc. • 2 weeks prior to the work conduct a 30 minutes awareness program at on nature of work, likely disturbances and risks and construction work, mitigation measures in place, entry restrictions	Contractor	Abasha near sensitive areas of construction sites
Safety risk for local residents and workers	• Exclude public from the site – enclose construction area, provide warning and sign boards, security personnel • Ensure adequate fencing of construction area with locable gate and relevant warning signs (visible at night and in local language) at the entrance and perimeter (these should be visible at night and in local language understandable by workers and communities near worksites); • Proper arrangement of construction site including internal access Walls of the deep trenches (>1.5m) should be strengthened by boards to avoid landfall of the soil and accidents (workers damage)	Contractor	All construction sites

Potential Negative Impacts	Mitigation measures	Responsibility	Location
	• Provide adequate lighting to avoid accidents • Provide warning signs or safety tapes around to all open tranches; Provide relevant information signs at the site • Ensure that all workers are provided with and use safety - helmets, hand gloves, boots, masks, safety belts (while working at heights etc.) • Placement of Household Waste containers at the special dedicated place with relevant indication signs (for example "Household Waste) • Placement of properly Hazardous Waste containers at the special dedicated places with relevant indication signs (for example "Hazardous Waste") • Regularly cleaning of construction area		
Asbestos Cement Pipes Health risk due to exposure to asbestos materials	In case there is found this should comply with national and international standards for dealing with asbestos, and should include: (a) removal of all persons to a safe distance; (b) usage of appropriate breathing apparatus and protective equipment by persons delegated to deal with the AC material; and (c) Procedures for the safe removal and long-term disposal of all asbestos-containing material encountered.	Contractor Supervision Consultant	Abasha construction site
Impact on surface water bodies due to construction	• In case of heavy rain, protect open trenches from entry of rain water by raising earthen bunds with excavated soil • Confine construction area including the material storage (sand and aggregate) so that runoff from upland areas will not enter the site • Ensure that drains are not blocked with excavated soil	Contractor	Project area
Soil Contamination	• The contractors will be required to instruct and train their workforce in the storage and handling of materials and chemicals that can potentially cause soil contamination • Solid waste generated during construction and at construction yard	Environmental Specialist of Contractor	Construction sites

Potential Negative Impacts	Mitigation measures	Responsibility	Location
	will be properly treated and safely disposed of only in demarcated waste disposal sites • Construction chemicals will be managed property • Clearly labelling all dangerous products • Fuel tanks (diesel or oil) should be placed in a concrete pool which its perimeter walls will be at least 1.0 m high with the concrete or plastered masonry wall • A proper floor drain should be installed on the slab of the concrete pool for safely discharging the leakages • Minimize unnecessary encroachment onto adjacent lands to reduce area of disturbance to vegetation and soil • Fertile topsoil layer should be cut and stockpiled separately from spoil material to be readily available for later use in slope stabilization and land reinstatement works • Where possible, surplus soil should be used for earth filling works at approved locations • Excavation width and depth should be kept to a feasible minimum to reduce extra spoil generation • Settling ponds, silt fences and screens should be used to prevent sediment transport into surface water • Works and material handling should be limited during heavy rains and high winds to minimize soil erosion All disturbed sites prior to project completion and commissioning should be reinstated at least to pre-project conditions by (i) cleaning area from wastes and debris, (ii) mechanical remediation and (iii) biological revegetation with native plants		
Impact on Traffic	• Informing all residents and businesses about the nature and duration of any work well in advance so that they can make necessary preparations if necessary • Providing wooden walkways/planks across trenches for pedestrians and	Environmental Specialist of Contractor	Construction site Access Road

Potential Negative Impacts	Mitigation measures	Responsibility	Location
	metal sheets where vehicle access is required • Increasing workforce to complete the work in minimum time in these stretches (i) Plan transportation routes so that heavy vehicles do not use narrow local roads, except in the immediate vicinity of delivery sites; (ii) Schedule transport and hauling activities during non-peak hours; (iii) Locate entry and exit points in areas where there is low potential for traffic congestion; (iv) Keep the site free from all unnecessary obstructions; (v) Drive vehicles in a considerate manner; (vi) Coordinate with Traffic Police for temporary road diversions and with for provision of traffic aids if transportation activities cannot be avoided during peak hours		
Hazardous Materials	• Comply with all national, regional and local legislation with regard to the storage, transport, use and disposal of petroleum, chemical, harmful and hazardous substances and materials • Establish an emergency procedure for dealing with spills or releases of petroleum • Storage of all hazardous material to be safe, tamper proof and under strict control • Petroleum, chemical, harmful and hazardous waste throughout the site must be stored in appropriate, well maintained containers • Any accidental chemical/fuel spills to be eliminated immediately	Environmental Specialist of Contractor	Construction site Storage Area
Solid Waste Management	• Place of disposal of the waste concerned must be enclosed • The waste must be segregated, stored and timely disposed; • The waste must not have access to drainage water • Waste must be immediately removed from the working sites	Environmental Specialist of Contractor	Project area Storage Area Construction yard

Potential Negative Impacts	Mitigation measures	Responsibility	Location
	• Waste must be placed in secondary protective basins • Waste can be transferred only to a certified contractor The personnel involved in the handling of hazardous and non-hazardous waste will undergo specific training in: • Waste handling • Waste treatment • Waste storage		
Loss of top soil	Top soil of about 1 ft depth (0.3 m) shall be removed and stored separately during excavation work, and after pipeline construction the same soil shall be replaced on the top	Environmental Specialist of Contractor	Pipeline work in pasture lands
Impacts on flora and fauna	• Acquire tree cutting permit from local forestry and wildlife department for any trees to be cut under the project • For any tree cut or valuable grassland area disturbed for project needs, replant trees or re-vegetate areas at other approved locations; best practice is three trees planted for one cut • Use only native plants for re-vegetation of disturbed areas • Identify, demarcate and protect sites where small animals, reptiles, and birds of common species live, such as vegetated roadside areas, tree belts, inner areas of bridges, river riparian zones, etc. • Strictly prohibit poaching of wildlife and damaging plants	Contractor	Pipeline work in pasture lands and agricultural land
Erosion due to excavation/refilling	• Ensure proper compaction of refilled soil and there shall not be any loose soil particles on the top; the material shall be refilled in layers and compacted properly layer by layer • In the steep slopes, local grass species shall be planted on the refilled trenches	Environmental Specialist of Contractor	All construction sites
Impact on air quality due to emissions from construction equipment/vehicle	• Ensure that all equipment & vehicles used for construction activity are in good condition and are well maintained • Ensure that all equipment & vehicles confirms to emission and noise norms	Environmental Specialist of Contractor	Abasha town, Network

Potential Negative Impacts	Mitigation measures	Responsibility	Location
Socio-economic benefits from employing local people in construction work	• To the extent possible labour force should be drawn from the local community	Environmental Specialist of Contractor	All construction sites
Socioeconomic impact Impede the access of residents and customers to nearby shops	(i) Leave spaces for access between mounds of soil; (ii) Provide walkways and metal sheets where required for people; (iii) Increase workforce in front of critical areas such as institutions, place of worship, business establishment, hospitals, and schools; (iv) Consult businesses and institutions regarding operating hours and factoring this in work schedules; and (v) Provide sign boards for pedestrians to inform nature and duration of construction works and contact numbers for concerns/complaints	Environmental Specialist of Contractor	All construction sites
Occupational Health and Safety Occupational hazards which can arise during work	(i) Comply with all national, state and local labour laws, including measures such as: (a) excluding public from the site; (b) ensuring all workers are provided with and use personal protective equipment like helmet, gumboot, safety belt, gloves, nose mask and ear plugs; (c) OH&S Training for all site personnel; (d) documented procedures to be followed for all site activities; and (e) documentation of work-related accidents; (iii) Ensure that qualified first-aid can be provided at all times. Equipped first-aid stations shall be easily accessible throughout the site; (iv) Provide medical insurance coverage for workers; (v) Secure all installations from unauthorized intrusion and accident risks; (vi) Provide supplies of potable drinking water; (vii) Provide clean eating areas where workers are not exposed to hazardous or noxious substances; (viii) Provide H&S orientation training to all new workers to ensure that they are apprised of the basic site rules of work at the site, personal protective protection, and preventing injuring to fellow workers; (ix) Provide visitor orientation if visitors to the site can gain access to areas where hazardous conditions or substances may be present. Ensure also that visitor/s do not enter	Environmental Specialist of Contractor	All construction sites

Potential Negative Impacts	Mitigation measures	Responsibility	Location
	hazard areas unescorted; (x) Ensure the visibility of workers through their use of high visibility vests when working in or walking through heavy equipment operating areas; (xi) Ensure moving equipment is outfitted with audible back-up alarms; (xii) Mark and provide sign boards for hazardous areas such as energized electrical devices and lines, service rooms housing high voltage equipment, and areas for storage and disposal. Signage shall be in accordance with international standards and be well known to, and easily understood by workers, visitors, and the general public as appropriate; and (xiii) Disallow worker exposure to noise level greater than 85 dBA for a duration of more than 8 hours per day without hearing protection. The use of hearing protection shall be enforced actively.		
Community Health and Safety Traffic accidents and vehicle collision with pedestrians during material and waste transportation	(i) Plan routes to avoid times of peak-pedestrian activities. (ii) Liaise with UWSCG in identifying high-risk areas on route cards/maps. (iii) Maintain regularly the vehicles and use of manufacturer-approved parts to minimize potentially serious accidents caused by equipment malfunction or premature failure. (iv) Provide road signs and flag persons to warn of on-going	Environmental Specialist of Contractor	All construction sites
Construction yard Temporary air and noise pollution from machine operation, water pollution from storage and use of fuels, oils, solvents, and lubricants Unsanitary and poor living conditions for workers	(i) Consult with UWSCG before locating project offices, sheds, and construction plants; (ii) Minimize removal of vegetation and disallow cutting of trees; (iii) Provide drinking water, water for other uses, and sanitation facilities for employees; (iv) Ensure conditions of livability at Construction yard are maintained at the highest standards possible at all times; Prohibit employees from poaching wildlife and cutting of trees for firewood; (v) Train employees in the storage and handling of materials which can potentially cause soil contamination; (vi) Recover used oil and lubricants and reuse or remove from the site; (vii) Manage solid waste according to the preference hierarchy: reuse, recycling and disposal to designated areas; (viii)	Environmental Specialist of Contractor	Construction yard

Potential Negative Impacts	Mitigation measures	Responsibility	Location
	Ensure unauthorized persons especially children are not allowed in any worksite at any given time		

5. MONITORING

216. Monitoring describes (a) monitoring measures with technical details, including parameters to be measured, methods to be used, sampling locations that will signal the need for corrective actions; and (b) monitoring and reporting procedures to ensure early detection of conditions that necessitate particular mitigation measures and document the progress and results of mitigation.

217. A program of monitoring will be required to ensure that all concerned agencies take the specified action to provide the required mitigation, to assess whether the action has adequately protected the environment, and to determine whether any additional measures may be necessary. Regular monitoring of implementation measures by Civil Contractors will be conducted by the SC, on behalf of Implementing Agency. Monitoring during operation stage will be conducted by the UWSCG.

218. Most of the mitigation measures are fairly standard methods of minimizing disturbance from building in urban areas (maintaining access, planning work to minimize public inconvenience and traffic disruptions, finding uses for waste material, etc). Monitoring of such measures normally involves making observations in the course of site visits, although some require more formal checking of records and other aspects.

219. It should be noted that mitigation measures and environmental monitoring program are covered already by contractor's contract and therefore no additional budget is included in contract variation (VO3).

Table 16: Environmental Monitoring Plan

Item	Parameter	Frequency	Action Level	Response When Action Level Exceeded	Responsibility
Construction					
Ambient Air	Dust	Regularly	Visual assessment during the Works Impact Monitoring	If dustlevels are above acceptable visual levels, implement dust suppression techniques (wetting down area) and/or assess weather conditions and maybe temporarily cease works until conditions ease	Contractor
Noise	(15 minute) Noise Levels	Only as required: Periodic attended Monitoring at hourly intervals at nearest potentially sensitive receivers	+20 dBA for short term (1 Month)	If noise action level is exceeded then review work practices and noise control procedures, including maintenance of equipment, installation of silencers, provision of noise barriers and modification of work hours	Contractor
Vibration	(15 minute) Vibrati on Levels	Only as required: Periodic attended Monitoring at hourly intervals at nearest potentially sensitive receivers	Measurement	If vibration action level is exceeded then review work practices and control procedures	Contractor

Item	Parameter	Frequency	Action Level	Response When Action Level Exceeded	Responsibility
Waste Management Implications	Segregation, Storage and transport of wastes	Periodic attended	- Visual assessment during the Works - Field inspection - Report of waste volumes generated - Report and record all leakages and spills - Impact Monitoring - Compliance Monitoring	Solid waste cycled as 0 % of movement of solids or liquid waste through the soil, rocks, water, atmosphere	Contractor
Ground	Soil Monitoring and Erosion Control	Monitoring at hourly	Assess adequacy of sedimentation/environmental controls on-site Impact Monitoring	If controls have failed or are found inadequate, cease works immediately and repair to an acceptable standard	Contractor
Ecological Resources	Fauna and Flora	intervals at nearest	Minimal ecological impacts Impact Monitoring	Required to ensure the recommended mitigation measures are properly implemented	Contractor
Landscape and Visual	Surface treatment of temporary structures	potentially sensitive	Minimum disturbance of the original landscape. Impact Monitoring	Required to ensure the recommended mitigation measures are properly implemented	Contractor

6. INSTITUTIONAL ARRANGEMENTS, MONITORING AND REPORTING

220. The main institutions that are involved in implementation of the EMP are UWSCG executing agency (EA), Supervision Consultant (SC) the Contractor and to a lesser extent the Ministry of Environment and Natural Resources Protection (MoENRP).

221. Investment Program Management Office (IPMO) established within UWSCG is responsible for the day to day management of the project including implementation of the EMP. The IPMO has an Environmental Specialist who is responsible for management of the environmental aspects of USIIP.

222. The IPMO (Environmental Specialist) responsibilities in respect of implementation of the EMP are as follows:

(i) Approve the Site Specific Environmental Management Plan (SSEMP) before Contractor takes possession of construction site;
(ii) Monitor implementation of EMP and ensure the environmental safeguards compliance;
(iii) Review the updated IEE and/or SEMP and send it for clearance to ADB;
(iv) Ensure that contractors have access to the EMP and IEE report;
(v) Finalize SAEMRs (and Final EMRs upon project completion), send it to ADB and address potential ADB's comments until SAEMR disclosure; Provide ENG and GEO final versions of SAEMRs to be uploaded on UWSCG website;
(vi) Review and approve the Corrective Action Plan and provide to ADB for review and comments if any;
(vii) Participate in public consultations during project implementation;
(viii) In case of need assist IPMO Social/Resettlement Consultant in resolving process of environmental safeguards related complaints;
(ix) Assist in organizing trainings for the Contractors in coordination with ADB/RETA consultant;
(x) Participate in external trainings in environmental management and environmental auditing

223. The SC includes a full time Environmental Specialist to assist the IPMO supervise and monitor implementation of the EMP during construction.

224. The Contractor also appoints a full time Environmental specialist to be a senior member of the construction management team based on site for the duration of the contract. The ES shall have a university degree (preferably at Masters level) in Environmental Science or related discipline and have at least 10 years work experience in environmental management of infrastructure project

225. Department of Environmental Protection and Permits of UWSCG work together with IPMO on addressing the Environmental Safeguard issues of USIIP. More detailed description of implementation arrangements; responsibilities and staffing are provided in the Table 16 below.

Table 17: Institutional Arrangement, Responsabilités and Staffing

#	Millstones/Actions	Contractor (Environmental Specialist)	Construction Supervision Consultant (Environmental Specialist)	IPMO (Environmental Specialist)	Environmental Protection and Permits Department (Environmental Specialist)
1	**Environmental planning and management Contractors Environmental Management Plan (site-specific EMP)**	Prepare Specific EMP (SEMP) with supplemented Topic Specific EMPs at pre-construction stage based on IEE/EMP Implement SEMP approved by IPMO.	Review and endorse the SEMP; Monitor implementation of SEMP on daily basis; Monitor monthly environmental monitoring reports or results prepared by the Contractor and report to IPMO.	Review and approve the SEMPs; Monitor implementation of EMP and ensure the environmental safeguards compliance.	Work together with IPMO on addressing the environmental non-compliance issues, if any.
2	**Changes in design**	Provide details of design changes to CSC required to update IEE/EIA, or SEMP; Implement updated SEMP.	Approve the design change to be submitted to IPMO; Make environmental assessment of the change and update the IEE and/or SEMP.	Review the updated IEE and/or SEMP and send it for clearance to ADB	Liaise with CSC in preparing updated IEE and/or SEMP; Upload the approved IEE/SEMP provided by IPMO to UWSCG website for Public Disclosure.
3	**Unanticipated impacts**	Inform CSC about unanticipated impact and follow the instructions received from IPMO.	Make environmental assessment of the unanticipated impact and update the IEE and/or SEMP	Review the updated IEE and/or SEMP and send it for clearance to ADB	Liaise with CSC in preparing updated IEE and/or SEMP

#	Millstones/Actions	Contractor (Environmental Specialist)	Construction Supervision Consultant (Environmental Specialist)	IPMO (Environmental Specialist)	Environmental Protection and Permits Department (Environmental Specialist)
4	**Reporting**	Prepare monthly environmental monitoring reports and send it to CSC and IPMO	1. Prepare inputs to environmental part of quarterly construction progress reports; 2. Prepare inputs to semi-annual environmental monitoring report (SAEMR) to be submitted to IPMO for further review, comments and improvement. 3. Conduct Post-Construction Final Environmental Audit and prepare final environmental audit report.	1. Finalize SAEMRs (and Final EMRs upon project completion), send it to ADB and address potential ADB's comments until SAEMR disclosure; 2. Provide ENG and GEO final versions of SAEMRs to be uploaded on UWSCG website.	Upload the approved reports (ENG and GEO) provided by IPMO to UWSCG website for Public Disclosure
5	**Permits and clearances**	NA	NA	NA	Obtaining environmental permits and clearances
6	**Non-compliances**	Prepare a corrective action plan (CAP)	Assist contractor in preparing the CAP.	Review and approve the CAP and provide to ADB for review and comments if any.	

#	Millstones/Actions	Contractor (Environmental Specialist)	Construction Supervision Consultant (Environmental Specialist)	IPMO (Environmental Specialist)	Environmental Protection and Permits Department (Environmental Specialist)
7	**Public consultations**	Participate in public consultations during project implementation	Organize public consultations: inform people about activities and prepare the record of consultations.	Participate in public consultations during project implementation	UWSCG & IPMO host PCs, CSC will present the topics related to environmental issues
8	**Grievance Redress Mechanism**	Project site Focal person to record environmental grievances in the logbook and follow up with UWSCG established practice for grievance redress	1. Ensure that grievances, if any, are being properly documented and addressed timely and effectively. 2. Assist IPMO to develop consolidated GRM database and consolidation of GRM cases both for ENV and Social safeguards	In case of need assist IPMO Social/Resettlement Consultant in resolving process of environmental safeguards related complaints; Assist IPMO Social/Resettlement Consultant in GRM database consolidation and data analysis.	UWSCG maintains GRM applicable to all projects. UWSCG will ensure IPMO information on grievances is consolidated into the UWSCG grievances (both - environmental and social) without duplication.
9	**Trainings**	Attend on-site trainings organized by IPMO and ADB/RETA Consultant	Assist the IPMO in organization of trainings for the Contractors on environmental safeguards requirements.	Organize trainings for the Contractors in coordination with ADB/RETA consultant. Participate in external trainings in environmental management and environmental auditing	Participate in external trainings in environmental management and environmental auditing

7. INFORMATION DISCLOSURE, PUBLIC CONSULTATION AND GRM

7.1. Information disclosure and public consultations

226. In order to comply with the Georgian legislation and the ADB requirements and to ensure meaningful consultations, the following actions were done. Information about the project was disseminated by the local government of Abasha Municipality. Any other stakeholders that are identified during project implementation will be brought into the process in the future. Stakeholders of this project include:

- People who live, and work near construction sites of facilities in Abasha Municipality;
- UWSCG as implementing agency;
- Other government regulatory institutions;
- NGOs working in the affected communities;
- Owners and managers of local businesses;
- Other community representatives;
- The beneficiary community in Abasha Municipality in general.

227. The borrower/client will carry out meaningful consultation with affected people and other concerned stakeholders, including civil society, and facilitate their informed participation. Meaningful consultation is a process that: (i) begins early in the project preparation stage and is carried out on an ongoing basis throughout the project cycle; (ii) provides timely disclosure of relevant and adequate information that is understandable and readily accessible to affected people; (iii) is undertaken in an atmosphere free of intimidation or coercion; (iv) is gender inclusive and responsive, and tailored to the needs of disadvantaged and vulnerable groups; and (v) enables the incorporation of all relevant views of affected people and other stakeholders into decision making, such as project design, mitigation measures, the sharing of development benefits and opportunities, and implementation issues.

7.2. Public consultation meetings

Meeting with contractor company and UWSCG representatives

228. On February 17, meeting with contactor company was held in Eptisa Abasha office to discuss project's progress and remained works. Eptisa PA specialist received updated information regarding house connections and water meter installation works in apartment buildings, to plan public consultation meeting with local population.

Public Consultation Meetings

229. On February 18, before starting construction activities of UWSCG Abasha Service Center, during the site visits, UWSCG representatives with ADB environmental specialist has organized public consultation meeting with local population. Main aim of the meeting was to provide information about ongoing works and GRM system to citizens living around construction site. Eptisa PA Specialist took part in the meeting and provided information regarding complaint monitoring system and contact information of UWSCG hotline.

230. Local community members raised a question regarding employment possibilities for locals. UWSCG Representatives explained that during construction works, preference will be given to hiring local staff in accordance with qualifications. The photos and signed list of participants are given in Annex 4.

231. Another public consultation meeting was arranged by UWSCG on July 9, 2020 to ensure

the informed participation of local population in the design changes of the VO#3 of the ABA-01 sub-project, in particular, arrangement of an internal access road for well field located on the land owned by UWSCG (cadastral code 40.10.31.024); rehabilitation of the existing wells; changes in quantity for earthworks for water supply pipes; installation of water meter on existing system in Abasha city and in villages. Installation of new water meter box in Abasha village and make direct connection to house pipeline because the existing boxes don't meet the requirements for installing the fittings inside. The minutes of meeting and signed list of participants are given in Annex 5.

7.3. Grievance Redress Mechanism

232. No GRM was established separately under Abasha Water Supply project, as part of the USIIP. To effectively implement GRM as part of another ADB funded Urban Services Improvement Investment Program implemented by UWSCG, the company issued a special order (No. 122) on April 30, 2014, which was replaced in October 2018 by order No. 196 and apples to all ADB financed projects.

233. The aforementioned Order # 196, gives clear instructions to every involved stakeholder how to act when affected people are impacted by the project. This UWSCG's GRM experience will be used as an example during the implementation of Abasha Water Supply project as well.

234. The Grievance Redress Mechanism (GRM) is a process through which the affected people may voice and seek resolution of concerns throughout the entire project cycle. In this project, the grievance redress mechanism is in place by which the affected people will be fully informed of their rights and procedures for addressing complaints whether verbally or in writing during consultation, DMS, and at the time of receiving compensation and resettlement assistance.

235. According to the Order #196 mentioned above, UWSCG has established a three phased (three-tiered) Grievance Redress Mechanism to be applied during processing the grievances submitted by project affected persons during the implementation for ADB funded projects.

236. **1st phase. A**t the first phase of grievance redress, an authorized representative of Customers Relations Division/Customers Service Office of Regional Branch/Service Center of United Water Supply Company of Georgia, LLC, is to familiarize him/herself with the content of the complaint, register the complaint by Form adopted by Appendix to Order N196 and submit it to GRC, which will review the submitted complaint within two weeks' time.

237. **2nd Phase.** In case the complaint is not resolved at the 1st Phase in two weeks' time, an interested party can address Commission established under Order N196.

238. **3rd Phase.** An interested person is eligible to apply to ADB Resident Mission to the address provided below, in case the GRC fails to resolve problem raised in the complaint and grievance still remains unresolved after two-week time period since its official submission.

239. Responsible person assigned at the local service center will register grievances in the Grievance Log. Temporary offices located at the construction sites also keep the Grievance Log to allow aggrieved person file the claim right on spot.

240. Contact Details (telephone numbers and full names of persons in charge) and the daily hours for receiving phone calls of APs and any interested person is included in the Information Leaflet and also displayed on Public Information Boards in the Local Service Centers and Municipalities within project affected area.

241. **Grievance Resolution Process Cycle.** The complaints and grievances from the APs will be addressed through the process described below:

Table 18. Grievance Resolution Cycle

Phase	Action Level	Process	Timeline
1st Phase	UWSCG Local Service Centre	An authorized representative of Customers Relations Division/Customers Service Office of Regional Branch/Service Centre of United Water Supply Company of Georgia, LLC, is to familiarize him/herself with the content of the complaint, to register the complaint by Form adopted by Appendix 1 to Order N196 and to submit it to GRC, which will review the submitted complaint in two weeks' time	2 weeks
2nd Phase	GRC	In case the complaint is not resolved at the 1st Phase in two weeks' time, an interested party can address Commission established under Order N196. The decisions from majority of the members will be considered final from the GRC and will be issued to AP after signed by GRC members. The case record will be updated and the decision will be communicated to the complainant within 14 days of submission	2 weeks
3rd Phase	ADB Georgia Resident Mission	In case the GRC fails to resolve problem raised in the complaint and grievance still remains unresolved after two-week time period since its official submission, the interested person is eligible to apply to Asian Development Bank Resident Mission	

8. CONCLUSIONS AND RECOMMENDATIONS

8.1. Conclusions

242. Based on results of the conducted Supplementary IEE the following conclusions could be done:

243. The proposed project was assessed against the laws of Georgia and ADB's safeguard. At the stage of the document preparation, possible environmental impacts were identified and relevant mitigation measures were developed.

244. No Vibration and Noise surveys have been envisaged under the project and have not been conducted.

245. Temporary disturbance of local population is expected during the construction works, which shall be connected with the transportation of the construction material and equipment. In other cases, the impact on the social environment shall be positive, because temporary employment of the local population is expected.

246. During the operation the negative impact on physical environment and biological systems is not expected.

247. Project implementation will support local touristic potential, which will enable the government to further develop the tourist infrastructure of the area.

248. The Contractor is obliged to conclude the contract only with the companies holding the license to extract inert materials. If the company decides to extract the inert materials itself and opens a quarry, it is obliged to obtain the permit from the Ministry of Environment and Agriculture of Georgia.

249. To the absence of information, the exact type(s) and volumes of waste expected to originate in the project implementation phase are not clear, particularly during the replacement or relocation of the underground infrastructure. Following the existing practice, there may be sites polluted with sewage waters within the area.

250. The land determined for the construction of Abasha Service-Center is under the ownership of UWSCG, and no population is using the territory for agricultural or other purposes, formally or informally.

251. The rehabilitation of the wells, arrangement of the internal access road for the boreholes and the fencing of the wellfield are envisaged on the existing and operating territory of UWSCG.

252. Construction of additional pipelines are proposed on public roads.

253. Since no household and other private property is to be affected by construction activities envisaged by VO#3 of ABA-01 sub-project, this Due Diligence study concludes that, no land acquisition and resettlement related impacts are expected.

254. In case any claims, or complaints are submitted during construction activities and effective and functioning Grievance Redress Mechanism that is established under the projects financed by ADB, will enhance provision of timely and sensible hearings and facilitate solutions.

8.2. Recommendations

255. Contractor will be responsible for the implementation of the requirements of the EMP through its own SSEMP which will adopt all of the conditions of the EMP and add site specific elements.

256. Implementation of the EMP is a legal requirement according to the Contract. Contractor prepares SSEMP. To ensure compliance with the SSEMP the Contractor should employ an Environmental Manager to monitor and report Project activities throughout the Project Construction phase.

257. The management of the Contractor will provide periodic training and testing regarding the observance of the environmental protection and job safety rules by the personnel engaged in the project implementation activities.

258. A strict control over the observance of the safety requirements and hygienic norms by the personnel will be introduced.

259. The Contractor must undertake all mitigation measures to minimize the noise and other air emissions. In order to reduce the impact of noise emissions on the sensitive receptors.

260. Particular attention must be paid to the process of relocation or replacement of the communication and other urban improvement communications in the project zone and special project must be develop for every particular case with the participation of the companies owning the particular infrastructures.

261. In the project contractor phase, periodical monitoring of noise level and air quality is necessary. If the noise and air pollution levels increase against the admissible standards, it will be necessary to develop and implement additional mitigation measures.

ANNEX 1. THE EXTRACT FROM LEPL NAPR EVIDENCING THE PROPERTY RIGHT ON LAND AND THE PHOTOS OF ABASHA SERVICE-CENTER TERRITORY

The extract from LEPL NAPR

N 40.01.32.523

ამონაწერი საჯარო რეესტრიდან

გარიცხვის რეგისტრაცია	მიღების თარიღი
N 902019001743 - 11/12/2010 18:16:28	17/12/2010 14:33:15

საკუთრების განყოფილება

მიწა	სექტორი	კვარტალი	ნაკვეთი	ნაკვეთის საკუთრების გამიჯვნა
აბაშა	აბაშა			ნაკვეთის დანიშნულება: არასასოფლო სამეურნეო
40	01	32	523	დამუშავებული ფართობი: 383.00 კვ.მ.
მისამართი: ქალაქი აბაშა , ქუჩა თამარ მეფის , N 19				ნაკვეთის წინა ნომერი:40.01.32.381;
				მფლობელობის მიზნობრიობა:N1

მესაკუთრის განყოფილება

გარიცხვის რეგისტრაცია : ნომერი:902019001743 , თარიღი 11/12/2010 18:16:28
უფლების რეგისტრაცია: თარიღი 17/12/2019

უფლების დამადასტურებელი დოკუმენტი:

- ბრძანება N156/ი , დამოწმების თარიღი:11/12/2010 , საქართველოს რეგიონული განვითარებისა და ინფრასტრუქტურის სამინისტრო

მესაკუთრეები:
შპს "საქართველოს გაერთიანებული წყალმომარაგების კომპანია", ID ნომერი:412670007

მესაკუთრე:	წილი:
შპს "საქართველოს გაერთიანებული წყალმომარაგების კომპანია"	

იპოთეკა

საგამონახადო განაცხადი:

რეგისტრირებული არ არის

ვალდებულება

ყადაღა/აკრძალვა:

რეგისტრირებული არ არის

მოთხოვნა რეესტრი:

რეგისტრირებული არ არის

[2]Cadastral Code of Land (immovable property) N 40.01.32.523

Extract from Public Registry

Registration of Application	**Date of Preparation**
N902019901743 - 11/12/2019 18:16:28	**17/12/2019 14:33:15**

Property Section

Zone	**Sector**	**Block**	**Land Plot**
40	**01**	**32**	**523**

Property Type:	**Property**
Designation:	**non-agricultural**
Exact Area:	**383 sq. m.**
Previous N of plots:	**40.01.32.381**
List of structures:	**N1**

Address: Abasha City, King Tamar str N19

Owner's Section

Registration of application	**Number: 902019901743**	**Date: 11/12/2019 18:16:28**
Registration of right:	**Date: 17/12/2019**	

Document evidencing the right:

Order N156/O, date of certification: 11/12/2019, Minister of Regional Development and Infrastructure

Owners:

United Water Supply Company of Georgia, LLC; ID Number: 412670097

Owner:	**Description:**
United Water Supply Company of Georgia	

[2] English translation of extract from Public Registry above

Mortgage

Tax lien:

Not registered

Usage

Not registered

THE PHOTOS OF ABASHA SERVICE-CENTER TERRITORY

ANNEX 2. THE EXTRACT FROM LEPL NAPR EVIDENCING THE PROPERTY RIGHT ON LAND AND THE PHOTOS OF ABASHA WELLFIELD

The extract from LEPL NAPR

ამონაწერი საჯარო რეესტრიდან

განცხადების რეგისტრაცია
N 882011445116 - 13/09/2011 12:39:26

მომზადების თარიღი
14/09/2011 16:58:31

საკუთრების განყოფილება

მთა	სექტორი	კვარტალი	ნაკვეთი
აბაშა	სამიქაო		
40	10	31	024

მისამართი: რაიონი აბაშა , სოფელი სამიქაო

ნაკვეთის საკუთრების ტიპი: საკუთრება
ნაკვეთის ფუნქცია: არასასოფლო სამეურნეო
დაშენებული ფართობი: 165654.00 კვ.მ.
ნაკვეთის წინა ნომერი:
შენობა-ნაგებობის რამოდენობა: დაშენების ფართი N1. 38 კვ.მ. N2. 65 კვ.მ. N3. 41 კვ.მ.

მესაკუთრის განყოფილება

განცხადების რეგისტრაცია : ნომერი 882011445116 , თარიღი 13/09/2011 12:39:26
უფლების რეგისტრაცია: თარიღი 14/09/2011

უფლების დამადასტურებელი დოკუმენტი:

- ბრძანება N71/ი , დამოწმების თარიღი:05/09/2011 , საქართველოს რეგიონული განვითარებისა და ინფრასტრუქტურის მინისტრი

მესაკუთრეები:
შპს საქართველოს გაერთიანებული წყალმომარაგების კომპანია, ID ნომერი:412670097

მესაკუთრე:
შპს საქართველოს გაერთიანებული წყალმომარაგების კომპანია

აღწერა:

იპოთეკა

საგანგაშო განაცხადი:

რეგისტრირებული არ არის

ვალდებულება

ყადაღა/აკრძალვა:

რეგისტრირებული არ არის

[3]Cadastral Code of Land (immovable property) N 40.10.31.024

Extract from Public Registry

Registration of Application **Date of Preparation**

[3] English translation of extract from Public Registry above

N882011445116 - 13/09/2011 14/09/2011 16:58:31 12:39:26

Property Section

Zone	Sector	Block	Land Plot
40	10	31	024

Property Type:	**Property**
Designation:	**non-agricultural**
Exact Area:	**165654 sq. m.**
Previous N of plots:	
List of structures:	**N1-38sq.m,**
	N2-65sq.m,
	N3-41sq.m

Address: Abasha Municipality, village Samikao

Owner's Section

Registration of application	**Number: 882011445116**	**Date: 13/09/2011 12:39:26**
Registration of right:	**Date: 14/09/2011**	

Document evidencing the right:

Order N71/O, date of certification: 05/09/2011, Minister of Regional Development and Infrastructure

Owners:

United Water Supply Company of Georgia, LLC; ID Number: 412670097

Owner:	**Description:**
United Water Supply Company of Georgia	

Mortgage

Tax lien:

Not registered

Usage

Not registered

The photos of Abasha wellfield

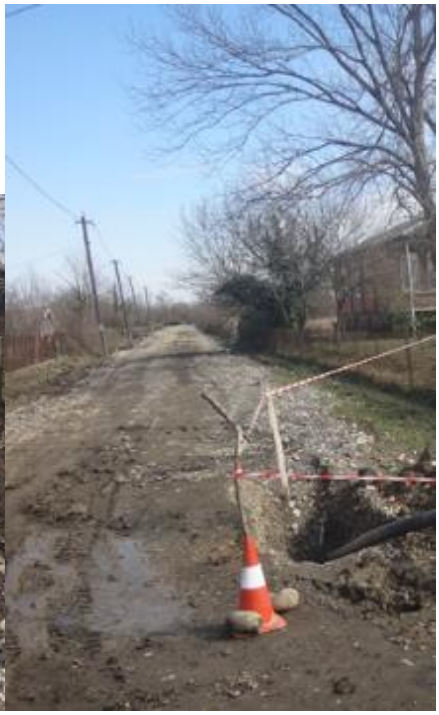
Fence

Access road


Samsung Dual Camera


Samsung Dual Camera

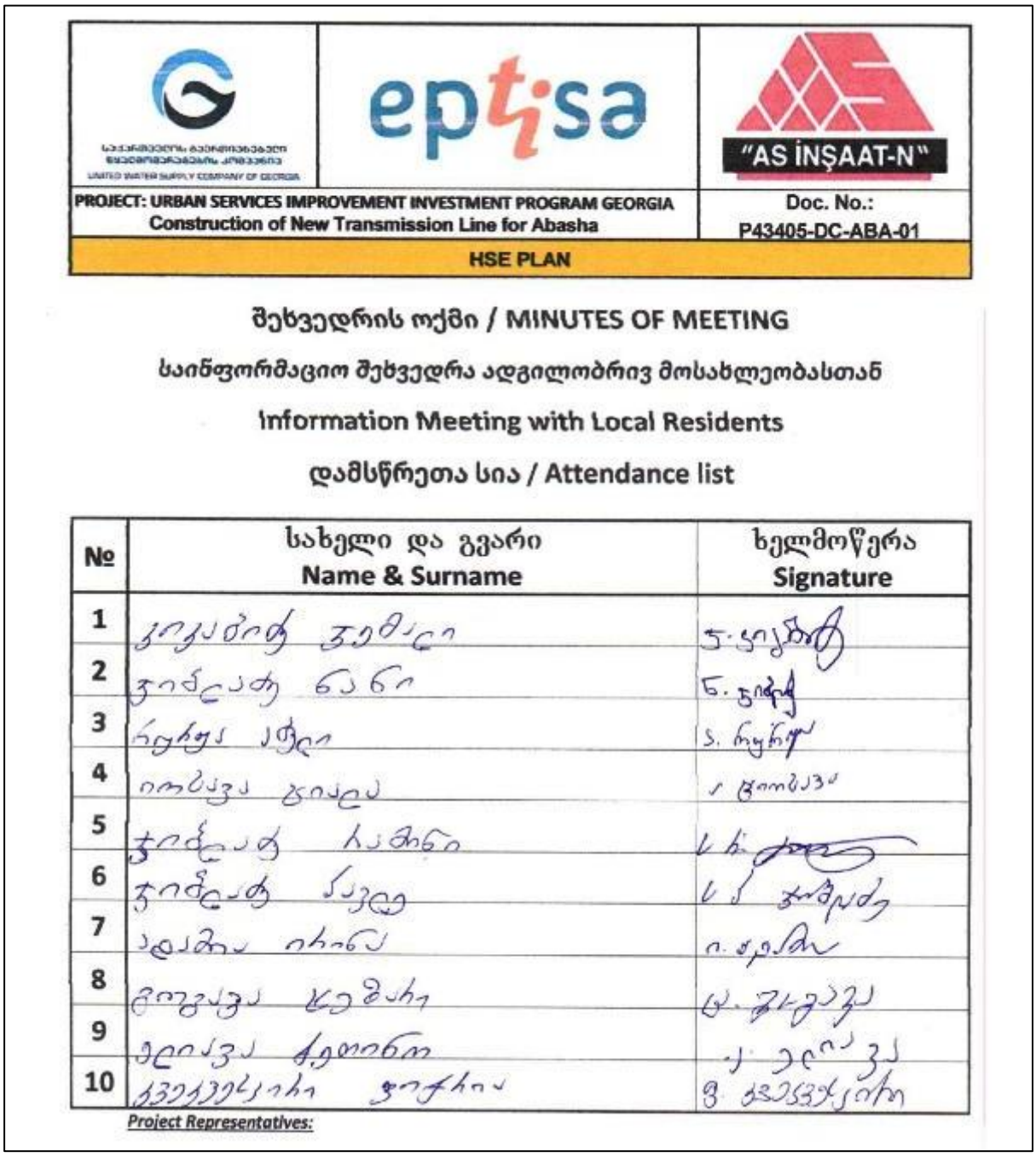
ANNEX 3. THE PHOTOS OF THE PIPELINE CONSTRUCTION TERRITORY



ANNEX 4. THE LIST OF PARTICIPANTS AND PHOTOS

PHOTOS, Meeting with local population, February 18 2020

THE LIST OF PARTICIPANTS, February 18, 2020



	eptisa	"AS İNŞAAT-N"
PROJECT: URBAN SERVICES IMPROVEMENT INVESTMENT PROGRAM GEORGIA Construction of New Transmission Line for Abasha		Doc. No.: P43405-DC-ABA-01
HSE PLAN		

შეხვედრის ოქმი / MINUTES OF MEETING

საინფორმაციო შეხვედრა ადგილობრივ მოსახლეობასთან

Information Meeting with Local Residents

დამსწრეთა სია / Attendance list

№	სახელი და გვარი Name & Surname	ხელმოწერა Signature
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		

Project Representatives:

	eptisa	"AS İNŞAAT-N"
PROJECT: URBAN SERVICES IMPROVEMENT INVESTMENT PROGRAM GEORGIA Construction of New Transmission Line for Abasha		Doc. No.: P43405-DC-ABA-01
HSE PLAN		

შეხვედრის ოქმი / MINUTES OF MEETING

საინფორმაციო შეხვედრა ადგილობრივ მოსახლეობასთან

Information Meeting with Local Residents

დამსწრეთა სია / Attendance list

№	სახელი და გვარი Name & Surname	ხელმოწერა Signature
1	[illegible]	[illegible]
2	[illegible]	[illegible]
3	[illegible]	[illegible]
4	[illegible]	[illegible]
5	[illegible]	[illegible]
6	[illegible]	[illegible]
7	[illegible]	[illegible]
8	[illegible]	[illegible]
9	[illegible]	[illegible]
10	[illegible]	[illegible]

Project Representatives:

საქართველოს გაერთიანებული წყალმომარაგების კომპანია UNITED WATER SUPPLY COMPANY OF GEORGIA	eptisa	"AS İNŞAAT-N"
PROJECT: URBAN SERVICES IMPROVEMENT INVESTMENT PROGRAM GEORGIA **Construction of New Transmission Line for Abasha**		**Doc. No.:** **P43405-DC-ABA-01**
HSE PLAN		

შეხვედრის ოქმი / MINUTES OF MEETING

საინფორმაციო შეხვედრა ადგილობრივ მოსახლეობასთან

Information Meeting with Local Residents

დამსწრეთა სია / Attendance list

№	სახელი და გვარი Name & Surname	ხელმოწერა Signature
1	კიკაბიძე თენგიზი	
2	მელენიძე როზა	
3	მემენავა მალხაზი	
4	მემენავა ავთო	
5	მემენავა რევაზი	
6	მემენავა ნოდარი	
7	მალაზონია მანანა	
8	მელენიძე [illegible]	
9	მემენავა მარცვა	
10	მემენავა მანანა	

Project Representatives:

PROJECT: URBAN SERVICES IMPROVEMENT INVESTMENT PROGRAM GEORGIA
Construction of New Transmission Line for Abasha

Doc. No.: P43405-DC-ABA-01

HSE PLAN

MINUTES OF MEETING

Information Meeting with Local Residents

Attendance list

№	სახელი და გვარი Name & Surname	ხელმოწერა Signature
1	[illegible]	[illegible]
2	ჯიქია თამაზი	[illegible]
3	[illegible]	[illegible]
4	[illegible]	[illegible]
5	[illegible]	[illegible]
6		
7		
8		
9		
10		

Project Representatives:

ANNEX 5. MINUTES OF THE MEETING AND THE LIST OF PARTICIPANTS

Minutes of the Meeting

Subject: Public Consultation, VO#3, ABA-01 sub-project: Rehabilitation of Abasha Water Supply System, USIIP/T3.

Time and venue: Abasha city; July 9, 2020.

Attendees: local population, representatives of SC, CC and UWSCG's local Service Center.

Public Consultation with local population was undertaken: to ensure their informed participation in the design changes of the VO#3 of the ABA-01 sub-project, in particular, arrangement of an internal access road for well field located on the land owned by UWSCG (cadastral code 40.10.31.024); rehabilitation of the existing wells; changes in quantity for earthworks for water supply pipes; installation of water meter on existing system in Abasha city and in villages. Installation of new water meter box in Abasha village and make direct connection to house pipeline because the existing boxes don't meet the requirements for installing the fittings inside.

The following topics were discussed during the meeting:

Mr. Nodar Usupashvili opened the meeting and presented the rehabilitation and construction works under VO#3 of ABA-01 sub-project to meeting participants. He reviewed the measures to be employed to prevent, reduce or mitigate any adverse impact.

The aim of the meeting was to provide information about ongoing works and GRM system to citizens living around construction site. During the presentation, the public was once again informed about the existing Grievance Redress Mechanism, which is established by UWSCG under the order N196 for the projects financed by ADB.

After the presentation finished, discussion ensured. Local community members raised a question regarding employment possibilities for locals, UWSCG social Department Representative explained that during construction works, preference will be given to hiring local staff in accordance with qualifications.

The following questions were asked from the local population.

Question	Answer
Who finances Abasha Water Supply Improvement Project?	The Asian Development Bank finances the project
Was the local population hired during the implementation of the ABA-01 project?	Similar to other ongoing projects, the local population were employed for this project too
How much will be the tariff?	Tariff has not been determined by GNERC yet. Only per capita tariff is known
How many streets will be involved in ABA-01 sub-project under VO#3	Representatives of the contractor and UWSCG gave detailed explanation to the local population about the new pipeline construction and connections that will ensure the coverage of 100% of water supply network. They also explained to the attendees that all the construction works for the pipelines will be conducted on the public roads an there will be no impact on private property.
Who is responsible for the restoration of roads after completion of the rehabilitation works and who	SC and UWSCG are responsible for the supervision works while contractor will carry out restoration

will do it?	works
What is date of completion of the ABA-01 sub-project?	By the end of 2020
Who is responsible for repair and maintenance of pipes in case of damage during the operation?	UWSCG's local service center
Who will supervise and monitor construction and operation of the project?	Construction process will be supervised by Supervision Consultant Eptisa and UWSCG

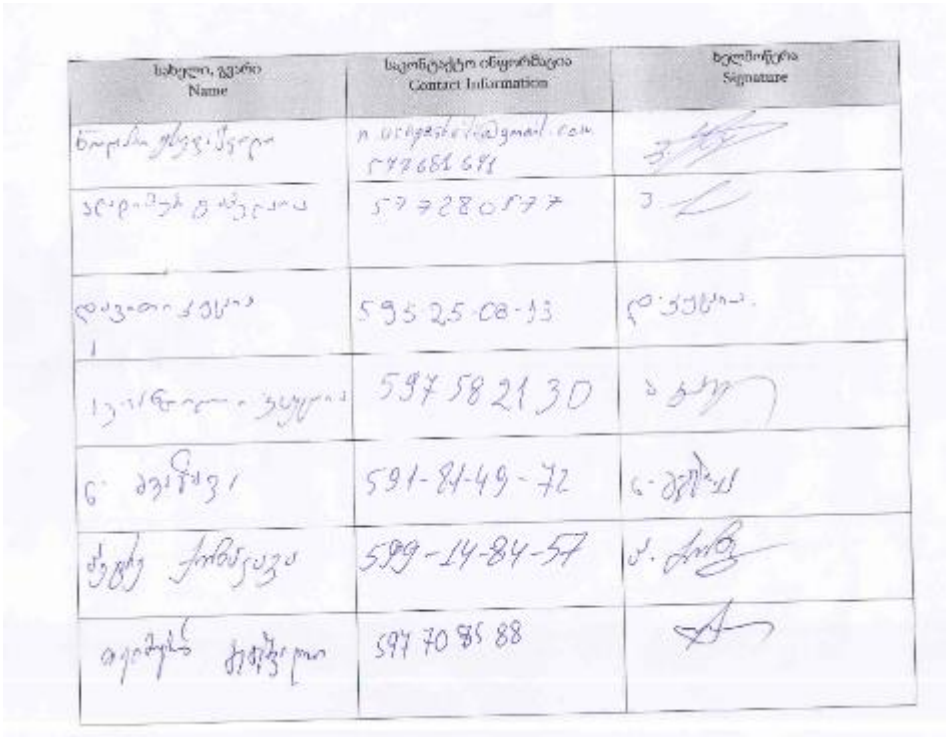
THE LIST OF PARTICIPANTS

აბაშის წყალმომარაგების სისტემის გაუმჯობესების პროექტი (ABA-01)
საჯარო განხილვები

Improvement of Abasha Water Supply System Sub-project (ABA-01)
Public Consultations

09 July 2020

სახელი, გვარი Name	საკონტაქტო ინფორმაცია Contact Information	ხელმოწერა Signature
[illegible]	577380303 [illegible]@yahoo.com	[illegible]
[illegible]	577 17 70 16 [illegible]@yahoo.com	[illegible]
[illegible]	599229925 UWSEG	[illegible]
[illegible]	[illegible]	[illegible]



სახელი, გვარი Name	საკონტაქტო ინფორმაცია Contact Information	ხელმოწერა Signature
[illegible]	[illegible]@gmail.com 577681691	[illegible]
[illegible]	577280577	[illegible]
[illegible]	595 25 08 13	[illegible]
[illegible]	597 58 21 30	[illegible]
[illegible]	591-84-49-72	[illegible]
[illegible]	599-14-84-57	[illegible]
[illegible]	597 70 85 88	[illegible]

სახელი, გვარი Name	საკონტაქტო ინფორმაცია Contact Information	ხელმოწერა Signature
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[illegible]	568-01-12-61	[illegible]
[illegible]	598.55.03.60	[illegible]
[illegible]	574051137	[illegible]
[illegible]	551.06.12.12	[illegible]
[illegible]	571 51 [illegible]	[illegible]
[illegible]	592 19 19 43	[illegible]

სახელი, გვარი Name	საკონტაქტო ინფორმაცია Contact Information	ხელმოწერა Signature
[illegible]	551-34-67-67	[illegible]
[illegible]	599-42.02.77	[illegible]
[illegible]	351-866-966	[illegible]
[illegible]	568-74-25-12	[illegible]
[illegible]	551-12-33-80	[illegible]
[illegible]	598-44-23-00	[illegible]